Board of Supervisors

Operations Cluster Agenda Review Meeting

DATE: January 15, 2025
TIME: 2:00 p.m. – 4:00 p.m.
MEETING CHAIR: Michelle Vega, 5th Supervisorial District
CEO MEETING FACILITATOR: Thomas Luscombe

THIS MEETING IS HELD UNDER THE GUIDELINES OF BOARD POLICY 3.055

~~To participate in this meeting in-person, the meeting location is:~~
~~Kenneth Hahn Hall of Administration~~
~~500 West Temple Street~~
~~Los Angeles, California 90012~~
~~Room 374-A~~

THIS MEETING WILL BE CONDUCTED 100% VIRTUALLY

To participate in this meeting virtually, please call teleconference number 1 (323) 776-6996 and enter the following 522268816# or Click here to join the meeting

Teams Meeting ID: 237 250 878 670
Passcode: UoBQAE

For Spanish Interpretation, the Public should send emails within 48 hours in advance of the meeting to ClusterAccommodationRequest@bos.lacounty.gov

Members of the Public may address the Operations Cluster on any agenda item during General Public Comment.
The meeting chair will determine the amount of time allowed for each item.
THIS TELECONFERENCE WILL BE MUTED FOR ALL CALLERS. PLEASE DIAL *6 TO UNMUTE YOUR PHONE WHEN IT IS YOUR TIME TO SPEAK.

1. CALL TO ORDER

2. GENERAL PUBLIC COMMENT

3. BOARD MOTION ITEM(S):

None available.

4. DISCUSSION ITEM(S):

A) Board Letter:
RELOCATION REIMBURSEMENT FOR CHIEF DEPUTY DIRECTOR, ISD (UC)
CEO/Class - Ann Havens, Senior Manager

B) Board Letter:
REQUEST APPROVAL TO EXECUTE CONTRACT NUMBER 25-003 WITH SCANNER HOLDINGS CORPORATION FOR IBML SCANNER TALLY MAINTENANCE AND SUPPORT SERVICES
RRCC/CIO – Jerome Jordan, Assistant RR/CC, Administration and
Aman Bhullar, Assistant RR/CC, Information Technology

C) Board Letter:
APPROVAL TO AMEND A SOLE SOURCE DATA MANAGEMENT SERVICES CONTRACT WITH AUTOMATED CASE MANAGEMENT SYSTEMS, INC. TO EXTEND THE TERM THROUGH FEBRUARY 28, 2026
DPH/CIO – Marshall Ramsey, Departmental Chief Information Officer and
Mike Jansen, Senior Information Systems Analyst

D) Board Memo:
ADVANCE NOTIFICATION OF INTENT TO ENTER INTO NEGOTIATIONS FOR A SOLE SOURCE AMENDMENT TO EXTEND CONTRACT NUMBER 79065 WITH MLQ & LO CONSULTING LLC TO PROVIDE CONTINUED AS-NEEDED MAINTENANCE AND SUPPORT SERVICES
LASD/CIO – Alejandra Madera, Contracts Manager

E) Board Letter:
LOS ANGELES COUNTY MUSEUM OF NATURAL HISTORY
LA BREA TAR PITS MASTER PLAN PROJECT
CERTIFY THE FINAL ENVIRONMENTAL IMPACT REPORT, ADOPT THE MITIGATION MONITORING AND REPORTING PROGRAM AND ENVIRONMENTAL FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS, AND APPROVE THE PROJECT
NHM – Leslie Negritto, Chief Financial and Operating Officer and
Chebon Marshall, Chief of Staff

F) Board Letter:
CHIEF EXECUTIVE OFFICE RISK MANAGEMENT ANNUAL REPORT, FISCAL YEAR 2023-24
CEO/RM – Destiny Castro, Acting Branch Manager

5. PRESENTATION ITEM(S):

None available.

6. ADJOURNMENT

UPCOMING ITEM(S):

A) CEO/RE - THREE-YEAR LEASE AMENDMENT
EXECUTIVE OFFICE OF THE BOARD OF SUPERVISORS
312 SOUTH HILL STREET, LOS ANGELES

B) LASD/CIO - ADVANCE NOTIFICATION OF INTENT TO ENTER INTO NEGOTIATIONS FOR A SOLE SOURCE AMENDMENT TO EXTEND CONTRACT NUMBER 78830 WITH DELTAWRX LLC TO PROVIDE CONTINUED COMPUTER AIDED DISPATCH AND RECORDS MANAGEMENT SYSTEM CONSULTING SERVICES

IF YOU WOULD LIKE TO EMAIL A COMMENT ON AN ITEM ON THE OPERATIONS CLUSTER AGENDA, PLEASE USE THE FOLLOWING EMAIL AND INCLUDE THE AGENDA NUMBER YOU ARE COMMENTING ON:

OPS_CLUSTER_COMMENTS@CEO.LACOUNTY.GOV

BOARD LETTER/MEMO
CLUSTER FACT SHEET

☒ Board Letter ☐ Board Memo ☐ Other

CLUSTER AGENDA REVIEW DATE	1/15/2025
BOARD MEETING DATE	2/4/2025
SUPERVISORIAL DISTRICT AFFECTED	☒ All ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th
DEPARTMENT(S)	CHIEF EXECUTIVE OFFICE
SUBJECT	RELOCATION REIMBURSEMENT FOR CHIEF DEPUTY DIRECTOR, ISD (UC)
PROGRAM	
AUTHORIZES DELEGATED AUTHORITY TO DEPT	☐ Yes ☒ No
SOLE SOURCE CONTRACT	☐ Yes ☒ No
	If Yes, please explain why:
SB 1439 SUPPLEMENTAL DECLARATION FORM REVIEW COMPLETED BY EXEC OFFICE	☐ Yes ☒ No - Not Applicable
DEADLINES/ TIME CONSTRAINTS	
COST & FUNDING	Total cost: $10,000
	TERMS (if applicable):
	Explanation:
PURPOSE OF REQUEST	
BACKGROUND (include internal/external issues that may exist including any related motions)	Approve reimbursement of up to $10,000 for reasonable actual relocation costs for Quintin Haynes.
EQUITY INDEX OR LENS WAS UTILIZED	☐ Yes ☒ No If Yes, please explain how:
SUPPORTS ONE OF THE NINE BOARD PRIORITIES	☐ Yes ☒ No If Yes, please state which one(s) and explain how:
DEPARTMENTAL CONTACTS	Name, Title, Phone # & Email: Ann Havens, Senior Manager, (213) 974-9960, ahavens@ceo.lacounty.gov

CEO February 4, 2025
Relocation Reimbursement for Chief Deputy Director, ISD (UC)
Board Letter Summary

CEO Classification/Compensation Contact Information:
Ann Havens, Senior Manager, (213) 974-9960, AHavens@ceo.lacounty.gov

This Board Letter includes:

Recommendation to approve the Department of Internal Services' request for relocation expenses for Quintin Haynes to serve as Chief Deputy Director, ISD (UC).

BOARD OF SUPERVISORS
Hilda L. Solis, First District
Holly J. Mitchell, Second District
Lindsey P. Horvath, Third District
Janice Hahn, Fourth District
Kathryn Barger, Fifth District

COUNTY OF LOS ANGELES
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 713, Los Angeles, CA 90012
(213) 973-1101 ceo.lacounty.gov

CHIEF EXECUTIVE OFFICER
Fesia A. Davenport

"To Enrich Lives Through Effective and Caring Service"

February 4, 2025

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

RELOCATION REIMBURSEMENT FOR CHIEF DEPUTY DIRECTOR, ISD (UC)
(ALL DISTRICTS) (3 VOTES)

SUBJECT

Recommendation to approve the Department of Internal Services' request for relocation expenses for Quintin Haynes to serve as Chief Deputy Director, ISD (UC).

IT IS RECOMMENDED THAT THE BOARD:

Approve reimbursement of up to $10,000 for reasonable actual relocation costs for Mr. Haynes.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The purpose of the recommended action is to authorize the payment of reasonable actual relocation costs for Mr. Haynes to the Los Angeles County area.

Implementation of Strategic Plan Goals

These recommended actions support the County's Strategic Plan North Star 3 – Realize Tomorrow's Government Today, Focus Area Goal B – Diverse and Inclusive Workforce, Strategy 2 – Fairness and Equity.

FISCAL IMPACT/FINANCING

The relocation costs will be absorbed within the Department of Internal Services' Fiscal Year 2024-2025 Adopted Budget.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

Relocation reimbursement is appropriate for Mr. Haynes to move from out of state to assume the position of Chief Deputy Director, ISD (UC).

IMPACT ON CURRENT SERVICES (OR PROJECTS)

Implementation of this recommendation will provide leadership for the Department of Internal Services.

Respectfully submitted,

{{Sig_es_:signer1:signature}}

FESIA A. DAVENPORT
Chief Executive Officer

FAD:JMN:AYH
NV:JL:va

Enclosures

c: Executive Office, Board of Supervisors
County Counsel
Auditor-Controller
Human Resources
Internal Services

BOARD LETTER/MEMO
CLUSTER FACT SHEET

☒ Board Letter ☐ Board Memo ☐ Other

CLUSTER AGENDA REVIEW DATE	1/15/2025
BOARD MEETING DATE	2/4/2025
SUPERVISORIAL DISTRICT AFFECTED	☒ All ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th
DEPARTMENT(S)	Registrar-Recorder/County Clerk (RR/CC)
SUBJECT	REQUEST APPROVAL TO EXECUTE CONTRACT NUMBER 25-003 WITH SCANNER HOLDINGS CORPORATION FOR IBML SCANNER TALLY MAINTENANCE AND SUPPORT SERVICES
PROGRAM	N/A
AUTHORIZES DELEGATED AUTHORITY TO DEPT	☒ Yes ☐ No
SOLE SOURCE CONTRACT	☐ Yes ☒ No If Yes, please explain why:
SB 1439 SUPPLEMENTAL DECLARATION FORM REVIEW COMPLETED BY EXEC OFFICE	☒ Yes ☐ No – Not Applicable **If unsure whether a matter is subject to the Levine Act, email your packet to EOLevineAct@bos.lacounty.gov to avoid delays in scheduling your Board Letter.**
DEADLINES/ TIME CONSTRAINTS	The current contract for services ends on March 3, 2025.
COST & FUNDING	Total cost: $4,590,300 ($3,072,400 (Initial Term) and $1,517,900 Extension Option Terms) Funding source: Funding for initial extension is included in RR/CC's FY 2024-25 Adopted Budget. Funding for the optional extensions will be requested through the annual budget process, as necessary. TERMS (if applicable): March 3, 2025 to March 2, 2030 with up to two (2) additional one-year optional periods and six (6) month-to-month extensions, from March 3, 2030 to October 2, 2032. Explanation:
PURPOSE OF REQUEST	Requests approval to execute Contract #25-003 with Scanner Holdings Corporation (ibml) to provide election specific Tally Maintenance and Support (Tally M&S) services to cover twenty-four (24) scanners utilized in election ballot processing during elections. Ensuring optimum performance is critical to maintaining the accuracy of election results.
BACKGROUND (include internal/external issues that may exist including any related motions)	The California Secretary of State (CaSOS) certified the Voting Solutions for All People® (VSAP) Tally system, a new voting system designed to process the new full-face Vote by Mail (VBM) ballots. The RR/CC has deployed 24 scanners. The current contract for Tally M&S services expires on March 2, 2025. The RR/CC completed Invitation for Bids (IFB) #23-013 contract solicitation for services.
EQUITY INDEX OR LENS WAS UTILIZED	☐ Yes ☒ No If Yes, please explain how:
SUPPORTS ONE OF THE NINE BOARD PRIORITIES	☐ Yes ☒ No If Yes, please state which one(s) and explain how:
DEPARTMENTAL CONTACTS	Name, Title, Phone # & Email: Jerome Jordan, Assistant Registrar-Recorder/County Clerk, Administration (562) 462-2652 jjordan@rrcc.lacounty.gov Aman Bhullar Assistant Registrar-Recorder/County Clerk, Information Technology (562) 462-2714 abhullar@rrcc.lacounty.gov

LOS ANGELES COUNTY
REGISTRAR-RECORDER/COUNTY CLERK

DEAN C. LOGAN
Registrar-Recorder/County Clerk

February 4, 2025

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of
Administration
500 West Temple Street
Los Angeles, California 90012

Dear Supervisors:

REQUEST APPROVAL TO EXECUTE CONTRACT NUMBER 25-003 WITH SCANNER HOLDINGS CORPORATION FOR IBML SCANNER TALLY MAINTENANCE AND SUPPORT SERVICES

(ALL SUPERVISORIAL DISTRICTS) (3 VOTES)

CIO RECOMMENDATION: APPROVE ( ) APPROVE WITH MODIFICATION ( ) DISAPPROVE ( )

SUBJECT

The Registrar-Recorder/County Clerk (RR/CC) requests approval to execute Contract #25-003 with Scanner Holdings Corporation (ibml) to provide election specific Tally Maintenance and Support (Tally M&S) services. These services cover twenty (20) ImageTrac 6400 scanners and four (4) Fusion 8400 document scanners (ibml scanners) utilized in election ballot processing. Ensuring optimum performance is critical to maintaining the accuracy of election results.

IT IS RECOMMENDED THAT THE BOARD:

1. Delegate authority to the RR/CC, or designee, to execute a contract with ibml to provide Tally M&S services, substantially similar to Attachment I, effective March 3, 2025 to March 2, 2030 for $3,072,400 provided that approval is obtained from the Chief Executive Office and County Counsel;

2. Delegate authority to the RR/CC, or designee, to execute future amendments to extend the contract for up to two (2) additional one-year optional periods and six (6) month-to-month extensions, from March 3, 2030 to October 2, 2032 for $1,517,900 provided that Chief Executive Office and County Counsel approval is obtained, increasing the overall total contract sum to $4,590,300, including the extension and optional renewals;

3. Delegate authority to the RR/CC, or designee, to negotiate and execute amendments to: (i) exercise option terms, (ii) make changes to the Statement of Work as operationally necessary, provided approval is obtained from County Counsel, and (iii) to make any other necessary changes that do not materially alter any term or condition of the contract.

4. Delegate authority to the RR/CC, or designee, to increase the total contract sum by no more than ten percent (10%) for any unforeseen circumstances provided that approval is obtained from the Chief Executive Office and County Counsel; and

5. Delegate authority to the RR/CC, or designee, to terminate the contract as necessary, provided that approval is obtained from County Counsel.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The purpose of recommended action will allow ibml under Contract #25-003 to provide ibml scanner Tally M&S services for high speed ibml scanners used in the election tally process. These scanners are critical for scanning, printing, for initial validation, saving images, and processing voted ballots during elections. The RR/CC requires Tally M&S services on a total of twenty-four (24) ibml scanners including 20 ImageTrac 6400 scanners and 4 ibml Fusion 8400 document scanners utilized in election ballot processing.

The ibml scanners play a crucial role in the Tally operation, handling the processing of ballots and reporting of election results. For example, during the 2024 November General Election, the scanners were essential for capturing ballot images that the VSAP Tally system used produce election results. The scanners processed over 12 million ballots, including more than 500,000 Ballot Marking Device (BMD) ballots within four (4) hours on election night.

It is imperative that the scanners are consistently maintained in optimal condition, ensuring peak performance to meet the expected volume and accuracy standards of elections.

The required services for each ibml scanner include monthly Tally M&S services and onsite Tally M&S support during major elections (i.e. Presidential, General, Primary, StateWide and Special Elections that affect Los Angeles County). Additional services on as-needed basis may include onsite Tally M&S services during minor elections.

Background on Scanners

In 2018, the California Secretary of State (CaSOS) certified the Voting Solutions for All People® (VSAP) Tally system, a new voting system designed to process the new full-face Vote by Mail (VBM) ballots. As part of this certification, 6 ibml ImageTrac 6400 scanners were deployed to digitize paper ballots. By 2020, the RR/CC acquired an additional 14 ibml scanners, bringing the total to 20 scanners. In April 2024, 2 Fusion 8400 document scanners (newer scanner models) were ordered and delivered to the RR/CC Ballot Processing Center (BPC) in the City of Industry in June of 2024.

This expansion was essential for a complete transition to the County's new VSAP, which includes in-person Ballot Marking Device (BMD) ballots and countywide VBM ballots. Currently, twenty-two (22) scanners are located at the BPC. Additionally, in January 2024, 2 Fusion 8400 document scanners were acquired to support an emergency disaster recovery site located in the City of Downey, bringing the total to twenty-four (24) scanners.

RR/CC ibml Scanner Timeline/History

- Rented: One (1) 6400 ibml scanner for testing and evaluation purposes on December 1, 2017, and returned on August 3, 2018.
- Procured: Two (2) 6400 scanners and three (3) years Tally M&S on July 5, 2018, via a capital lease (lease to own). The Tally M&S services expired on July 10, 2021.
- Procured: Four (4) 6400 scanners with Tally M&S services were originally purchased on September 4,2018. The Tally M&S for the four (4) ibml scanners expired on July 5, 2019.
- Procured: Fourteen (14) 6400 ibml scanners were originally purchased on July 9, 2019. The Tally M&S for the 14 scanners expired on December 2, 2019.
- Maintenance and Support contract for Tally M&S #19-002: On September 3, 2019, your Board granted RR/CC the authority to execute Contract #19-002 with ibml for Tally M&S services. On September 3, 2019, the RR/CC executed Contract #19-002 which is set to expire on March 2, 2025.
- Procured: Two (2) imp 8400 scanners were originally purchased on January 22, 2024.
- Procured: Two (2) ibml 8400 scanners were originally purchased on June 28, 2024.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

The recommended actions align with the County's Strategic Plan related to North Star 3: *Realize tomorrow's government today* - subpart G. Internal Controls & Processes: Strengthen our internal controls and processes while being cognizant of efficiency to continue good stewardship of the public trust and fiscal responsibility.

FISCAL IMPACT/FINANCING

The total cost of the contract is $ 3,072,400 for the initial term and $1,517,900 for the option terms for a total maximum contract sum of $4,590,300.

If the ten percent (10%) delegated authority amount is utilized, the total contract sum will increase by $459,030 to $5,049,330.

Funding for the initial term is included in the RR/CC's FY 2024-25 Final Adopted Budget. Funding for the optional extensions will be requested through the annual budget process, as necessary.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

Los Angeles County is the largest election jurisdiction in the United States with over 5.7 million registered voters. During major elections, the RR/CC processes millions of ballots, depending on voter turnout. Under VSAP, the CaSOS approved and certified the Tally System that processes both VSAP VBM and BMD ballots.

CONTRACTING PROCESS

The current Contract #19-002 for Tally M&S services with ibml expires on March 2, 2025. For continued services, the RR/CC issued an Invitation for Bids (IFB #23-017) on June 12, 2024 to July 31, 2024 to solicit bids for a contract with an organization to provide ibml Tally M&S services.

The IFB solicitation was posted on the County's Doing Business with Los Angeles website and sent to three different commodity codes related to scanner and office equipment M&S. IFB information was also posted on the RR/CC's social media outlets including: Instagram, Facebook, Twitter, and LinkedIn. The IFB was also advertised in newspapers including the Los Angeles Daily News, Whittier Daily News, and Los Angeles Times. An extensive Google search for companies providing scanner services was conducted and the companies identified in the search were sent a copy of the IFB via a solicitation letter. A mandatory Bidders Conference took place on June 26, 2024. The IFB closed on July 31, 2024.

In an IFB solicitation, the lowest cost bid that meets the minimum requirements, and is responsive and responsible is recommended for a contract award. At the close of the IFB, the RR/CC received one bid that met the mandatory minimum requirements.

On October 1, 2024, the RR/CC sent a letter to ibml outlining its intent to recommend them for a contract award to your Board. The RR/CC received a Letter of Intent from ibml on October 8, 2024.

The Chief Information Office (CIO) recommends approval of this request. No formal CIO Analysis is required as the contract is for continued ibml Tally M&S services, and no new technology is being implemented at the time. However, any change orders for technology enhancements that will be funded with Pool Dollars will require County Counsel approval.

County Counsel has reviewed this Board letter and approved as to form. The online Supplemental Declaration form was submitted on the Levine Act Portal on November 21, 2024.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

Your Board's approval of the noted actions will allow for continuation of Tally M&S services for the 24 ibml scanners, which are critical to providing fully functioning scanners for fast and accurate election results. Tally M&S support encompasses both hardware components on the ibml scanners and the associated ibml software components and configurations that facilitate scanner operation.

Tally M&S is indispensable to ensure optimal performance and a consistently high level of quality for accurate election ballot scanning using the ibml scanners.

Respectfully submitted,

DEAN C. LOGAN

Registrar-Recorder/County Clerk

Reviewed by

Peter Loo

Chief Information Officer

DCL:JG:JS
DL:CA;cp

Enclosures

c: Executive Office, Board of Supervisors Chief Executive Office
County Counsel

Attachment I

CONTRACT

BY AND BETWEEN

COUNTY OF LOS ANGELES

AND

SCANNER HOLDINGS CORPORATION (ibml)

FOR

IBML SCANNER TALLY MAINTENANCE AND SUPPORT SERVICES

CONTRACT NUMBER: #25-003

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A Statement of Work and Attachments

B Pricing Schedule

C Contractor's Proposed Schedule

D County's Administration

E Contractor's Administration

F Forms Required at the Time of Contract Execution

F1 Contractor Acknowledgment and Confidentiality Agreement

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CONTRACT #25-003 BETWEEN
COUNTY OF LOS ANGELES
AND
SCANNER HOLDINGS CORPORATION (ibml*)*
FOR
IBML TALLY SCANNER MAINTENANCE AND SUPPORT SERVICES

This Contract ("Contract") and Exhibits made and entered into March 3, 2025 by and between the County of Los Angeles, hereinafter referred to as "County" and Scanner Holdings Corporation *(*ibml*)*, hereinafter referred to as "Contractor". Contractor is located at 2750 Crestwood Boulevard, Birmingham, AL 35210.

RECITALS

WHEREAS, the County may contract with private businesses for specialized services under Government Code, Section 31000, including ibml Scanner Tally Maintenance and Support Services when certain requirements are met; and

WHEREAS, the Contractor is a private firm specializing in providing ibml Scanner Tally Maintenance and Support Services; and

WHEREAS, this Contract is authorized under Section 23004 of the Government Code, Section 44.7 of the Los Angeles County Charter and Los Angeles County Codes Section 2.121.250; and

NOW THEREFORE, in consideration of the mutual covenants contained herein, and for good and valuable consideration, the parties agree to the following:

1.0 APPLICABLE DOCUMENTS

Exhibits A through K are attached to and form a part of this Contract. In the event of any conflict or inconsistency in the definition or interpretation of any word, responsibility, schedule, or the contents or description of any task, deliverable, goods, service, or other work, or otherwise between the base Contract and the Exhibits, or between Exhibits, such conflict or inconsistency will be resolved by giving precedence first to the Contract and then to the Exhibits according to the following priority.

Standard Exhibits:

Exhibit A	Statement of Work and Attachments
Exhibit B	Pricing Schedule
Exhibit C	Contractor's Proposed Schedule
Exhibit D	County's Administration
Exhibit E	Contractor's Administration
Exhibit F	Forms Required at the Time of Contract Execution
Exhibit G	Safely Surrendered Baby Law

Unique Exhibits:

Exhibit H	Intentionally Omitted
Exhibit I	Intentionally Omitted
Exhibit J	Intentionally Omitted
Exhibit K	Information Security and Privacy Requirements Exhibit
Exhibit L	Debarment Certification
Exhibit M	Background Check Attestation Form

This Contract and the Exhibits hereto constitute the complete and exclusive statement of understanding between the parties, and supersedes all previous Contracts, written and oral, and all communications between the parties relating to the subject matter of this Contract. No change to this Contract will be valid unless prepared pursuant to Paragraph 8.1 (Amendments) and signed by both parties.

2.0 DEFINITIONS

2.1 Standard Definitions

The headings herein contained are for convenience and reference only and are not intended to define the scope of any provision thereof. The following words as used herein will be construed to have the following meaning, unless otherwise apparent from the context in which they are used.

2.1.1 **Board of Supervisors (Board)**: The Board of Supervisors of the County acting as governing body.

2.1.2 **Change Notice:** A notice prepared and executed by the Registrar-Recorder or his/her designee relating to any change to the Contract which is clerical or administrative in nature and/or does not affect any term or condition of the Contract.

2.1.3 **Contract**: This Contract executed between County and Contractor. Included are all supplemental Contracts, amendments, change notices, and change orders, if any, amending or extending the service to be performed. The Contract sets forth the terms and conditions for the issuance and performance of all tasks, deliverables, services, and other work.

2.1.4 **Contractor**: The person or persons, sole proprietor, partnership, joint venture, corporation or other legal entity who has entered into an Contract with the County to perform or execute the work covered by this Contract.

2.1.5 **County Observed Holidays**: Days on which County departments are closed for business in observance of significant events. A list of County observed holidays may be found on the County's website https://lacounty.gov/government/about-la-county/about/.

2.1.6 **Contractor Project Manager**: The person designated by the Contractor to administer the Contract operations under this Contract.

2.1.7 **County's Project Monitor**: Person with responsibility to oversee the day-to-day activities of this Contract. Responsibility for inspections of any and all tasks, deliverables, goods, services and other work provided by the Contractor.

2.1.8 **County's Project Director**: Person designated by County with authority for County on contractual or administrative matters relating to this Contract that cannot be resolved by the County's Project Manager.

2.1.9 **County's Project Manager**: Person designated by County's Project Director to manage the operations under this Contract.

2.1.10 **Day(s)**: Calendar day(s) unless otherwise specified.

2.1.11 **Department**: The County of Los Angeles Registrar-Recorder/County Clerk, which is entering into this Contract on behalf of the County of Los Angeles.

2.1.12 **Department Head or Director**: Head of Department of the Registrar-Recorder/County Clerk.

2.1.13 **Deliverables**: the items identified Statement of Work to be delivered or provided by Contractor to County under the terms of this Contract.

2.1.14 **Election System:** An election system leverages information technology to manage various aspects of the electoral process, including voter registration, ballot casting, vote counting, and result tabulation.

2.1.15 **Fiscal Year**: The twelve (12) month period beginning July 1st and ending the following June 30th.

2.1.16 **ibml Certified Field Technician**: troubleshoots, configures, installs, provides advanced maintenance, and direction to support technicians.

2.1.17 **ibml Scanners**: refer to twenty (20) ImageTrac 6400 scanners and four (4) Fusion 8400 document scanners utilized in election ballot processing.

2.1.18 **ibml-trained Support Technicians**: are familiar with the scanners to assist with maintenance (for scanner cleaning, wiping lenses, changing feed belts and tires, replacing ink, and other tasks as directed by the ibml-certified Technician).

2.1.19 **Optional Work**: Additional work or Professional Services, which may be provided by Contractor to County upon County's request and approval in accordance with Statement of Work Task 5.

2.1.20 **Pool Dollars**: The maximum amount allocated under this Contract for the provision by Contractor for Optional Work. A Pool Dollar Request Form must be completed to access Pool Dollars for Optional Work. Pool Dollar use shall be governed by the requirements of Task 5 of the Statement of Work, Exhibit A

2.1.21 **Special Election**: A type of election held within a specific jurisdiction to address a particular issue or fill a vacant office, encompassing all voters.

2.1.22 **Statement of Work (SOW)**: A written description of all tasks, deliverables, services, and other work the Contractor is expected to fully perform, complete, and deliver on time. The work to be performed by Contractor will meet the needs of the County, including special provisions pertaining to the method, frequency, manner, and place of performing the contract services.

2.1.23 **Subcontract**: An Contract by the Contractor to employ a subcontractor to provide services to fulfill this Contract.

2.1.24 **Subcontractor**: Any individual, person or persons, sole proprietor, firm, partnership, joint venture, corporation, or other legal entity furnishing supplies, services of any nature, equipment, and/or materials to Contractor in furtherance of Contractor's performance of this Contract, at any tier, under oral or written Contract.

2.1.25 **Tally**: A system of hardware and software that reads and captures the vote selections on ballots, applies required business rules and adjudications, tabulates the totals of votes, ballots cast and other metrics, and publishes the results the election. The Tally System also

supports transparent auditing processes to ensure the accuracy and integrity of the election tally results.

3.0 WORK

3.1 Pursuant to the provisions of this Contract, the Contractor must fully perform, complete and deliver on time, all tasks, deliverables, goods, services and other work as set forth herein.

3.2 If the Contractor provides any tasks, deliverables, goods, services, or other work, other than as specified in this Contract, the same will be deemed to be a gratuitous effort on the part of the Contractor, and the Contractor will have no claim whatsoever against the County.

4.0 TERM OF CONTRACT

4.1 The term of this Contract will be five (5) years commencing upon execution unless sooner terminated or extended, in whole or in part, as provided in this Contract.

4.2 The County will have the sole option to extend this Contract term for up to two (2) additional one-year periods and six (6) month-to-month extensions, for a maximum total Contract term of seven (7) years and six (6) months. Each such option and extension will be exercised at the discretion of the Director or designee.

The County maintains a database that track/monitor Contractor performance history. Information entered into the database may be used for a variety of purposes, including determining whether a bidder is responsible for the purposes of a future County contract or extension option.

4.3 The Contractor must notify Department when this Contract is within six (6) months from the expiration of the term as provided for hereinabove. Upon occurrence of this event, the Contractor must send written notification to Department at the address herein provided in Exhibit D (County's Administration).

5.0 CONTRACT SUM

5.1 Total Contract Sum

The maximum total Contract Sum is $4,590,300, which includes $3,072,400 for the initial term and $1,517,900 for the option terms. All costs should be charged in accordance with Exhibit B (Pricing Schedule).

The Contract allows the RR/CC, or designee, to execute amendments increasing the contract sum up to 10% ($459,030) of the original Contract Sum if approved by County Counsel. If the option to increase the Contract Sum is exercised, the maximum contract amount for the Contract will not exceed $5,049,330.

5.2 Written Approval for Reimbursement

The Contractor will not be entitled to payment or reimbursement for any tasks or services performed, nor for any incidental or administrative expenses whatsoever incurred in or incidental to performance hereunder, except as specified herein.

Assumption or takeover of any of the Contractor's duties, responsibilities, or obligations, or performance of same by any person or entity other than the Contractor, whether through assignment, subcontract, delegation, merger, buyout, or any other mechanism, with or without consideration for any reason whatsoever, must not occur except with the County's express prior written approval.

5.3 Notification of 75% of Total Contract Sum

The Contractor must maintain a system of record keeping that will allow the Contractor to determine when it has incurred seventy-five percent (75%) of the total contract authorization under this Contract. Upon occurrence of this event, the Contractor must send written notification to Department at the address herein provided in Exhibit D (County's Administration).

5.4 No Payment for Services Provided Following Expiration-Termination of Contract

The Contractor will have no claim against County for payment of any money or reimbursement, of any kind whatsoever, for any service provided by the Contractor after the expiration or other termination of this Contract. Should the Contractor receive any such payment it must immediately notify County and must immediately repay all such funds to County. Payment by County for services rendered after expiration/termination of this Contract will not constitute a waiver of County's right to recover such payment from the Contractor.

5.5 Invoices and Payments

5.5.1 The Contractor must invoice the County only for providing the tasks, deliverables, goods, services, and other work specified in Exhibit A (Statement of Work and Attachments) and elsewhere hereunder. The Contractor must prepare invoices, which will include the charges owed to the Contractor by the County under the terms of this Contract.

5.5.2 The Contractor must submit the monthly invoices to the County by the 15th calendar day of the month following the month of service.

5.5.3 All invoices under this Contract must be submitted to the following email address with the subject line stating "Contract #25-003"

AccountsPayable@rrcc.lacounty.gov

Invoices must include the following billing address:

Los Angeles County Registrar-Recorder/County Clerk
Attention: Financial Services Section, Accounts Payable
12400 Imperial Highway, Room 7211B
Norwalk, CA 90650

Contractor must provide a remittance address on invoices that matches the Contractor's main address listed on the County's Webven website, under vendor profile.

Invoices must include the Task/Deliverable #s, labels and rates, as applicable, which must match and be the same sequential order as presented in Exhibit B (Pricing Sheet).

5.5.4 County Approval of Invoices

All invoices submitted by the Contractor for payment must have the written approval of the County's Project Manager prior to any payment thereof. In no event will the County be liable or responsible for any payment prior to such written approval. Approval for payment will not be unreasonably withheld.

In the event discrepancies are found during the invoice review, County's Project Manager, or designee, will notify Contractor of such discrepancies and submit a list of disputed charges as soon as practicable from the receipt of such disputed invoice by County. Contractor shall review the disputed charges and send a written explanation of discrepancy or revised or corrected invoice no later than within fifteen (15) days of receipt of County's notice of discrepancies and disputed charges.

5.5.5 Preference Program Enterprises - Prompt Payment Program (if applicable)

Certified Prompt Payment Enterprises (PPEs) will receive prompt payment for services they provide to County Departments. Prompt payment is defined as fifteen (15) calendar days after receipt of an approved, undisputed invoice which has been properly matched against documents such as a receiving, shipping, or services delivered report, or any other validation of receipt document consistent with Board Policy 3.035 (Preference Program Payment Liaison and Prompt Payment Program).

5.6 Cost of Living Adjustments (COLA's)

If requested by the Contractor, the Contract (hourly, daily, monthly, etc.) amount may at the sole discretion of the County, be increased annually based on the most recent published percentage change in the U.S. Department of Labor, Bureau of Labor Statistics' Consumer Price Index for Urban Consumers (CPI-U) for the Los Angeles-Long Beach-Anaheim Area for the 12-month period preceding the Contract anniversary date, which will be the effective date for any Cost of Living Adjustment (COLA). However, any increase will not exceed the general salary movement granted to County employees as determined by the Chief Executive Officer as of each July 1 for the prior 12-month period. Furthermore, should fiscal circumstances ultimately prevent the Board from approving any increase in County employee salaries, no COLA will be granted. Where the County decides to grant a (COLA) pursuant to this paragraph for living wage contracts, it may, in its sole discretion exclude the cost of labor (including the cost of wages and benefits paid

to employees providing services under this contract) from the base upon which a COLA is calculated, unless the Contractor can show that their labor cost will actually increase. Further, before any COLA increase may take effect and become part of this contract, it will require a written amendment to this contract first, that has been formally approved and executed by the parties.

5.7 Default Method of Payment: Direct Deposit or Electronic Funds Transfer

5.7.1 The County, at its sole discretion, has determined that the most efficient and secure default form of payment for goods and/or services provided under an Contract/contract with the County will be Electronic Funds Transfer (EFT) or direct deposit, unless an alternative method of payment is deemed appropriate by the Auditor-Controller (A-C).

5.7.2 The Contractor must submit a direct deposit authorization request via the website https://directdeposit.lacounty.gov with banking and vendor information, and any other information that the A-C determines is reasonably necessary to process the payment and comply with all accounting, record keeping, and tax reporting requirements.

5.7.3 Any provision of law, grant, or funding Contract requiring a specific form or method of payment other than EFT or direct deposit will supersede this requirement with respect to those payments.

5.7.4 At any time during the duration of the Contract/contract, a Contractor may submit a written request for an exemption to this requirement. Such request must be based on specific legal, business or operational needs and explain why the payment method designated by the A-C is not feasible and an alternative is necessary. The A-C, in consultation with the contracting department(s), will decide whether to approve exemption requests.

6.0 ADMINISTRATION OF CONTRACT – COUNTY

6.1 County's Administration

A listing of all County Administration referenced in the following Paragraphs are designated in Exhibit D (County's Administration). The County will notify the Contractor in writing of any changes as they occur.

6.2 County's Project Director

Responsibilities of the County's Project Director include:

6.2.1 Ensuring that the objectives of this Contract are met; and

6.2.2 Providing direction to the Contractor in the areas relating to County policy, information requirements, and procedural requirements.

6.3 County's Project Manager

The responsibilities of the County's Project Manager include:

6.3.1 Meeting with the Contractor's Project Manager on a regular basis; and

6.3.2 Inspecting any and all tasks, deliverables, goods, services, or other work provided by or on behalf of the Contractor.

The County's Project Manager is not authorized to make any changes in any of the terms and conditions of this Contract and is not authorized to further obligate County in any respect whatsoever.

6.4 County's Project Monitor

The County's Project Monitor is responsible for overseeing the day-to-day administration of this Contract; however, in no event will Contractor's obligation to fully satisfy all of the requirements of this Contract be relieved, excused or limited thereby. The County's Project Monitor reports to the County's Project Manager.

7.0 ADMINISTRATION OF CONTRACT - CONTRACTOR

7.1 Contractor's Administration

A listing of all of Contractor's Administration referenced in the following paragraphs is designated in Exhibit E (Contractor's Administration). The Contractor will notify the County in writing of any change as they occur.

7.2 Contractor's Project Manager

7.2.1 The Contractor's Project Manager is designated in Exhibit E (Contractor's Administration). The Contractor must notify the County in writing of any change to Exhibit E (Contractor's Administration), as changes occur.

7.2.2 The Contractor's Project Manager will be responsible for the Contractor's day-to-day activities as related to this Contract and must coordinate with County's Project Manager and County's Project Monitor on a regular basis.

7.2.3 The Contractor's Project Manager must have three (3) years of experience.

7.3 Approval of Contractor's Staff

County has the absolute right to approve or disapprove all of the Contractor's staff performing work hereunder and any proposed changes in the Contractor's staff, including, but not limited to, the Contractor's Project Manager.

7.4 Contractor's Staff Identification

Contractor must provide, at Contractor's expense, all staff providing services under this Contract with a photo identification badge.

7.5 Background and Security Investigations

7.5.1 Background and security investigations of Contractor staff are required as a condition of beginning and continuing work under this Contract. Contractor shall be responsible for the ongoing implementation and monitoring of Subparagraphs 7.5.1 through 7.5.9.

7.5.2 For purposes of background and security investigations, all of the positions assigned to Contractor's staff performing services under this Contract are designated sensitive positions. As such, Contractor staff shall undergo and pass a background investigation to the satisfaction of County as a condition of beginning and continuing to perform services under this Contract. Such background investigation must be obtained through fingerprints submitted to the California Department of Justice to include State, local, and federal-level review, which may include, but shall not be limited to, criminal conviction information. The fees associated with the background investigation shall be at the expense of the Contractor, regardless of if the member of Contractor staff passes or fails the background investigation.

7.5.3 No staff employed by the Contractor or Subcontractor for this service having access to Departmental information or records shall have a criminal conviction record or pending criminal trial unless such information has been fully disclosed to County and employment of the staff for this service is approved in writing by the County.

7.5.4 If a member of Contractor staff does not pass the background investigation, County may request that the member of Contractor staff be immediately removed from performing services under the Contract at any time during the term of the Contract. County will not provide to Contractor or to Contractor staff any information obtained through the County's background investigation.

7.5.5 County, in its sole discretion, may immediately deny or terminate facility access to any member of Contractor staff that does not pass such investigation to the satisfaction of the County or whose background or conduct is incompatible with County facility access.

7.5.6 Disqualification of any member of Contractor staff pursuant to this Paragraph 7.5 shall not relieve Contractor of its obligation to complete all work in accordance with the terms and conditions of this Contract.

7.5.7 No Contractor or Subcontractor staff providing services under this Contract shall be on active probation or parole.

7.5.8 Contractor or Subcontractor staff performing services under this Contract shall be under a continuing obligation to disclose any prior or subsequent criminal conviction record or any pending criminal trial to the County.

7.5.9 Contractor shall sign, attest, and adhere to Exhibit M (Background Check Attestation Form).

7.6 Confidentiality

7.6.1 Contractor must maintain the confidentiality of all records and information in accordance with all applicable Federal, State and local laws, rules, regulations, ordinances, directives, guidelines, policies and

procedures relating to confidentiality, including, without limitation, County policies concerning information technology security and the protection of confidential records and information.

7.6.2 Contractor must indemnify, defend, and hold harmless County, its officers, employees, and agents, from and against any and all claims, demands, damages, liabilities, losses, costs and expenses, including, without limitation, defense costs and legal, accounting and other expert, consulting, or professional fees, arising from, connected with, or related to any failure by Contractor, its officers, employees, agents, or subcontractors, to comply with this Paragraph, as determined by County in its sole judgment. Any legal defense pursuant to Contractor's indemnification obligations under this Paragraph will be conducted by Contractor and performed by counsel selected by Contractor and approved by County. Notwithstanding the preceding sentence, County will have the right to participate in any such defense at its sole cost and expense, except that in the event Contractor fails to provide County with a full and adequate defense, as determined by County in its sole judgment, County will be entitled to retain its own counsel, including, without limitation, County Counsel, and reimbursement from Contractor for all such costs and expenses incurred by County in doing so. Contractor will not have the right to enter into any settlement, agree to any injunction, or make any admission, in each case, on behalf of County without County's prior written approval.

7.6.3 Contractor must inform all of its officers, employees, agents and subcontractors providing services hereunder of the confidentiality provisions of this Contract.

7.6.4 Contractor must sign and adhere to the provisions of Exhibit F1-IT (Contractor Non-Employee Acknowledgment and Confidentiality Contract).

8.0 STANDARD TERMS AND CONDITIONS

8.1 Amendments and Change Notices

8.1.1 For any change which affects the scope of work, contract term, Contract Sum, payments, or any term or condition included under this Contract, except those items related to Pool Dollars, an Amendment must be prepared and executed by the Contractor and by the RR/CC or his/her designee. Pool Dollar use shall be governed by the requirements of Task 5 of the Statement of Work, Exhibit A

8.1.2 The County's Board or Chief Executive Officer or designee may require the addition and/or change of certain terms and conditions in the Contract during the term of this Contract. The County reserves the right to add and/or change such provisions as required by the County's Board or Chief Executive Officer. To implement such changes, an Amendment

to the Contract must be prepared and executed by the Contractor and by the RR/CC or his/her designee.

8.1.3 For any change which is clerical or administrative in nature and/or does not affect any term or condition of this Contract, a written Change Notice may be prepared and executed by the Director or his/her designee.

8.1.4 The RR/CC or his/her designee may at their sole discretion, authorize extensions of time as defined in Paragraph 4.0 (Term of Contract). The Contractor agrees that such extensions of time will not change any other term or condition of this Contract during the period of such extensions. To implement an extension of time, an Amendment to the Contract must be prepared and executed by the Contractor and by the RR/CC or his/her designee.

8.2 Assignment and Delegation/Mergers or Acquisitions

8.2.1 The Contractor must notify the County of any pending acquisitions/mergers of its company unless otherwise legally prohibited from doing so. If the Contractor is restricted from legally notifying the County of pending acquisitions/mergers, then it should notify the County of the actual acquisitions/mergers as soon as the law allows and provide to the County the legal framework that restricted it from notifying the County prior to the actual acquisitions/mergers.

8.2.2 The Contractor must not assign, exchange, transfer, or delegate its rights or duties under this Contract, whether in whole or in part, without the prior written consent of County, in its discretion, and any attempted assignment, delegation, or otherwise transfer of its rights or duties, without such consent will be null and void. For purposes of this paragraph, County consent will require a written amendment to the Contract, which is formally approved and executed by the parties. Any payments by the County to any approved delegate or assignee on any claim under this Contract will be deductible, at County's sole discretion, against the claims, which the Contractor may have against the County.

8.2.3 Any assumption, assignment, delegation, or takeover of any of the Contractor's duties, responsibilities, obligations, or performance of same by any person or entity other than the Contractor, whether through assignment, subcontract, delegation, merger, buyout, or any other mechanism, with or without consideration for any reason whatsoever without County's express prior written approval, will be a material breach of the Contract which may result in the termination of this Contract. In the event of such termination, County will be entitled to pursue the same remedies against Contractor as it could pursue in the event of default by Contractor.

8.3 Authorization Warranty

The Contractor represents and warrants that the person executing this Contract for the Contractor is an authorized agent who has actual authority to bind the Contractor to each and every term, condition, and obligation of this Contract and that all requirements of the Contractor have been fulfilled to provide such actual authority.

8.4 Budget Reductions

In the event that the County's Board adopts, in any fiscal year, a County Budget which provides for reductions in the salaries and benefits paid to the majority of County employees and imposes similar reductions with respect to County Contracts, the County reserves the right to reduce its payment obligation under this Contract correspondingly for that fiscal year and any subsequent fiscal year during the term of this Contract (including any extensions), and the services to be provided by the Contractor under this Contract will also be reduced correspondingly. The County's notice to the Contractor regarding said reduction in payment obligation will be provided within thirty (30) calendar days of the Board's approval of such actions. Except as set forth in the preceding sentence, the Contractor must continue to provide all of the services set forth in this Contract.

8.5 Complaints

The Contractor must develop and maintain operating procedures for receiving, investigating and responding to complaints.

8.5.1 Within 5 business days after Contract effective date, the Contractor must provide the County with the Contractor's procedures for receiving, investigating and responding to user complaints.

8.5.2 The County will review the Contractor's procedures and provide the Contractor with approval of said procedures or with requested changes.

8.5.3 If the County requests changes in the Contractor's procedures, the Contractor must make such changes and resubmit the procedures within 5 business days for County approval.

8.5.4 If, at any time, the Contractor wishes to change the Contractor's procedures, the Contractor must submit proposed changes to the County for approval before implementation.

8.5.5 The Contractor must preliminarily investigate all complaints and notify the County's Project Manager of the status of the investigation within 5 business days of receiving the complaint.

8.5.6 When complaints cannot be resolved informally, a system of follow-through will be instituted which adheres to formal plans for specific actions and strict time deadlines.

8.5.7 Copies of all written responses must be sent to the County's Project Manager within 5 business days of mailing to the complainant.

8.6 Compliance with Applicable Laws

8.6.1 In the performance of this Contract, Contractor must comply with all applicable Federal, State and local laws, rules, regulations, ordinances, directives, guidelines, policies and procedures, and all provisions required thereby to be included in this Contract are hereby incorporated herein by reference.

8.6.2 Contractor must indemnify, defend, and hold harmless County, its officers, employees, and agents, from and against any and all claims, demands, damages, liabilities, losses, costs, and expenses, including, without limitation, defense costs and legal, accounting and other expert, consulting or professional fees, arising from, connected with, or related to any failure by Contractor, its officers, employees, agents, or subcontractors, to comply with any such laws, rules, regulations, ordinances, directives, guidelines, policies, or procedures, as determined by County in its sole judgment. Any legal defense pursuant to Contractor's indemnification obligations under this Paragraph will be conducted by Contractor and performed by counsel selected by Contractor and approved by County. Notwithstanding the preceding sentence, County will have the right to participate in any such defense at its sole cost and expense, except that in the event Contractor fails to provide County with a full and adequate defense, as determined by County in its sole judgment, County will be entitled to retain its own counsel, including, without limitation, County Counsel, and reimbursement from Contractor for all such costs and expenses incurred by County in doing so. Contractor will not have the right to enter into any settlement, agree to any injunction or other equitable relief, or make any admission, in each case, on behalf of County without County's prior written approval.

8.7 Compliance with Civil Rights Laws

The Contractor hereby assures that it will comply with Subchapter VI of the Civil Rights Act of 1964, 42 USC Sections 2000 (e) (1) through 2000 (e) (17), to the end that no person will, on the grounds of race, creed, color, sex, religion, ancestry, age, condition of physical handicap, marital status, political affiliation, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under this Contract or under any project, program, or activity supported by this Contract. Additionally, Contractor certifies to the County:

8.7.1 That Contractor has a written policy statement prohibiting discrimination in all phases of employment.

8.7.2 That Contractor periodically conducts a self-analysis or utilization analysis of its work force.

8.7.3 That Contractor has a system for determining if its employment practices are discriminatory against protected groups.

8.7.4 Where problem areas are identified in employment practices, the Contractor has a system for taking reasonable corrective action, to include establishment of goals or timetables.

8.8 Compliance with County's Jury Service Program

8.8.1 Jury Service Program

This Contract is subject to the provisions of the County's ordinance entitled Contractor Employee Jury Service ("Jury Service Program") as codified in Sections 2.203.010 through 2.203.090 of the Los Angeles County Code.

8.8.2 Written Employee Jury Service Policy

- Unless the Contractor has demonstrated to the County's satisfaction either that the Contractor is not a "Contractor" as defined under the Jury Service Program (Section 2.203.020 of the County Code) or that the Contractor qualifies for an exception to the Jury Service Program (Section 2.203.070 of the County Code), the Contractor must have and adhere to a written policy that provides that its Employees will receive from the Contractor, on an annual basis, no less than five days of regular pay for actual jury service. The policy may provide that Employees deposit any fees received for such jury service with the Contractor or that the Contractor deduct from the Employee's regular pay the fees received for jury service.
- For purposes of this Paragraph, "Contractor" means a person, partnership, corporation or other entity which has a contract with the County or a subcontract with a County Contractor and has received or will receive an aggregate sum of $50,000 or more in any 12-month period under one or more County contracts or subcontracts. "Employee" means any California resident who is a full-time employee of the Contractor. "Full-time" means 40 hours or more worked per week, or a lesser number of hours if: 1) the lesser number is a recognized industry standard as determined by the County, or 2) Contractor has a long-standing practice that defines the lesser number of hours as full-time. Full-time employees providing short-term, temporary services of 90 days or less within a 12-month period are not considered full-time for purposes of the Jury Service Program. If the Contractor uses any Subcontractor to perform services for the County under the Contract, the Subcontractor will also be subject to the provisions of this Paragraph. The provisions of this Paragraph will be inserted into any such subcontract Contract and a copy of the Jury Service Program must be attached to the Contract.
- If the Contractor is not required to comply with the Jury Service Program when the Contract commences, the Contractor will have

a continuing obligation to review the applicability of its "exception status" from the Jury Service Program, and the Contractor must immediately notify the County if the Contractor at any time either comes within the Jury Service Program's definition of "Contractor" or if the Contractor no longer qualifies for an exception to the Jury Service Program. In either event, the Contractor must immediately implement a written policy consistent with the Jury Service Program. The County may also require, at any time during the Contract and at its sole discretion, that the Contractor demonstrate to the County's satisfaction that the Contractor either continues to remain outside of the Jury Service Program's definition of "Contractor" and/or that the Contractor continues to qualify for an exception to the Program.

- Contractor's violation of this Paragraph of the Contract may constitute a material breach of the Contract. In the event of such material breach, County may, in its sole discretion, terminate the Contract and/or bar the Contractor from the award of future County contracts for a period of time consistent with the seriousness of the breach.

8.9 Conflict of Interest

8.9.1 No County employee whose position with the County enables such employee to influence the award of this Contract or any competing Contract, and no spouse or economic dependent of such employee, will be employed in any capacity by the Contractor or have any other direct or indirect financial interest in this Contract. No officer or employee of the Contractor who may financially benefit from the performance of work hereunder will in any way participate in the County's approval, or ongoing evaluation, of such work, or in any way attempt to unlawfully influence the County's approval or ongoing evaluation of such work.

8.9.2 The Contractor must comply with all conflict of interest laws, ordinances, and regulations now in effect or hereafter to be enacted during the term of this Contract. The Contractor warrants that it is not now aware of any facts that create a conflict of interest. If the Contractor hereafter becomes aware of any facts that might reasonably be expected to create a conflict of interest, it must immediately make full written disclosure of such facts to the County. Full written disclosure must include, but is not limited to, identification of all persons implicated and a complete description of all relevant circumstances. Failure to comply with the provisions of this Paragraph will be a material breach of this Contract.

8.10 Consideration of Hiring County Employees Targeted for Layoffs or are on a County Re-Employment List

Should the Contractor require additional or replacement personnel after the effective date of this Contract to perform the services set forth herein, the

Contractor must give first consideration for such employment openings to qualified, permanent County employees who are targeted for layoff or qualified, former County employees who are on a re-employment list during the life of this Contract.

8.11 Consideration of Hiring GAIN/START Participants

8.11.1 Should the Contractor require additional or replacement personnel after the effective date of this Contract, the Contractor will give consideration for any such employment openings to participants in the County's Department of Public Social Services Greater Avenues for Independence (GAIN) Program or Skills and Training to Achieve Readiness for Tomorrow (START) Program who meet the Contractor's minimum qualifications for the open position. For this purpose, consideration will mean that the Contractor will interview qualified candidates. The County will refer GAIN/START participants by job category to the Contractor. Contractors must report all job openings with job requirements to: gainstart@dpss.lacounty.gov and BSERVICES@OPPORTUNITY.LACOUNTY.GOV and DPSS will refer qualified GAIN/START job candidates.

8.11.2 In the event that both laid-off County employees and GAIN/START participants are available for hiring, County employees must be given first priority.

8.12 Contractor Responsibility and Debarment

8.12.1 Responsible Contractor

A responsible Contractor is a Contractor who has demonstrated the attribute of trustworthiness, as well as quality, fitness, capacity and experience to satisfactorily perform the contract. It is the County's policy to conduct business only with responsible Contractors.

Contractor must certify that they are not suspended, excluded or debarred (Debarment Certification, Exhibit L) from the list Federal Suspended and Debarred Vendors (https://sam.gov/content/home_) or the State of California Debarred Vendors (https://www.dir.ca.gov/dlse/debar.html).

County reserves the right to monitor federal, state, or local level databases at any time during the Contract to ensure Contractor is deemed responsible.

If Contractor is found to be suspended, excluded or debarred, it may constitute a material breach of the Contract. In the event of such material breach, County may, in its sole discretion, terminate the Contract.

8.12.2 Chapter 2.202 of the County Code

The Contractor is hereby notified that, in accordance with Chapter 2.202 of the County Code, if the County acquires information concerning the

performance of the Contractor on this or other contracts which indicates that the Contractor is not responsible, the County may, in addition to other remedies provided in the Contract, debar the Contractor from bidding or proposing on, or being awarded, and/or performing work on County contracts for a specified period of time, which generally will not exceed five years but may exceed five years or be permanent if warranted by the circumstances, and terminate any or all existing Contracts the Contractor may have with the County.

8.12.3 Non-responsible Contractor

The County may debar a Contractor if the Board finds, in its discretion, that the Contractor has done any of the following: (1) violated a term of a contract with the County or a nonprofit corporation created by the County, (2) committed an act or omission which negatively reflects on the Contractor's quality, fitness or capacity to perform a contract with the County, any other public entity, or a nonprofit corporation created by the County, or engaged in a pattern or practice which negatively reflects on same, (3) committed an act or offense which indicates a lack of business integrity or business honesty, or (4) made or submitted a false claim against the County or any other public entity.

8.12.4 Contractor Hearing Board

- If there is evidence that the Contractor may be subject to debarment, the Department will notify the Contractor in writing of the evidence which is the basis for the proposed debarment and will advise the Contractor of the scheduled date for a debarment hearing before the Contractor Hearing Board.
- The Contractor Hearing Board will conduct a hearing where evidence on the proposed debarment is presented. The Contractor and/or the Contractor's representative will be given an opportunity to submit evidence at that hearing. After the hearing, the Contractor Hearing Board will prepare a tentative proposed decision, which will contain a recommendation regarding whether the Contractor should be debarred, and, if so, the appropriate length of time of the debarment. The Contractor and the Department will be provided an opportunity to object to the tentative proposed decision prior to its presentation to the Board.
- After consideration of any objections, or if no objections are submitted, a record of the hearing, the proposed decision, and any other recommendation of the Contractor Hearing Board will be presented to the Board. The Board of Supervisors will have the right to modify, deny, or adopt the proposed decision and recommendation of the Contractor Hearing Board.
- If a Contractor has been debarred for a period longer than five (5) years, that Contractor may after the debarment has been in effect

for at least five (5) years, submit a written request for review of the debarment determination to reduce the period of debarment or terminate the debarment. The County may, in its discretion, reduce the period of debarment or terminate the debarment if it finds that the Contractor has adequately demonstrated one or more of the following: (1) elimination of the grounds for which the debarment was imposed; (2) a bona fide change in ownership or management; (3) material evidence discovered after debarment was imposed; or (4) any other reason that is in the best interests of the County.

- The Contractor Hearing Board will consider a request for review of a debarment determination only where (1) the Contractor has been debarred for a period longer than five (5) years; (2) the debarment has been in effect for at least five (5) years; and (3) the request is in writing, states one or more of the grounds for reduction of the debarment period or termination of the debarment, and includes supporting documentation. Upon receiving an appropriate request, the Contractor Hearing Board will provide notice of the hearing on the request. At the hearing, the Contractor Hearing Board will conduct a hearing where evidence on the proposed reduction of debarment period or termination of debarment is presented. This hearing will be conducted and the request for review decided by the Contractor Hearing Board pursuant to the same procedures as for a debarment hearing.
- The Contractor Hearing Board's proposed decision will contain a recommendation on the request to reduce the period of debarment or terminate the debarment. The Contractor Hearing Board will present its proposed decision and recommendation to the Board. The Board will have the right to modify, deny, or adopt the proposed decision and recommendation of the Contractor Hearing Board.

8.12.5 Subcontractors of Contractor

These terms will also apply to Subcontractors of County Contractors.

8.13 Contractor's Acknowledgement of County's Commitment to Safely Surrendered Baby Law

The Contractor acknowledges that the County places a high priority on the implementation of the Safely Surrendered Baby Law. The Contractor understands that it is the County's policy to encourage all County contractors to voluntarily post the County's "Safely Surrendered Baby Law" poster, in Exhibit G, in a prominent position at the Contractor's place of business. The Contractor will also encourage its subcontractors, if any, to post this poster in a prominent position in the subcontractor's place of business. Information and posters for printing are available at https://lacounty.gov/residents/family-services/child-safety/safe-surrender/

8.14 Contractor's Warranty of Adherence to County's Child Support Compliance Program

8.14.1 The Contractor acknowledges that the County has established a goal of ensuring that all individuals who benefit financially from the County through Contract are in compliance with their court-ordered child, family and spousal support obligations in order to mitigate the economic burden otherwise imposed upon the County and its taxpayers.

8.14.2 As required by the County's Child Support Compliance Program (County Code Chapter 2.200) and without limiting the Contractor's duty under this Contract to comply with all applicable provisions of law, the Contractor warrants that it is now in compliance and will during the term of this Contract maintain in compliance with employment and wage reporting requirements as required by the Federal Social Security Act (42 USC Section 653a) and California Unemployment Insurance Code Section 1088.5, and will implement all lawfully served Wage and Earnings Withholding Orders or Child Support Services Department Notices of Wage and Earnings Assignment for Child, Family or Spousal Support, pursuant to Code of Civil Procedure Section 706.031 and Family Code Section 5246(b).

8.15 County's Quality Assurance Plan

The County or its agent(s) will monitor the Contractor's performance under this Contract on not less than an annual basis. Such monitoring will include assessing the Contractor's compliance with all Contract terms and conditions and performance standards. Contractor deficiencies which the County determines are significant or continuing and that may place performance of the Contract in jeopardy if not corrected will be reported to the Board and listed in the appropriate contractor performance database. The report to the Board will include improvement/corrective action measures taken by the County and the Contractor. If improvement does not occur consistent with the corrective action measures, the County may terminate this Contract or impose other penalties as specified in this Contract.

8.16 Damage to County Facilities, Buildings or Grounds

8.16.1 The Contractor will repair, or cause to be repaired, at its own cost, any and all damage to County facilities, buildings, or grounds caused by the Contractor or employees or agents of the Contractor. Such repairs must be made immediately after the Contractor has become aware of such damage, but in no event later than thirty (30) days after the occurrence.

8.16.2 If the Contractor fails to make timely repairs, County may make any necessary repairs. All costs incurred by County, as determined by County, for such repairs must be repaid by the Contractor by cash payment upon demand.

8.17 Employment Eligibility Verification

8.17.1 The Contractor warrants that it fully complies with all Federal and State statutes and regulations regarding the employment of aliens and others and that all its employees performing work under this Contract meet the citizenship or alien status requirements set forth in Federal and State statutes and regulations. The Contractor must obtain, from all employees performing work hereunder, all verification and other documentation of employment eligibility status required by Federal and State statutes and regulations including, but not limited to, the Immigration Reform and Control Act of 1986, (P.L. 99-603), or as they currently exist and as they may be hereafter amended. The Contractor must retain all such documentation for all covered employees for the period prescribed by law.

8.17.2 The Contractor must indemnify, defend, and hold harmless, the County, its agents, officers, and employees from employer sanctions and any other liability which may be assessed against the Contractor or the County or both in connection with any alleged violation of any Federal or State statutes or regulations pertaining to the eligibility for employment of any persons performing work under this Contract.

8.18 Counterparts and Electronic Signatures and Representations

This Contract may be executed in two or more counterparts, each of which will be deemed an original but all of which together will constitute one and the same Contract. The facsimile, email or electronic signature of the parties will be deemed to constitute original signatures, and facsimile or electronic copies hereof will be deemed to constitute duplicate originals.

The County and the Contractor hereby agree to regard electronic representations of original signatures of authorized officers of each party, when appearing in appropriate places on the Amendments prepared pursuant to Paragraph 8.1 (Amendments) and received via communications facilities (facsimile, email or electronic signature), as legally sufficient evidence that such legally binding signatures have been affixed to Amendments to this Contract.

8.19 Fair Labor Standards

The Contractor must comply with all applicable provisions of the Federal Fair Labor Standards Act and must indemnify, defend, and hold harmless the County and its agents, officers, and employees from any and all liability, including, but not limited to, wages, overtime pay, liquidated damages, penalties, court costs, and attorneys' fees arising under any wage and hour law, including, but not limited to, the Federal Fair Labor Standards Act, for work performed by the Contractor’s employees for which the County may be found jointly or solely liable.

8.20 Force Majeure

8.20.1 Neither party will be liable for such party's failure to perform its obligations under and in accordance with this Contract, if such failure

arises out of fires, floods, epidemics, quarantine restrictions, other natural occurrences, strikes, lockouts (other than a lockout by such party or any of such party's subcontractors), freight embargoes, or other similar events to those described above, but in every such case the failure to perform must be totally beyond the control and without any fault or negligence of such party (such events are referred to in this Paragraph as "force majeure events").

8.20.2 Notwithstanding the foregoing, a default by a subcontractor of Contractor will not constitute a force majeure event, unless such default arises out of causes beyond the control of both Contractor and such subcontractor, and without any fault or negligence of either of them. In such case, Contractor will not be liable for failure to perform, unless the goods or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit Contractor to meet the required performance schedule. As used in this Paragraph, the term “subcontractor” and “subcontractors” mean subcontractors at any tier.

8.20.3 In the event Contractor's failure to perform arises out of a force majeure event, Contractor agrees to use commercially reasonable best efforts to obtain goods or services from other sources, if applicable, and to otherwise mitigate the damages and reduce the delay caused by such force majeure event.

8.21 Governing Law, Jurisdiction, and Venue

This Contract will be governed by, and construed in accordance with, the laws of the State of California. The Contractor agrees and consents to the exclusive jurisdiction of the courts of the State of California for all purposes regarding this Contract and further and consents that venue of any action brought hereunder will be exclusively in the County.

8.22 Independent Contractor Status

8.22.1 This Contract is by and between the County and the Contractor and is not intended, and must not be construed, to create the relationship of agent, servant, employee, partnership, joint venture, or association, as between the County and the Contractor. The employees and agents of one party must not be, or be construed to be, the employees or agents of the other party for any purpose whatsoever.

8.22.2 The Contractor will be solely liable and responsible for providing to, or on behalf of, all persons performing work pursuant to this Contract all compensation and benefits. The County will have no liability or responsibility for the payment of any salaries, wages, unemployment benefits, disability benefits, Federal, State, or local taxes, or other compensation, benefits, or taxes for any personnel provided by or on behalf of the Contractor.

8.22.3 The Contractor understands and agrees that all persons performing work pursuant to this Contract are, for purposes of Workers' Compensation liability, solely employees of the Contractor and not employees of the County. The Contractor will be solely liable and responsible for furnishing any and all Workers' Compensation benefits to any person as a result of any injuries arising from or connected with any work performed by or on behalf of the Contractor pursuant to this Contract.

8.22.4 The Contractor must adhere to the provisions stated in Paragraph 7.5 (Confidentiality).

8.23 Indemnification

The Contractor must indemnify, defend and hold harmless the County, its Special Districts, elected and appointed officers, employees, agents and volunteers ("County Indemnitees") from and against any and all liability, including but not limited to demands, claims, actions, fees, costs and expenses (including attorney and expert witness fees), arising from and/or relating to this Contract, except for such loss or damage arising from the sole negligence or willful misconduct of the County Indemnitees.

8.24 General Provisions for All Insurance Coverage

8.24.1 Without limiting Contractor's indemnification of County, and in the performance of this Contract and until all of its obligations pursuant to this Contract have been met, Contractor must provide and maintain at its own expense insurance coverage satisfying the requirements specified in Paragraphs 8.24 and 8.25 of this Contract. These minimum insurance coverage terms, types and limits (the "Required Insurance") also are in addition to and separate from any other contractual obligation imposed upon Contractor pursuant to this Contract. The County in no way warrants that the Required Insurance is sufficient to protect the Contractor for liabilities which may arise from or relate to this Contract.

8.24.2 Evidence of Coverage and Notice to County

- Certificate(s) of insurance coverage (Certificate) satisfactory to County, and a copy of an Additional Insured endorsement confirming County and its Agents (defined below) has been given Insured status under the Contractor's General Liability policy, must be delivered via email to the County at Contracts@rrcc.lacounty.gov and provided prior to commencing services under this Contract.

- Renewal Certificates must be provided to County not less than 10 days prior to Contractor's policy expiration dates. The County reserves the right to obtain complete, certified copies of any

required Contractor and/or Subcontractor insurance policies at any time.

- Certificates must identify all Required Insurance coverage types and limits specified herein, specify on the certificate the Contract name, Contract number #25-003, list the RR/CC as an Additional Insured using the address (12400 Imperial Hwy., Norwalk, CA 90650), and be signed by an authorized representative of the insurer(s). The Insured party named on the Certificate must match the name of the Contractor identified as the contracting party in this Contract. Certificates must provide the full name of each insurer providing coverage, its NAIC (National Association of Insurance Commissioners) identification number, its financial rating, the amounts of any policy deductibles or self-insured retentions exceeding fifty thousand ($50,000.00) dollars, and list any County required endorsement forms.
- Neither the County's failure to obtain, nor the County's receipt of, or failure to object to a non-complying insurance certificate or endorsement, or any other insurance documentation or information provided by the Contractor, its insurance broker(s) and/or insurer(s), will be construed as a waiver of any of the Required Insurance provisions.
- Certificates and copies of any required endorsements must be emailed with the subject line stating "COI for ibml #25-003":

  Contracts@rrcc.lacounty.gov
- Contractor also must promptly report to County any injury or property damage accident or incident, including any injury to a Contractor employee occurring on County property, and any loss, disappearance, destruction, misuse, or theft of County property, monies or securities entrusted to Contractor. Contractor also must promptly notify County of any third party claim or suit filed against Contractor or any of its Subcontractors which arises from or relates to this Contract, and could result in the filing of a claim or lawsuit against Contractor and/or County.

8.24.3 Additional Insured Status and Scope of Coverage

The County, its Special Districts, Elected Officials, Officers, Agents, Employees and Volunteers (collectively County and its Agents) must be provided additional insured status under Contractor's General Liability policy with respect to liability arising out of Contractor's ongoing and completed operations performed on behalf of the County. County and its Agents additional insured status must apply with respect to liability and defense of suits arising out of the Contractor's acts or omissions, whether such liability is attributable to the Contractor or to the County. The full policy limits and scope of protection also must apply to the

County and its Agents as an additional insured, even if they exceed the County's minimum Required Insurance specifications herein. Use of an automatic additional insured endorsement form is acceptable providing it satisfies the Required Insurance provisions herein.

8.24.4 Cancellation of or Change in Insurance

Contractor must provide County with, or Contractor's insurance policies must contain a provision that County will receive, written notice of cancellation or any change in Required Insurance, including insurer, limits of coverage, term of coverage or policy period. The written notice must be provided to County at least ten (10) days in advance of cancellation for non-payment of premium and thirty (30) days in advance for any other cancellation or policy change. Failure to provide written notice of cancellation or any change in Required Insurance may constitute a material breach of the Contract, in the sole discretion of the County, upon which the County may suspend or terminate this Contract.

8.24.5 Failure to Maintain Insurance

Contractor's failure to maintain or to provide acceptable evidence that it maintains the Required Insurance will constitute a material breach of the Contract, upon which County immediately may withhold payments due to Contractor, and/or suspend or terminate this Contract. County, at its sole discretion, may obtain damages from Contractor resulting from said breach. Alternatively, the County may purchase the Required Insurance, and without further notice to Contractor, deduct the premium cost from sums due to Contractor or pursue Contractor reimbursement.

8.24.6 Insurer Financial Ratings

Coverage must be placed with insurers acceptable to the County with A.M. Best ratings of not less than A:VII unless otherwise approved by County.

8.24.7 Contractor's Insurance Must Be Primary

Contractor's insurance policies, with respect to any claims related to this Contract, must be primary with respect to all other sources of coverage available to Contractor. Any County maintained insurance or self-insurance coverage must be in excess of and not contribute to any Contractor coverage.

8.24.8 Waivers of Subrogation

To the fullest extent permitted by law, the Contractor hereby waives its rights and its insurer(s)' rights of recovery against County under all the Required Insurance for any loss arising from or relating to this Contract. The Contractor must require its insurers to execute any waiver of subrogation endorsements which may be necessary to effect such waiver.

8.24.9 Subcontractor Insurance Coverage Requirements

Contractor must include all subcontractors as insureds under Contractor's own policies, or must provide County with each subcontractor's separate evidence of insurance coverage. Contractor will be responsible for verifying each subcontractor complies with the Required Insurance provisions herein, and must require that each subcontractor name the County and Contractor as additional insureds on the Subcontractor's General Liability policy. Contractor must obtain County's prior review and approval of any subcontractor request for modification of the Required Insurance.

8.24.10 Deductibles and Self-Insured Retentions (SIRs)

Contractor's policies will not obligate the County to pay any portion of any Contractor deductible or SIR. The County retains the right to require Contractor to reduce or eliminate policy deductibles and SIRs as respects the County, or to provide a bond guaranteeing Contractor's payment of all deductibles and SIRs, including all related claims investigation, administration and defense expenses. Such bond must be executed by a corporate surety licensed to transact business in the State of California.

8.24.11 Claims Made Coverage

If any part of the Required Insurance is written on a claims made basis, any policy retroactive date must precede the effective date of this Contract. Contractor understands and agrees it will maintain such coverage for a period of not less than three (3) years following Contract expiration, termination or cancellation.

8.24.12 Application of Excess Liability Coverage

Contractors may use a combination of primary, and excess insurance policies which provide coverage as broad as ("follow form" over) the underlying primary policies, to satisfy the Required Insurance provisions.

8.24.13 Separation of Insureds

All liability policies must provide cross-liability coverage as would be afforded by the standard ISO (Insurance Services Office, Inc.) separation of insureds provision with no insured versus insured exclusions or limitations.

8.24.14 Alternative Risk Financing Programs

The County reserves the right to review, and then approve, Contractor use of self-insurance, risk retention groups, risk purchasing groups, pooling arrangements and captive insurance to satisfy the Required Insurance provisions. The County and its Agents must be designated as an Additional Covered Party under any approved program.

8.24.15 County Review and Approval of Insurance Requirements

The County reserves the right to review and adjust the Required Insurance provisions, conditioned upon County's determination of changes in risk exposures.

8.25 Insurance Coverage

8.25.1 **Commercial General Liability** insurance (providing scope of coverage equivalent to ISO policy form CG 00 01), naming County and its Agents as an additional insured, with limits of not less than:

General Aggregate:	$2 million
Products/Completed Operations Aggregate:	$1 million
Personal and Advertising Injury:	$1 million
Each Occurrence:	$1 million

8.25.2 **Automobile Liability** insurance (providing scope of coverage equivalent to ISO policy form CA 00 01) with limits of not less than $1 million for bodily injury and property damage, in combined or equivalent split limits, for each single accident. Insurance must cover liability arising out of Contractor's use of autos pursuant to this Contract, including owned, leased, hired, and/or non-owned autos, as each may be applicable.

8.25.3 **Workers Compensation and Employers' Liability** insurance or qualified self- insurance satisfying statutory requirements, which includes Employers' Liability coverage with limits of not less than $1 million per accident. If Contractor will provide leased employees, or, is an employee leasing or temporary staffing firm or a professional employer organization (PEO), coverage also must include an Alternate Employer Endorsement (providing scope of coverage equivalent to ISO policy form WC 00 03 01 A) naming the County as the Alternate Employer. The written notice must be provided to County at least ten (10) days in advance of cancellation for non-payment of premium and thirty (30) days in advance for any other cancellation or policy change. If applicable to Contractor's operations, coverage also must be arranged to satisfy the requirements of any federal workers or workmen's compensation law or any federal occupational disease law.

8.25.4 Unique Insurance Coverage

- **Professional Liability/Errors and Omissions**

  Insurance covering Contractor's liability arising from or related to this Contract, with limits of not less than $1 million per claim and $2 million aggregate. Further, Contractor understands and agrees it will maintain such coverage for a period of not less than three (3) years following this Contract's expiration, termination or cancellation.

8.26 Liquidated Damages

8.26.1 If, in the judgment of the Director, or their designee, the Contractor is deemed to be non-compliant with the terms and obligations assumed hereby, the Director, or their designee, at their option, in addition to, or in lieu of, other remedies provided herein, may withhold the entire monthly payment or deduct pro rata from the Contractor's invoice for work not performed. A description of the work not performed and the amount to be withheld or deducted from payments to the Contractor from the County, will be forwarded to the Contractor by the Director, or their designee, in a written notice describing the reasons for said action.

8.26.2 If the Director, or their designee, determines that there are deficiencies in the performance of this Contract that the Director, or their designee, deems are correctable by the Contractor over a certain time span, the Director, or their designee, will provide a written notice to the Contractor to correct the deficiency within specified time frames. Should the Contractor fail to correct deficiencies within said time frame, the Director, or their designee, may: (a) Deduct from the Contractor's payment, pro rata, those applicable portions of the Monthly Contract Sum; and/or (b) Deduct liquidated damages. The parties agree that it will be impracticable or extremely difficult to fix the extent of actual damages resulting from the failure of the Contractor to correct a deficiency within the specified time frame. The parties hereby agree that under the current circumstances a reasonable estimate of such damages is One Hundred Dollars ($100) per day per infraction, or as specified in the Performance Requirements Summary (PRS) Chart, as defined in Exhibit A, Attachment 3, hereunder, and that the Contractor will be liable to the County for liquidated damages in said amount. Said amount will be deducted from the County's payment to the Contractor; and/or (c) Upon giving five (5) days' notice to the Contractor for failure to correct the deficiencies, the County may correct any and all deficiencies and the total costs incurred by the County for completion of the work by an alternate source, whether it be County forces or separate private contractor, will be deducted and forfeited from the payment to the Contractor from the County, as determined by the County.

8.26.3 The action noted in Paragraph 8.26.2 must not be construed as a penalty, but as adjustment of payment to the Contractor to recover the County cost due to the failure of the Contractor to complete or comply with the provisions of this Contract.

8.26.4 This Paragraph must not, in any manner, restrict or limit the County's right to damages for any breach of this Contract provided by law or as specified in the PRS or Paragraph 8.26.2, and must not, in any manner, restrict or limit the County's right to terminate this Contract as agreed to herein.

8.27 Most Favored Public Entity

If the Contractor's prices decline, or should the Contractor at any time during the term of this Contract provide the same goods or services under similar quantity and delivery conditions to the State of California or any county, municipality, or district of the State at prices below those set forth in this Contract, then such lower prices must be immediately extended to the County.

8.28 Nondiscrimination and Affirmative Action

8.28.1 The Contractor certifies and agrees that all persons employed by it, its affiliates, subsidiaries, or holding companies are and will be treated equally without regard to or because of race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, or political affiliation, in compliance with all applicable Federal and State anti-discrimination laws and regulations.

8.28.2 Contractor certifies to the County each of the following:

- That Contractor has a written policy statement prohibiting discrimination in all phases of employment.
- That Contractor periodically conducts a self-analysis or utilization analysis of its work force.
- That Contractor has a system for determining if its employment practices are discriminatory against protected groups.
- Where problem areas are identified in employment practices, the Contractor has a system for taking reasonable corrective action, to include establishment of goals or timetables.

8.28.3 The Contractor must take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, or political affiliation, in compliance with all applicable Federal and State anti-discrimination laws and regulations. Such action must include, but is not limited to: employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

8.28.4 The Contractor certifies and agrees that it will deal with its subcontractors, bidders, or vendors without regard to or because of race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, or political affiliation.

8.28.5 The Contractor certifies and agrees that it, its affiliates, subsidiaries, or holding companies will comply with all applicable Federal and State laws and regulations to the end that no person will, on the grounds of race, color, religion, ancestry, national origin, sex, age, physical or mental disability, marital status, or political affiliation, be excluded from

participation in, be denied the benefits of, or be otherwise subjected to discrimination under this Contract or under any project, program, or activity supported by this Contract.

8.28.6 The Contractor will allow County representatives access to the Contractor's employment records during regular business hours to verify compliance with the provisions of this Paragraph 8.28 when so requested by the County.

8.28.7 If the County finds that any provisions of this Paragraph 8.28 have been violated, such violation will constitute a material breach of this Contract upon which the County may terminate or suspend this Contract. While the County reserves the right to determine independently that the anti-discrimination provisions of this Contract have been violated, in addition, a determination by the California Fair Employment and Housing Commission or the Federal Equal Employment Opportunity Commission that the Contractor has violated Federal or State anti-discrimination laws or regulations will constitute a finding by the County that the Contractor has violated the anti-discrimination provisions of this Contract.

8.28.8 The parties agree that in the event the Contractor violates any of the anti-discrimination provisions of this Contract, the County will, at its sole option, be entitled to the sum of Five Hundred Dollars ($500) for each such violation pursuant to California Civil Code Section 1671 as liquidated damages in lieu of terminating or suspending this Contract.

8.29 Non-Exclusivity

Nothing herein is intended nor will be construed as creating any exclusive arrangement with the Contractor. This Contract will not restrict (Department) from acquiring similar, equal or like goods and/or services from other entities or sources.

8.30 Notice of Delays

Except as otherwise provided under this Contract, when either party has knowledge that any actual or potential situation is delaying or threatens to delay the timely performance of this Contract, that party must, within one (1) business day, give notice thereof, including all relevant information with respect thereto, to the other party.

8.31 Notice of Disputes

The Contractor must bring to the attention of the County's Project Manager and/or County's Project Director any dispute between the County and the Contractor regarding the performance of services as stated in this Contract. If the County's Project Manager or County's Project Director is not able to resolve the dispute, the Director, or designee will resolve it.

8.32 Notice to Employees Regarding the Federal Earned Income Credit

The Contractor must notify its employees, and will require each subcontractor to notify its employees, that they may be eligible for the Federal Earned Income

Credit under the federal income tax laws. Such notice must be provided in accordance with the requirements set forth in Internal Revenue Service Notice No. 1015.

8.33 Notice to Employees Regarding the Safely Surrendered Baby Law

The Contractor must notify and provide to its employees, and will require each subcontractor to notify and provide to its employees, information regarding the Safely Surrendered Baby Law, its implementation in Los Angeles County, and where and how to safely surrender a baby. The information is set forth in Exhibit G, Safely Surrendered Baby Law of this Contract. Additional information is available at https://lacounty.gov/residents/family-services/child-safety/safe-surrender/

8.34 Notices

All notices or demands required or permitted to be given or made under this Contract must be in writing and will be hand delivered with signed receipt or mailed by first class registered or certified mail, postage prepaid, addressed to the parties as identified in Exhibits D (County's Administration) and E (Contractor's Administration). Addresses may be changed by either party giving ten (10) days' prior written notice thereof to the other party. The Director or designee will have the authority to issue all notices or demands required or permitted by the County under this Contract.

8.35 Prohibition Against Inducement or Persuasion

Notwithstanding the above, the Contractor and the County agree that, during the term of this Contract and for a period of one year thereafter, neither party will in any way intentionally induce or persuade any employee of one party to become an employee or agent of the other party. No bar exists against any hiring action initiated through a public announcement.

8.36 Public Records Act

8.36.1 Any documents submitted by the Contractor; all information obtained in connection with the County's right to audit and inspect the Contractor's documents, books, and accounting records pursuant to Paragraph 8.38 (Record Retention and Inspection/Audit Settlement) of this Contract; as well as those documents which were required to be submitted in response to the Invitation for Bids (IFB) used in the solicitation process for this Contract, become the exclusive property of the County. All such documents become a matter of public record and will be regarded as public records. Exceptions will be those elements in the California Government Code Section 7921 et seq. (Public Records Act) and which are marked "trade secret", "confidential", or "proprietary". The County will not in any way be liable or responsible for the disclosure of any such records including, without limitation, those so marked, if disclosure is required by law, or by an order issued by a court of competent jurisdiction.

8.36.2 In the event the County is required to defend an action on a Public Records Act request for any of the aforementioned documents, information, books, records, and/or contents of a bid marked "trade secret", "confidential", or "proprietary", the Contractor agrees to defend and indemnify the County from all costs and expenses, including reasonable attorney's fees, in action or liability arising under the Public Records Act.

8.37 Publicity

8.37.1 The Contractor must not disclose any details in connection with this Contract to any person or entity except as may be otherwise provided hereunder or required by law. However, in recognizing the Contractor's need to identify its services and related clients to sustain itself, the County will not inhibit the Contractor from publishing its role under this Contract within the following conditions:

- The Contractor must develop all publicity material in a professional manner; and
- During the term of this Contract, the Contractor will not, and will not authorize another to, publish or disseminate any commercial advertisements, press releases, feature articles, or other materials using the name of the County without the prior written consent of the County's Project Director.

8.37.2 The Contractor may, without the prior written consent of County, indicate in its bids and sales materials that it has been awarded this Contract with the County, provided that the requirements of this Paragraph 8.37 (Publicity) will apply.

8.38 Record Retention and Inspection-Audit Settlement

8.38.1 The Contractor must maintain accurate and complete financial records of its activities and operations relating to this Contract in accordance with generally accepted accounting principles. The Contractor must also maintain accurate and complete employment and other records relating to its performance of this Contract. The Contractor agrees that the County, or its authorized representatives, will have access to and the right to examine, audit, excerpt, copy, or transcribe any pertinent transaction, activity, or record relating to this Contract. All such material, including, but not limited to, all financial records, bank statements, cancelled checks or other proof of payment, timecards, sign-in/sign-out sheets and other time and employment records, and proprietary data and information, will be kept and maintained by the Contractor and will be made available to the County during the term of this Contract and for a period of five (5) years thereafter unless the County's written permission is given to dispose of any such material prior to such time. All such material must be maintained by the Contractor at a location in Los Angeles County, provided that if any such material is located outside

of Los Angeles County, then, at the County's option, the Contractor will pay the County for travel, per diem, and other costs incurred by the County to examine, audit, excerpt, copy, or transcribe such material at such other location.

8.38.2 In the event that an audit of the Contractor is conducted specifically regarding this Contract by any Federal or State auditor, or by any auditor or accountant employed by the Contractor or otherwise, then the Contractor must file a copy of such audit report with the County's Auditor Controller within thirty (30) days of the Contractor's receipt thereof, unless otherwise provided by applicable Federal or State law or under this Contract. Subject to applicable law, the County will make a reasonable effort to maintain the confidentiality of such audit report(s).

8.38.3 Failure on the part of the Contractor to comply with any of the provisions of this Paragraph 8.38 will constitute a material breach of this Contract upon which the County may terminate or suspend this Contract.

8.38.4 If, at any time during the term of this Contract or within five (5) years after the expiration or termination of this Contract, representatives of the County conduct an audit of the Contractor regarding the work performed under this Contract, and if such audit finds that the County's dollar liability for any such work is less than payments made by the County to the Contractor, then the difference must be either: a) repaid by the Contractor to the County by cash payment upon demand or b) at the sole option of the County's Auditor-Controller, deducted from any amounts due to the Contractor from the County, whether under this Contract or otherwise. If such audit finds that the County's dollar liability for such work is more than the payments made by the County to the Contractor, then the difference will be paid to the Contractor by the County by cash payment, provided that in no event will the County's maximum obligation for this Contract exceed the funds appropriated by the County for the purpose of this Contract.

8.39 Recycled Bond Paper

Consistent with the Board policy to reduce the amount of solid waste deposited at the County landfills, the Contractor agrees to use recycled-content paper to the maximum extent possible on this Contract.

8.40 Subcontracting

8.40.1 The requirements of this Contract may not be subcontracted by the Contractor **without the advance approval of the County**. Any attempt by the Contractor to subcontract without the prior consent of the County may be deemed a material breach of this Contract.

8.40.2 If the Contractor desires to subcontract, the Contractor must provide the following information promptly at the County's request:

- A description of the work to be performed by the Subcontractor;

- A draft copy of the proposed subcontract; and
- Other pertinent information and/or certifications requested by the County.

8.40.3 The Contractor must indemnify and hold the County harmless with respect to the activities of each and every Subcontractor in the same manner and to the same degree as if such Subcontractor(s) were the Contractor employees.

8.40.4 The Contractor will remain fully responsible for all performances required of it under this Contract, including those that the Contractor has determined to subcontract, notwithstanding the County's approval of the Contractor's proposed subcontract.

8.40.5 The County's consent to subcontract will not waive the County's right to prior and continuing approval of any and all personnel, including Subcontractor employees, providing services under this Contract. The Contractor is responsible to notify its Subcontractors of this County right.

8.40.6 The County's Project Director is authorized to act for and on behalf of the County with respect to approval of any subcontract and Subcontractor employees. After approval of the subcontract by the County, Contractor must forward a fully executed subcontract to the County for their files.

8.40.7 The Contractor will be solely liable and responsible for all payments or other compensation to all Subcontractors and their officers, employees, agents, and successors in interest arising through services performed hereunder, notwithstanding the County's consent to subcontract.

8.40.8 The Contractor must obtain certificates of insurance, which establish that the Subcontractor maintains all the programs of insurance required by the County from each approved Subcontractor. Before any Subcontractor employee may perform any work hereunder, Contractor must email of all such documents with subject line "ibml #25-003 Subcontracting" to:

Contracts@rrcc.lacounty.gov

8.41 Termination for Breach of Warranty to Maintain Compliance with County's Child Support Compliance Program

Failure of the Contractor to maintain compliance with the requirements set forth in Paragraph 8.14 (Contractor's Warranty of Adherence to County's Child Support Compliance Program), will constitute default under this Contract. Without limiting the rights and remedies available to the County under any other provision of this Contract, failure of the Contractor to cure such default within ninety (90) calendar days of written notice will be grounds upon which the County may terminate this Contract pursuant to Paragraph 8.43 (Termination for Default and pursue debarment of the Contractor), pursuant to County Code Chapter 2.202.

8.42 Termination for Convenience

8.42.1 This Contract may be terminated, in whole or in part, from time to time, when such action is deemed by the County, in its sole discretion, to be in its best interest. Termination of work hereunder will be effected by notice of termination to the Contractor specifying the extent to which performance of work is terminated and the date upon which such termination becomes effective. The date upon which such termination becomes effective will be no less than ten (10) days after the notice is sent.

8.42.2 After receipt of a notice of termination and except as otherwise directed by the County, the Contractor must:

- Stop work under this Contract on the date and to the extent specified in such notice, and
- Complete performance of such part of the work as would not have been terminated by such notice.

8.42.3 All material including books, records, documents, or other evidence bearing on the costs and expenses of the Contractor under this Contract must be maintained by the Contractor in accordance with Paragraph 8.38 (Record Retention and Inspection/Audit Settlement).

8.43 Termination for Default

8.43.1 The County may, by written notice to the Contractor, terminate the whole or any part of this Contract, if, in the judgment of County's Project Director:

- Contractor has materially breached this Contract; or
- Contractor fails to timely provide and/or satisfactorily perform any task, deliverable, service, or other work required either under this Contract; or
- Contractor fails to demonstrate a high probability of timely fulfillment of performance requirements under this Contract, or of any obligations of this Contract and in either case, fails to demonstrate convincing progress toward a cure within five (5) working days (or such longer period as the County may authorize in writing) after receipt of written notice from the County specifying such failure.

8.43.2 In the event that the County terminates this Contract in whole or in part as provided in Paragraph 8.43.1, the County may procure, upon such terms and in such manner as the County may deem appropriate, goods and services similar to those so terminated. The Contractor will be liable to the County for any and all excess costs incurred by the County, as determined by the County, for such similar goods and services. The

Contractor will continue the performance of this Contract to the extent not terminated under the provisions of this Paragraph.

8.43.3 Except with respect to defaults of any Subcontractor, the Contractor will not be liable for any such excess costs of the type identified in Paragraph 8.43.2 if its failure to perform this Contract arises out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not limited to: acts of God or of the public enemy, acts of the County in either its sovereign or contractual capacity, acts of Federal or State governments in their sovereign capacities, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather; but in every case, the failure to perform must be beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the default of a Subcontractor, and if such default arises out of causes beyond the control of both the Contractor and Subcontractor, and without the fault or negligence of either of them, the Contractor will not be liable for any such excess costs for failure to perform, unless the goods or services to be furnished by the Subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule. As used in this Paragraph 8.43.3, the terms "Subcontractor" and "Subcontractors" mean Subcontractor(s) at any tier.

8.43.4 If, after the County has given notice of termination under the provisions of this Paragraph 8.43, it is determined by the County that the Contractor was not in default under the provisions of this Paragraph 8.43, or that the default was excusable under the provisions of Paragraph 8.43.3, the rights and obligations of the parties will be the same as if the notice of termination had been issued pursuant to Paragraph 8.42 (Termination for Convenience).

8.43.5 The rights and remedies of the County provided in this Paragraph 8.43 will not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

8.44 Termination for Improper Consideration

8.44.1 The County may, by written notice to the Contractor, immediately terminate the right of the Contractor to proceed under this Contract if it is found that consideration, in any form, was offered or given by the Contractor, either directly or through an intermediary, to any County officer, employee, or agent with the intent of securing the Contract or securing favorable treatment with respect to the award, amendment, or extension of the Contract or the making of any determinations with respect to the Contractor’s performance pursuant to the Contract. In the event of such termination, the County will be entitled to pursue the same remedies against the Contractor as it could pursue in the event of default by the Contractor.

8.44.2 The Contractor must immediately report any attempt by a County officer, employee, or agent to solicit such improper consideration. The report must be made to the Los Angeles County Fraud Hotline at (800) 544-6861 or https://fraud.lacounty.gov/.

8.44.3 Among other items, such improper consideration may take the form of cash, discounts, service, the provision of travel or entertainment, or tangible gifts.

8.45 Termination for Insolvency

8.45.1 The County may terminate this Contract forthwith in the event of the occurrence of any of the following:

- Insolvency of the Contractor. The Contractor will be deemed to be insolvent if it has ceased to pay its debts for at least sixty (60) days in the ordinary course of business or cannot pay its debts as they become due, whether or not a petition has been filed under the Federal Bankruptcy Code and whether or not the Contractor is insolvent within the meaning of the Federal Bankruptcy Code;
- The filing of a voluntary or involuntary petition regarding the Contractor under the Federal Bankruptcy Code;
- The appointment of a Receiver or Trustee for the Contractor; or
- The execution by the Contractor of a general assignment for the benefit of creditors.

8.45.2 The rights and remedies of the County provided in this Paragraph 8.45 will not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

8.46 Termination for Non-Adherence of County Lobbyist Ordinance

The Contractor, and each County Lobbyist or County Lobbying firm as defined in County Code Section 2.160.010 retained by the Contractor, must fully comply with the County's Lobbyist Ordinance, County Code Chapter 2.160. Failure on the part of the Contractor or any County Lobbyist or County Lobbying firm retained by the Contractor to fully comply with the County's Lobbyist Ordinance will constitute a material breach of this Contract, upon which the County may in its sole discretion, immediately terminate or suspend this Contract.

8.47 Termination for Non-Appropriation of Funds

Notwithstanding any other provision of this Contract, the County will not be obligated for the Contractor's performance hereunder or by any provision of this Contract during any of the County's future fiscal years unless and until the County's Board appropriates funds for this Contract in the County's Budget for each such future fiscal year. In the event that funds are not appropriated for this Contract, then this Contract will terminate as of June 30 of the last fiscal year for which funds were appropriated. The County will notify the Contractor in writing of any such non-allocation of funds at the earliest possible date.

8.48 Validity

If any provision of this Contract or the application thereof to any person or circumstance is held invalid, the remainder of this Contract and the application of such provision to other persons or circumstances will not be affected thereby.

8.49 Waiver

No waiver by the County of any breach of any provision of this Contract will constitute a waiver of any other breach or of such provision. Failure of the County to enforce at any time, or from time to time, any provision of this Contract will not be construed as a waiver thereof. The rights and remedies set forth in this Paragraph 8.49 will not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

8.50 Warranty Against Contingent Fees

8.50.1 The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Contract upon any Contract or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

8.50.2 For breach of this warranty, the County will have the right to terminate this Contract and, at its sole discretion, deduct from the Contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

8.51 Warranty of Compliance with County's Defaulted Property Tax Reduction Program

Contractor acknowledges that County has established a goal of ensuring that all individuals and businesses that benefit financially from County through contract are current in paying their property tax obligations (secured and unsecured roll) in order to mitigate the economic burden otherwise imposed upon County and its taxpayers.

Unless Contractor qualifies for an exemption or exclusion, Contractor warrants and certifies that to the best of its knowledge it is now in compliance, and during the term of this contract will maintain compliance, with Los Angeles County Code Chapter 2.206.

8.52 Termination for Breach of Warranty to Maintain Compliance with County's Defaulted Property Tax Reduction Program

Failure of Contractor to maintain compliance with the requirements set forth in Paragraph 8.51 (Warranty of Compliance with County's Defaulted Property Tax Reduction Program) will constitute default under this contract. Without limiting the rights and remedies available to County under any other provision of this contract, failure of Contractor to cure such default within 10 days of notice will be grounds

upon which County may terminate this contract and/or pursue debarment of Contractor, pursuant to Los Angeles County Code Chapter 2.206.

8.53 Time Off for Voting

The Contractor must notify its employees, and must require each subcontractor to notify and provide to its employees, information regarding the time off for voting law (Elections Code Section 14000). Not less than 10 days before every statewide election, every Contractor and subcontractors must keep posted conspicuously at the place of work, if practicable, or elsewhere where it can be seen as employees come or go to their place of work, a notice setting forth the provisions of Section 14000.

8.54 Compliance with County's Zero Tolerance Policy on Human Trafficking

Contractor acknowledges that the County has established a Zero Tolerance Policy on Human Trafficking prohibiting contractors from engaging in human trafficking.

If a Contractor or member of Contractor's staff is convicted of a human trafficking offense, the County will require that the Contractor or member of Contractor's staff be removed immediately from performing services under the Contract. County will not be under any obligation to disclose confidential information regarding the offenses other than those required by law.

Disqualification of any member of Contractor's staff pursuant to this Paragraph will not relieve Contractor of its obligation to complete all work in accordance with the terms and conditions of this Contract.

8.55 Intentionally Omitted

8.56 Compliance with Fair Chance Employment Hiring Practices

Contractor, and its subcontractors, must comply with fair chance employment hiring practices set forth in California Government Code Section 12952. Contractor's violation of this Paragraph of the Contract may constitute a material breach of the Contract. In the event of such material breach, County may, in its sole discretion, terminate the Contract.

8.57 Compliance with the County Policy of Equity

The contractor acknowledges that the County takes its commitment to preserving the dignity and professionalism of the workplace very seriously, as set forth in the County Policy of Equity (CPOE) (https://ceop.lacounty.gov/). The contractor further acknowledges that the County strives to provide a workplace free from discrimination, harassment, retaliation and inappropriate conduct based on a protected characteristic, and which may violate the CPOE. The contractor, its employees and subcontractors acknowledge and certify receipt and understanding of the CPOE. Failure of the contractor, its employees or its subcontractors to uphold the County's expectations of a workplace free from harassment and discrimination, including inappropriate conduct based on a protected characteristic, may subject the contractor to termination of contractual Contracts as well as civil liability.

8.58 Prohibition from Participation in Future Solicitation(s)

A Bidder, or a Contractor or its subsidiary or Subcontractor ("Bidder/Contractor"), is prohibited from submitting a bid or proposal in a County solicitation if the Bidder/Contractor has provided advice or consultation for the solicitation. A Bidder/Contractor is also prohibited from submitting a bid or proposal in a County solicitation if the Bidder/Contractor has developed or prepared any of the solicitation materials on behalf of the County. A violation of this provision will result in the disqualification of the Contractor/Bidder from participation in the County solicitation or the termination or cancellation of any resultant County contract.

8.59 Injury and Illness Prevention Program

Contractor will be required to comply with the State of California's Cal OSHA's regulations. California Code of Regulations Title 8 Section 3203 requires all California employers to have a written, effective Injury and Illness Prevention Program (IIPP) that addresses hazards pertaining to the particular workplace covered by the program.

8.60 Campaign Contribution Prohibition Following Final Decision in Contract Proceeding

Pursuant to Government Code Section 84308, Contractor and its Subcontractors, are prohibited from making a contribution of more than $250 to a County officer for twelve (12) months after the date of the final decision in the proceeding involving this Contract. Failure to comply with the provisions of Government Code Section 84308 and of this paragraph, may be a material breach of this Contract as determined in the sole discretion of the County.

9.0 UNIQUE TERMS AND CONDITIONS

9.1 Intentionally Omitted

9.2 Intentionally Omitted

9.3 Intentionally Omitted

9.4 Intentionally Omitted

9.5 Intentionally Omitted

9.6 Intentionally Omitted

9.7 Local Small Business Enterprise (LSBE) Preference Program

9.7.1 This Contract is subject to the provisions of the County's ordinance entitled LSBE Preference Program, as codified in Chapter 2.204 of the Los Angeles County Code.

9.7.2 The Contractor will not knowingly and with the intent to defraud, fraudulently obtain, retain, attempt to obtain or retain, or aid another in fraudulently obtaining or retaining or attempting to obtain or retain certification as a LSBE.

9.7.3 The Contractor will not willfully and knowingly make a false statement with the intent to defraud, whether by affidavit, report, or other representation, to a County official or employee for the purpose of influencing the certification or denial of certification of any entity as a LSBE.

9.7.4 If the Contractor has obtained certification as a LSBE by reason of having furnished incorrect supporting information or by reason of having withheld information, and which knew, or should have known, the information furnished was incorrect or the information withheld was relevant to its request for certification, and which by reason of such certification has been awarded this contract to which it would not otherwise have been entitled, will:

- Pay to the County any difference between the contract amount and what the County's costs would have been if the contract had been properly awarded;
- In addition to the amount described in subdivision (1), be assessed a penalty in an amount of not more than ten (10) percent of the amount of the contract; and
- Be subject to the provisions of Chapter 2.202 of the Los Angeles County Code (Determinations of Contractor Non-responsibility and Contractor Debarment).

The above penalties will also apply to any business that has previously obtained proper certification, however, as a result of a change in their status would no longer be eligible for certification, and fails to notify the State and the Department of Economic Opportunity of this information prior to responding to a solicitation or accepting a contract award.

9.8 Social Enterprise (SE) Preference Program

9.8.1 This Contract is subject to the provisions of the County's ordinance entitled SE Preference Program, as codified in Chapter 2.205 of the Los Angeles County Code.

9.8.2 Contractor must not knowingly and with the intent to defraud, fraudulently obtain, retain, attempt to obtain or retain, or aid another in fraudulently obtaining or retaining or attempting to obtain or retain certification as a SE.

9.8.3 Contractor must not willfully and knowingly make a false statement with the intent to defraud, whether by affidavit, report, or other representation, to a County official or employee for the purpose of influencing the certification or denial of certification of any entity as a SE.

9.8.4 If Contractor has obtained County certification as a SE by reason of having furnished incorrect supporting information or by reason of having withheld information, and which knew, or should have known, the

information furnished was incorrect or the information withheld was relevant to its request for certification, and which by reason of such certification has been awarded this contract to which it would not otherwise have been entitled, Contractor will:

- Pay to the County any difference between the contract amount and what the County's costs would have been if the contract had been properly awarded;
- In addition to the amount described in subdivision (1) above, the Contractor will be assessed a penalty in an amount of not more than ten percent (10%) of the amount of the contract; and
- Be subject to the provisions of Chapter 2.202 of the Los Angeles County Code (Determinations of Contractor Non-responsibility and Contractor Debarment).

The above penalties will also apply to any entity that has previously obtained proper certification, however, as a result of a change in their status would no longer be eligible for certification, and fails to notify the Department of Economic Opportunity of this information prior to responding to a solicitation or accepting a contract award.

9.9 Disabled Veteran Business Enterprise (DVBE) Preference Program

9.9.1 This Contract is subject to the provisions of the County's ordinance entitled DVBE Preference Program, as codified in Chapter 2.211 of the Los Angeles County Code.

9.9.2 Contractor must not knowingly and with the intent to defraud, fraudulently obtain, retain, attempt to obtain or retain, or aid another in fraudulently obtaining or retaining or attempting to obtain or retain certification as a DVBE.

9.9.3 Contractor must not willfully and knowingly make a false statement with the intent to defraud, whether by affidavit, report, or other representation, to a County official or employee for the purpose of influencing the certification or denial of certification of any entity as a DVBE.

9.9.4 If Contractor has obtained certification as a DVBE by reason of having furnished incorrect supporting information or by reason of having withheld information, and which knew, or should have known, the information furnished was incorrect or the information withheld was relevant to its request for certification, and which by reason of such certification has been awarded this contract to which it would not otherwise have been entitled, Contractor will:

- Pay to the County any difference between the contract amount and what the County's costs would have been if the contract had been properly awarded;

- In addition to the amount described in subdivision (1) above, the Contractor will be assessed a penalty in an amount of not more than 10 percent of the amount of the contract; and
- Be subject to the provisions of Chapter 2.202 of the Los Angeles County Code (Determinations of Contractor Non-responsibility and Contractor Debarment).

Notwithstanding any other remedies in this Contract, the above penalties will also apply to any business that has previously obtained proper certification, however, as a result of a change in their status would no longer be eligible for certification, and fails to notify the State and the Department of Economic Opportunity of this information prior to responding to a solicitation or accepting a contract award.

9.10 Intentionally Omitted

9.11 Intentionally Omitted

9.12 Intentionally Omitted

9.13 Compliance with County's Women in Technology Hiring Initiative

At the direction of the Board, the County has established a "Women in Technology" (WIT) Hiring Initiative focused on recruiting, training, mentoring and preparing all genders, including women, at-risk youth, and underrepresented populations (program participants) for County Information Technology (IT) careers. In support of the subject initiative, IT contractors currently offering certification, training, and/or mentoring programs must make such program(s) available to WIT program participants, if feasible. Contractors must report such programs available to: WITProgram@isd.lacounty.gov.

10.0 SURVIVAL

In addition to any terms and conditions of this Contract that expressly survive expiration or termination of this Contract by their terms, the following provisions will survive the expiration or termination of this Contract for any reason:

Paragraph 1.0	Applicable Documents
Paragraph 2.0	Definitions
Paragraph 3.0	Work
Paragraph 5.4	No Payment for Services Provided Following Expiration/Termination of Contract
Paragraph 7.6	Confidentiality
Paragraph 8.1	Amendments
Paragraph 8.2	Assignment and Delegation/Mergers or Acquisitions
Paragraph 8.6	Compliance with Applicable Laws

Paragraph 8.19	Fair Labor Standards
Paragraph 8.20	Force Majeure
Paragraph 8.21	Governing Law, Jurisdiction, and Venue
Paragraph 8.23	Indemnification
Paragraph 8.24	General Provisions for all Insurance Coverage
Paragraph 8.25	Insurance Coverage
Paragraph 8.26	Liquidated Damages
Paragraph 8.34	Notices
Paragraph 8.38	Record Retention and Inspection-Audit Settlement
Paragraph 8.42	Termination for Convenience
Paragraph 8.43	Termination for Default
Paragraph 8.48	Validity
Paragraph 8.49	Waiver
Paragraph 8.58	Prohibition from Participation in Future Solicitation(s)
Paragraph 8.60	Campaign Contribution Prohibition Following Final Decision in Contract Proceeding
Paragraph 10.0	Survival

IN WITNESS WHEREOF, Contractor has executed this Contract, or caused it to be duly executed and the County of Los Angeles, by order of its Board of Supervisors has caused this Contract to be executed on its behalf by the Registrar-Recorder/County Clerk, the day and year first above written.

COUNTY OF LOS ANGELES	CONTRACTOR
_____	_____
DEAN C. LOGAN Registrar-Recorder/County Clerk	AUTHORIZED SIGNATURE
	_____
	PRINT NAME
	_____
	TITLE
	_____
	TAX IDENTIFICATION NUMBER

APPROVED AS TO FORM:

DAWYN R. HARRISON
County Counsel

By _____
Michael D. Owens

Senior Deputy County Counsel

EXHIBITS A through M

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2 Contract Discrepancy Report (CDR)
3 Performance Requirements Summary (PRS)

STATEMENT OF WORK (SOW)
IBML SCANNER TALLY MAINTENANCE AND SUPPORT SERVICES

1.0 SCOPE OF WORK

1.1 PURPOSE

This Statement of Work (SOW) outlines the tasks, deliverables, and services that the Contractor will provide for the Tally Maintenance and Support (Tally M&S) of ibml scanner Tally services.

The Los Angeles County Registrar-Recorder/County Clerk (RR/CC) necessitates Tally M&S for a total of twenty (20) ibml ImageTrac 6400 and (4) ibml Fusion 8400 document scanners utilized in election ballot processing. The County reserves the right to procure additional scanners during the contract duration, and the Tally M&S for potential additional scanners must be encompassed in this Contract. Any additional scanners not defined in this SOW will be negotiated for similar pricing upon purchase, and this Contract will be amended in accordance with Section 8.1 of the Contract.

Tally M&S is indispensable to ensure optimal performance and a consistently high level of quality for accurate election ballot scanning using the ibml scanners. Tally M&S support encompasses both hardware components on the ibml scanners and the associated ibml software components and configurations that facilitate scanner operation.

Activities related to both Major and Minor Election Support, along with critical Tally M&S support activities for the RR/CC, will collectively be referred to as "Election Support Activities" within this document.

ibml Scanner Tally M&S Tasks		
Task #	**Tasks**	**Onsite Support Availability**
1	Kickoff Meeting	TBD
2	Hardware Tally M&S	Monthly
3	Onsite Tally M&S Services during Major Elections: 1) General Elections 2) Primary Elections 3) State-Wide Elections 4) Special Elections that affect Los Angeles County as a whole	Onsite support availability potentially 24/7 beginning up to: • One (1) month prior to an election • One (1) month after an election • Election day through the end of election night ballot processing For a list of current and upcoming elections please visit: https://lavote.gov/home/voting-elections/current-elections/upcoming-elections
4	Onsite Tally M&S Services during Minor Elections (Upon Request Only) Minor Elections: 1) City Elections (RR/CC asked to conduct) 2) Special Elections that affect a portion of Los Angeles County	Onsite support availability beginning: • One (1) week prior to an election • Two (2) weeks after election • Election day through the end of election night ballot processing
5	Pool Dollars (Upon Request Only)	Please see Section 2.5, Task 5 for full description.

1.2 BACKGROUND

In 2018, the California Secretary of State (Ca SoS) certified the Voting Solutions for All People® (VSAP) Tally system as a new voting system for processing the new full-face Vote by Mail (VBM) ballots. The certification of the VSAP system included six (6) ibml ImageTrac 6400 document scanners to scan and create paper ballots into digital images. By 2020, an additional fourteen (14) ibml scanners were acquired, bringing the total to 20 scanners. Furthermore, in April 2024, two (2) Fusion 8400 document scanners were ordered and were delivered to the RR/CC Ballot Processing Center (BPC) in the City of Industry in June of 2024.

This expansion was essential for a complete transition to the County's new VSAP, which includes in-person Ballot Marking Device ballots and countywide VBM ballots. Currently, 22 scanners are located at 13401 Crossroads Pkwy, City of Industry, CA 91746 (BPC). Additionally, in January 2024, two (2) Fusion 8400 document scanners were acquired to support an emergency disaster recovery site located at 9150 Imperial Hwy, Downey, CA 90242 (TOC/Disaster Recovery Center), bring the total to twenty-four (24) scanners.

The ibml document scanners play a crucial role in the Tally operation, handling the processing of ballots and reporting of election results. It is imperative that the scanners are consistently maintained in optimal condition, ensuring peak performance to meet the expected volume and accuracy standards of elections. The Contractor must possess the qualifications and experience outlined to be eligible for this Statement of Work (SOW).

2.0 TASKS AND DELIVERABLES

2.1 TASK 1 – KICK-OFF MEETING

A mandatory kick-off meeting must occur within thirty (30) days of the Contract's effective date. During the kick-off meeting, the RR/CC will provide an overview, introduce staff, respond to Q&A, and discuss the Tasks, Deliverables, and associated timeframes. The meeting may be held at the RR/CC BPC located at 13401 Crossroads Pkwy N, City of Industry, CA 91746, or via a Teams online meeting, as mutually agreed upon by County and Contractor.

2.2 TASK 2 – PROVIDE MONTHLY IBML SCANNER TALLY M&S

The Contractor is required to provide the following onsite ibml scanner Tally M&S on a monthly basis, excluding periods when Contractor is otherwise onsite for support of major elections.

2.2.1 General Monthly Tally M&S: Contractor must:

2.2.1.1 Maintain five (5) identified ibml scanners in good operating condition year-round. Next business day (NBD) Tally M&S will be provided for these five (5) scanners, and will include:

a. 1 business day response time
b. On-site support within 1 business day (if needed)

c. All replacement parts included.

2.2.1.2 Perform monthly preventative maintenance on all (24) ibml scanners at their BPC and Tally Operations Center/Disaster Recovery Center (TOC). This monthly service will include:

a. Correct all deficiencies in ibml scanners
b. Correct all errors in all ibml scanners and provide User Support for all errors (whether caused by deficiencies or user error) arising during use of the ibml scanners from a help desk or certified technicians
c. Provide user support for all errors arising through certified ibml scanner technicians and provide complete history (System Log) for all ibml scanner items serviced. Contractor must update scanner specific System Logs for all repairs and maintenance and must furnish to County upon request.

2.2.2 Preventative Maintenance (PM): Contractor must conduct Preventative Maintenance services on a monthly basis on all ibml scanners to ensure proper functionality and reliability. Preventive Maintenance (e.g., to inspect, lubricate, clean and adjust the scanners) must be performed in accordance with applicable ibml scanners maintenance, installation, and operator's manuals.

2.2.3 Corrective Maintenance: Contractor must conduct Corrective Maintenance intended to correct any damage or malfunctions observed in the ibml scanners. The process will evaluate any defects and correct, repair or replace any part. Contractor will provide materials and parts necessary to ensure proper functioning of the ibml scanners in working condition. Parts must be provided by the Contractor with no additional cost over and above the maintenance charges specified.

2.2.4 Equipment: All parts to repair or replace any failed equipment must be original ibml parts (OEM).

2.2.5 Contractor Staff: All maintenance must be performed by ibml Certified Technicians trained in the operation, maintenance, and repair of ibml scanners. When required, Contractor will provide guidance to RR/CC personnel on the proper use and maintenance of the scanners.

2.2.6 System Log: Contractor must create, update and submit an electronic System Log accessible 24/7 to authorized RR/CC staff, within 48 hours of any work being done on the ibml scanners. Log entries will include daily maintenance, monthly maintenance, and all repairs. The System Log must capture all components replaced (including, but not limited to ink cartridges, rollers, tires, belts, and other components of the ibml

scanners) and all work performed on each scanner. The System Log must include, at a minimum, the following information:

1. Scanner ID Number (assigned by County)
2. Scanner Serial Number (assigned by scanner manufacturer)
3. Date and time of event
4. Current document number (total pages processed by scanner since manufacture)
5. Related Problem Number from Problem Log (if this maintenance task is tied to an open problem)
6. Name of Contractor personnel providing support
7. Description of the work (include components replaced and work performed)

2.2.7 Problem Tracking Log*:* Contractor must create and update an interactive/automated Problem Tracking Log accessible 24/7 to authorized County staff, which will be reviewed and revised at least weekly for follow-up on unresolved issues. The Problem Log must include the following:

1. Problem Number (a unique ID assigned by Contractor)
2. Date and time reported
3. County employee or affiliate reporting the problem and phone number
4. Contractor personnel receiving the initial County contact regarding the problem
5. Description of the problem
6. Priority Level assigned to the problem is decided by the RR/CC.
7. Resolution status and estimated fix date (completed by Contractor)
8. Resolution plan (completed by Contractor)
9. Resolution description and date resolved (completed by Contractor)
10. A log of each individual contact between County and Contractor regarding the problem, including the date, time, County and Contractor personnel names for each contact, textual summaries of phone calls, and copies of all related email text and other correspondence.

2.2.8 Unscheduled Service Requests (SRs): The RR/CC may request unscheduled Tally M&S through a Service Request (SR). An SR may require adjustments and repairs to ibml scanners including the replacement (on an exchange basis) of unserviceable parts or components occasioned by the normal use of the ibml scanners. In the event the supported ibml scanner software fails to operate substantially as described in the then current manufacturer or equivalent user documentation for such software, the RR/CC will request an SR.

Contractor must provide telephone and email response through its Help Desk each Business Day between 8:00 am and 5:00 pm PT for unscheduled SRs. Contractor must provide RR/CC in writing, the expected time frame required to perform services and replace parts (if applicable) for the RR/CC's consideration and approval. Services for all scanners and the 5 identified NBD scanners include parts coverage; however, replacement parts do not include consumable or wear and tear items. The RR/CC will need to purchase the replacement parts for the other scanners.

The response time for unscheduled SRs is as follows:

Hardware

- Major and Minor Election Support Activities: Four (4) hour response between 8:00am – 5:00pm PT, 7-days per week (Sunday – Saturday)
- All Other Time Frames: Next Business Day (NBD) response between 8:00am – 5pm, Monday - Friday

Software

- Major and Minor Election Support Activities: Contractor must provide, within two (2) business days, a (1) temporary solution for the problem, or (2) a correction of the problem, in the next revision level of the supported software.
- All Other Time Frames: During the Contract term, Contractor must give RR/CC written notice of new maintenance revision levels of supported software available to RR/CC under agreement. Software Maintenance response must be 8am - 5pm Monday - Friday. Software maintenance will be provided via email and/or phone support.

Contractor's Technicians must provide the RR/CC a SR Ticket for each Unscheduled SR before leaving RR/CC's premises.

SR Tickets must include:

- Date(s) of service
- Scanner Model/Serial Number
- Address
- Full description of work completed including parts replaced
- Contractor Technician (printed and signed)
- Authorized Department personnel name (print and signed) and employee identification number
- Creating/Updating problem log entry for each

Task 2 Deliverables:

- Publish a monthly schedule of the Tally M&S in coordination with and approved by with County's designated Project Manager
- Provide Monthly ibml Tally M&S for all scanners and update logs
- Provide Monthly management reports showing support tickets and the time worked on each support ticket
- Notify County of new releases of supported software
- Coordinate with County to install new releases of supported software
- Update scanner-specific maintenance log for all work done on each scanner
- Open support tickets and provide details on the tickets as required by ibml help desk and support engineers
- Create Problem Log entries for each SR ticket opened
- Update Problem Log entries as work progresses on SR tickets

2.3 TASK 3 – PROVIDE ONSITE TALLY M&S SERVICES DURING MAJOR ELECTIONS

The Contractor must provide onsite ibml Tally M&S services and support during all Major Elections at the BPC, as requested by the County. Onsite election M&S services do not include the two scanners at the TOC. However, if the TOC emergency disaster recovery site is activated and scanning doesn't occur at the Ballot Processing Center (BPC), the onsite election M&S will extend to cover the usage of the two scanners.

Elections that include all the voters in Los Angeles County are considered Major Elections. Every even-numbered year, there are two Major Elections: the Primary and General Elections. During odd-numbered years, special elections may occur, up to one (1) per calendar year. These are unplanned elections, such as a recall or special measure.

Contractor will provide onsite Tally M&S services during Major Elections to include:

- Preparing all on-site ibml scanners daily to scan documents
- Troubleshooting scanner hardware and software issues
- Opening support tickets and providing details on the tickets as required by the Help Desk and certified ibml Technicians
- Creating Problem Log entries for each support ticket opened
- Updating Problem Log entries as work progresses on support tickets
- Updating scanner-specific maintenance log for all work done on each scanner
- Providing monthly management reports showing support tickets and time worked on each support ticket

Major Election Timeframe

1. Contractor must guarantee periods of availability for onsite support for Major Elections, including weekends and holidays, beginning one (1) month prior to Election Day and continuing for up to one (1) month after Election Day.

2. RR/CC will email Contractor a schedule (exact dates) and the exact number of scanners requiring support for onsite Tally M&S for Major Elections at least twelve (12) weeks prior to the start of any activities requiring support.

3. Election-specific Testing, as requested by the RR/CC. Contractor must provide onsite Tally M&S during Election-specific Testing, beginning up to one (1) month prior to Election Day to up to one (1) month after Election Day, as needed. Onsite Tally M&S is required during regular business hours, Monday – Friday 9:00am- 5:00pm during this operation.

4. Regular Ballot Scanning Operation: Contractor will provide onsite Tally M&S during the Regular Ballot Scanning Operation beginning up to fourteen (14) days prior to Election Day to up to twenty-eight (28) days after Election Day, including weekends and holidays. Onsite Tally M&S is required up to fifteen (15) hours per day from 7:00am - 10:00pm during this operation.

5. 24/7 Ballot Scanning Operation: Contractor will provide Tally M&S during the 24/7 Ballot Scanning Operation beginning up to five (5) days prior Election Day to up to seven (7) days after Election Day, including weekends and holidays. Onsite M&S is required 24 hours a day, 7 days a week during this operation.

6. Contractor must provide sufficient staff to provide Tally M&S for up to 22 ibml scanners during the Regular Ballot Scanning Operation and 24/7 Ballot Scanning Operation.

   At a minimum, Contractor will provide 1 certified field technician (for troubleshooting, configurations, installations, advanced maintenance, and to provide direction to support technicians) and three (3) ibml support technicians (familiar with the scanners to assist with maintenance for scanner cleaning, wiping lenses, changing feed belts and tires, replacing ink, and other tasks as directed by the ibml-certified Technician) on-site for every 5-6 scanners during all ballot scanning operations (e.g., 22 scanners will require four (4) technicians).

Task 3 Deliverables: Contractor will provide onsite Tally M&S services during major elections to include:

- Preparing scanners daily to scan documents
- Troubleshooting scanner hardware and software issues
- Opening support tickets and providing details on the tickets as required by ibml help desk and support engineers
- Creating Problem Log entries for each support ticket opened
- Updating Problem Log entries as work progresses on support tickets
- Updating scanner-specific maintenance log for all work done on each scanner

2.4 TASK 4 – PROVIDE ONSITE TALLY M&S SERVICES DURING MINOR ELECTIONS (UPON REQUEST ONLY)

Contractor must provide onsite ibml Tally M&S and on-call support, as-requested, during Minor Elections. A Minor Election includes city, county, school, or special district elections, often featuring nonpartisan local offices where candidates run without party affiliation listed on the ballot. These elections cover specific areas within a county and do not mandate the use of all available scanners. Minor elections may occur up multiple times in a calendar year, upon request only.

Contractor will provide onsite Tally M&S services during Minor Elections to include:

- Preparing up to 22 ibml scanners daily to scan documents
- Troubleshooting scanner hardware and software issues
- Opening support tickets and providing details on the tickets as required by the Help Desk and certified ibml Technicians
- Creating Problem Log entries for each support ticket opened
- Updating Problem Log entries as work progresses on support tickets
- Updating scanner-specific maintenance log for all work done on each scanner

<u>Minor Election Timeframe</u>

1. The RR/CC will email Contractor a schedule (exact dates) and the exact number of scanners requiring support for onsite Tally M&S for Minor Elections at least four (4) weeks prior to the start of any activities requiring support.

2. Contractor must guarantee periods of availability for onsite support beginning up to seven (7) days prior to Election Day and to up to fourteen (14) days after Election Day.

3. Onsite work will be billed hourly. Minor elections vary in size and duration and will be scheduled four (4) weeks prior to the start of any activities requiring support.

Task 4 Deliverables: Contractor will provide onsite Tally M&S services during Minor Elections to include:

- Preparing scanners daily to scan documents
- Troubleshooting scanner hardware and software issues
- Opening support tickets and providing details on the tickets as required by ibml help desk and support engineers.
- Creating Problem Log entries for each support ticket opened.
- Updating Problem Log entries as work progresses on support tickets
- Updating scanner-specific maintenance log for all work done on each scanner

2.5 TASK 5 – POOL DOLLARS AND OPTIONAL WORK (UPON REQUEST ONLY)

Pool Dollars are the amount allocated under the Contract for the provision by Contractor of Optional Work, including Professional Services, as requested and approved by County.

Prior to performing Pool Dollar services, Contractor must prepare and submit to the County Pool Dollar Request Form (SOW Attachment 1), which is a written description of the work with an estimate of labor (time) and parts (materials) required to service equipment. If the work exceeds Contractor's estimate, the County Project Director must approve the excess cost prior to the Optional Work being done. In any case, no Pool Dollars work will commence without written authorization.

Work will commence on the established specified date and be completed within the time allotted. A completed, signed Pool Dollar Request Form (SOW Attachment 1) will be attached to each Pool Dollar invoice submitted for payment. At no point will Pool Dollar services exceed the allotted Contract Sum, and all charges must be in accordance with Exhibit B, Pricing Schedule.

Pool Dollar services may include, at a minimum:

1. Customize software to support unforeseen capabilities or create new capabilities
2. Modify equipment for County requirements
3. Relocate or transport equipment
4. Reconfigure or realign equipment due to changes to County's network or system configuration
5. Election System Testing, as-requested, no more than twice a year during Election Tally System Testing. Election Tally System Testing occurs when components of the system, or procedures for using the system, change and require testing and validation.

- Election Tally System Testing may occur on the current version of the Election Tally System and will certainly occur for any future versions of the Election Tally System.
- Contractor must guarantee periods of availability for one (1) ibml Technician for up to five (5) business days during normal business hours during Election Tally System Testing.

6. Recertification: Inspect Equipment that has lapsed in warranty coverage to determine if equipment is in operating order and eligible for coverage under this agreement. Once Equipment has passed inspection or is brought to a supportable state, this Equipment may be added to this support agreement

Task 5 Deliverables:

- Complete Pool Dollar Request Form (SOW Attachment 1) for Optional Work
- Provide weekly updates on the status of each Pool Dollars Service Request
- Update scanner-specific maintenance log for all work done on each scanner
- Open support tickets and provide details on the tickets as required by ibml help desk and support engineers
- Create Problem Log entries for each support ticket opened
- Update Problem Log entries as work progresses on support tickets
- Provide written response to County's Service Request with a description of the work, and the estimate of the time and materials required

3.0 QUALITY CONTROL

The Contractor must establish and utilize a comprehensive Quality Control Plan (QCP) to ensure the County receives a consistently high level of service throughout the term of the Contract. The QCP must be submitted every 3 months to the County's Project Monitor for review. The QCP must include, but may not be limited to, the following:

3.1 Method of monitoring to ensure that Contract requirements are being met;

3.2 A record of all inspections conducted by the Contractor, any corrective action taken, the time a problem was first identified, a clear description of the problem, and the time elapsed between identification and completed corrective action, must be provided to the County upon request.

4.0 QUALITY ASSURANCE PLAN

The County will evaluate the Contractor's performance under this Contract using the quality assurance procedures as defined in the Contract, Paragraph 8.15, County's Quality Assurance Plan.

4.1 Periodic Meetings

Contractor is required to attend scheduled periodic meetings.

4.2 Contract Discrepancy Report (SOW Attachment 2)

Verbal notification of a Contract discrepancy will be made to the County's Project Monitor as soon as possible whenever a Contract discrepancy is identified. The problem must be resolved within a time period mutually agreed upon by the County and the Contractor.

The County's Project Monitor will determine whether a formal Contract Discrepancy Report (CDR) will be issued. Upon receipt of this document, the Contractor is required to respond in writing to the County's Project Monitor within the indicated number of business days, acknowledging the reported discrepancies or presenting contrary evidence. A plan for correction of all deficiencies identified in the CDR must be submitted to the County's Project Monitor within the required number of business days.

4.3 County Observations

In addition to departmental contracting staff, other County personnel may observe performance, activities, and review documents relevant to this Contract at any time during normal business hours. However, these personnel may not unreasonably interfere with the Contractor's performance.

5.0 RESPONSIBILITIES

The County's and the Contractor's responsibilities are as follows:

COUNTY

5.1 Personnel

The County will administer the Contract according to the Contract, Paragraph 6.0, Administration of Contract - County. Specific duties will include:

5.1.1 Monitoring the Contractor's performance in the daily operation of this Contract.

5.1.2 Providing direction to the Contractor in areas relating to policy, information and procedural requirements.

5.1.3 Preparing Amendments in accordance with the Contract, Paragraph 8.1, Amendments.

5.2 Furnished Items

5.2.1 The County will provide the Contractor with a workspace equipped with WiFi access.

5.2.2 The County will provide the necessary key card access for the Contractor to perform Tally M&S for the ibml scanners.

5.2.3 Parking at the Ballot Processing Center will be provided.

CONTRACTOR

5.3 Contractor's Project Manager

5.3.1 Contractor must provide a full-time Project Manager and designated alternate. County must have access to the Contractor's Project Manager during all critical election periods as determined by the County. Contractor must provide a telephone number and email address where the Project Manager may be reached.

5.3.2 Contractor's Project Manager must act as a central point of contact with the County.

5.3.3 Contractor's Project Manager must have 3 years of experience in Tally M&S.

5.3.4 Contractor's Project Manager/alternate must have full authority to act for Contractor on all matters relating to the daily operation of the Contract. Contractor's Project Manager/alternate must be able to effectively communicate, in English, both orally and in writing.

5.4 Personnel

5.4.1 Contractor will assign a sufficient number of staff to perform the required work. At least one staff on site must be authorized to act for Contractor in every detail and must speak and understand English.

5.4.2 Contractor will be required to background check its staff as set forth in Paragraph 7.5, Background and Security Investigations, of the Contract.

5.5 Uniforms/Identification Badges

5.5.1 Contractor staff assigned to County facilities must wear an appropriate uniform at all times. Uniform is to consist of a shirt with the company name on it. Uniform pants are optional. All uniforms, as required and approved by the County, will be provided by and at Contractor's expense.

5.5.2 Contractor must ensure their staff are appropriately identified as set forth in Paragraph 7.4, Contractor's Staff Identification, of the Contract.

5.6 Materials and Equipment

5.6.1 The purchase of all materials/equipment to provide the needed services is the responsibility of the Contractor. Contractor must use materials and equipment that are safe for the environment and safe for use by the employee.

5.7 Training

5.7.1 Contractor must provide training programs for all new Contractor employees and continuing in-service training for all staff.

5.7.2 All staff must be trained in their assigned tasks and in the safe handling of equipment. All equipment must be checked daily for safety. All employees must wear safety and protective gear according to OSHA standards.

5.8 Contractor's Office

Contractor must maintain an office with a telephone in the company's name where Contractor conducts business. The office must be staffed during the hours of 8:00 a.m. to 4 p.m., Monday through Friday, by at least one employee who can respond to inquiries and complaints which may be received about the Contractor's performance of the Contract. When the office is closed, an answering service must be provided to receive calls. The Contractor must answer calls received by the answering service within twenty-four (24) hours the first business day of receipt of the call. During onsite support coverage for elections, technicians will be onsite and must adhere to the inquiries, complaints, and response times outlined in Task 3 and Task 4.

6.0 UNSCHEDULED WORK

6.1 The County's Project Manager or their designee may authorize the Contractor to perform unscheduled work, including, but not limited to, repairs and replacements when the need for such work arises out of extraordinary incidents such as vandalism, acts of God, and third party negligence; or to add to, modify or refurbish existing facilities.

6.2 Prior to performing any unscheduled work, the Contractor must prepare and submit a written description of the work with an estimate of labor and materials. If the unscheduled work exceeds the Contractor's estimate, the County's Project Director, or their designee, must approve the excess cost. In any case, no unscheduled work will commence without written authorization.

6.3 When a condition exists wherein there is imminent danger of injury to the public or damage to property, Contractor must contact County's Project Director for approval before beginning the work. A written estimate must be sent within twenty-four (24) hours for approval. Contractor must submit an invoice to County's Project Director within five (5) working days after completion of the work.

6.4 All unscheduled work must commence on the established specified date. Contractor must proceed diligently to complete said work within the time allotted.

6.5 The County reserves the right to perform unscheduled work itself or assign the work to another Contractor.

7.0 GREEN INITIATIVES

8.1 Contractor must use reasonable efforts to initiate "green" practices for environmental and energy conservation benefits.

8.2 Contractor must notify County's Project Manager of Contractor's new green initiatives prior to Contract commencement.

8.0 PERFORMANCE REQUIREMENTS SUMMARY

A Performance Requirements Summary (PRS) Chart, SOW Attachment 3, listing required services and deliverables that will be monitored by the County during the term of this Contract is an important monitoring tool for the County.

All listings of services and deliverables referenced in the PRS Chart are intended to be completely consistent with the Contract and the SOW, and are not meant in any case to create, extend, revise, or expand any obligation of Contractor beyond that defined in the Contract and the SOW. In any case of apparent inconsistency between services or deliverables as stated in the Contract and the SOW and this PRS, the meaning apparent in the Contract and the SOW will prevail. If any service or deliverable seems to be created in this PRS which is not clearly and forthrightly set forth in the Contract and the SOW, that apparent service will be null and void and place no requirement on Contractor.

	Pool Dollars Service Request Form
Project/Agreement Name and Number: ibml Scanner Tally Maintenance and Support Services Contract #25-003	**Service Request:**
County's Project Director:	**Change Request Requestor:** LA County
County's Project Manager:	**Date Requested:**

Instructions: Contractor complete and submit to County Project Director and Project Manager prior before work begins.

Request: _____

Pool Dollars Required? ☐ Yes ☐ No

Description of Work:	
Additional Detail:	
Estimate of Labor (time) and parts (materials)	
Cost (if any) One Time Cost Not to Exceed:	
Current Location:	
New Location:	
Work to Completed Date:	
Reason:	
Schedule:	

Approvals							
	LOS ANGELES COUNTY				**CONTRACTOR**		
	County's Project Director		Date		Contractor Project Director		Date
	County's Project Manager		Date		Contractor Project Manager		Date

CONTRACT DISCREPANCY REPORT

CONTRACTOR RESPONSE DUE BY _____ (enter date and time)

Date:		**Contractor Response Received:**
Contractor:	**Contract No.**	**County's Project Manager:**
Contact Person:	**Telephone: ( ) -**	**County's Project Manager Signature:**
Email:		**Email:**

A contract discrepancy(s) is specified below. The Contractor will take corrective action and respond back to the County personnel identified above by the date required. Failure to take corrective action or respond to this Contract Discrepancy Report by the date specified may result in the deduction of damages.

No.	Contract Discrepancy	Contractor's Response*	County Use Only		
			Date Correction Due	Date Completed	Approved
1					
2					
3					
4					

***Use additional sheets if necessary**

_____ _____

Contractor's Representative Signature ***Date Signed***

Additional Comments:

PERFORMANCE REQUIREMENTS SUMMARY (PRS) CHART

SCANNER SERVICE LEVEL RESPONSE

Severity Level	Scanner Service Level Agreement Description	Response Time Frame*	Remedies
Critical	Critical problem restricting the availability of scanner(s) for election ballot processing, election simulation, or election canvass ballot processing.	4 hours	$1,500 per Unit
Severe	Availability of scanners(s) is restricted less than two weeks before election ballot processing begins.	24 hours	$500 per Unit
Moderate	Scanner(s) is malfunctioning and use is restricted less than three weeks prior to start of election ballot processing.	48 hours	$250 per Unit
Minimal	Scanner(s) is malfunctioning causing minimal election impact.	1 week	$100 per Unit

*The response timeframe is based on calendar days and may exclude transit time for special parts.

(1) County will send notice to Contractor of the issue. Contractor will (2) acknowledge and (3) Contractor will resolve the issue within the response timeframe specified in the PRS chart based on the severity level and election timing. If Contractor failed to meet the response timeframe, the County would (4) be able to deduct the listed amount in the PRS based on the period it took Contractor to cure the issue as identified in the PRS

PERFORMANCE REQUIREMENTS SUMMARY (PRS) CHART

PERFORMANCE REQUIREMENTS

Performance Requirement	Service Performance Description	Monitoring Method	Deduction Assessed
Contract: Paragraph 7.0 (Administration of Contract-Contractor) Paragraph 7.2 (Contractor's Project Manager)	Contractor must notify the County in writing of any change in name or address of the Contractor Project Manager.	Inspection and Observation	n/a
Contract: Paragraph 8.0 (Standard Terms and Conditions) Paragraph 8.24.5 (Failure to Maintain Insurance)	Contractor must maintain or provide acceptable evidence that it maintains the required insurance under the Contract or it will constitute a material breach of the Contract.	Inspection and Observation	n/a
Contract: Paragraph 8.0 (Standard Terms and Conditions) Paragraph 8.38.1 (Records Retention and Inspection-Audit Settlement)	The Contractor must maintain accurate and complete financial records of its activities and operations relating to this Contract in accordance with generally accepted accounting principles.	Inspection and Observation	n/a
Statement of Work: Task 2.2.1.1 (General Monthly Tally M&S)	Response time for the 5 identified NBD support scanners (1 business day response and on-site support).	Attendance and Observation	$250 per occurrence
Statement of Work: Task 2.2.1.2 (General Monthly Tally M&S)	Completion of monthly preventative maintenance (24 scanners)	Attendance and Observation	$250 per occurrence
Statement of Work: Task 2.2.6 (General Monthly Tally M&S)	Updates to the System Log. Failure to comply will constitute a material breach of the Contract.	File Inspection	n/a

Performance Requirement	Service Performance Description	Monitoring Method	Deduction Assessed
Statement of Work: Task 2.2.8 (Unscheduled Service Requests)	Available unscheduled Service Requests through help desk telephone or email each Business Day between 8:00 am and 5:00 pm pst.	Observation	$200 per day
Statement of Work: Task 2.3 (Major Election Timeframe)	Availability and scheduling of onsite Major Election support beginning up to seven (7) days prior to and continuing up to fourteen (14) days after Election Day. Failure to comply will constitute a breach of Contract.	Attendance and Observation	n/a
Statement of Work: Task 4.2 (Contract Discrepancy Report)	Contractor must resolve discrepancy within a time period mutually agreed to by County and Contractor.	Inspection/Discrepancy Report	n/a
Statement of Work: Task 6.3 (Contractor's Project Manager)	Contractor's Project Manager and alternate must be available and accessible to RR/CC via telephone or e-mail during regular business hours.	Observation	$100 per day

PRICING SCHEDULE

TASK 2- PROVIDE MONTHLY IBML SCANNER TALLY M&S	*Monthly Fee for:* • *Scanners 1 – 5*:* • *Scanners 6 – 22**:* • *Scanners 23 – 24***:* **(8 x 5 x Next Business Day (NBD))* ***(Preventative Maintenance (PM) only)* ****(Preventative Maintenance (PM) only (emergency disaster recovery site))*	 *$14,515.00* *$16,275.00* *$2,066.67*
TASK 3- PROVIDE ONSITE TALLY M&S SERVICES DURING MAJOR ELECTIONS Technician pricing provided for (a) Ibml Certified Field Technician and (b) Support Technician	*Price per Major Election* *Technician Price per Hour:* • *Certified* • *Support*	*$23,400* *$150.00* *$50.00*
TASK 4- PROVIDE ONSITE TALLY M&S SERVICES DURING MINOR ELECTIONS (*Upon Request Only)	*Price per Minor Election* *Technician Price per Hour:*	*$6,000.00* *$150*
TASK 5- POOL DOLLARS (*Upon Request Only*)	*TBD*	*TBD*

CONTRACTOR'S PROPOSED SCHEDULE

ibml Scanner Tally M&S Tasks		
Task #	**Tasks**	**Onsite Support Availability**
1	Kickoff Meeting	TBD
2	Tally M&S	Monthly
3	Onsite Tally M&S Services during Major Elections: 1) General Elections 2) Primary Elections 3) State-Wide Elections 4) Special Elections that affect Los Angeles County as a whole	Onsite support availability potentially 24/7 beginning up to: • one (1) month prior to an election; • 1 month after an election; and • Election day through the end of ballot processing. For a list of current and upcoming elections please visit: https://lavote.net/home/voting-elections/current-elections/upcoming-elections
4	Onsite Tally M&S Services during Minor Elections (Upon Request Only) Minor Elections: 1) City Elections (RR/CC asked to conduct) 2) Special Elections that affect a portion of Los Angeles County	Onsite support availability beginning: • two (2) weeks prior to an election; two weeks after election; and • Election day through the end of election night ballot processing. • Special elections of frequently scheduled six (6) weeks prior to election day.
5	Pool Dollars (Upon Request Only)	TBD

COUNTY'S ADMINISTRATION

CONTRACT: ibml Scanner Tally Maintenance & Support Services

CONTRACT NO: #25-003

COUNTY PROJECT DIRECTOR:

Name: Aman Bhullar
Address: 12400 Imperial Highway, Norwalk, CA 90650
Telephone: 562-462-2714
E-Mail Address: ABhullar@rrcc.lacounty.gov

COUNTY PROJECT MANAGER/COUNTY SPOC:

Name: Brian Ikenaga
Address: 13401 Crossroads Parkway N City of Industry CA 91746
Telephone: 626-374-5640
E-Mail Address: bikenaga@rrcc.lacounty.gov

COUNTY CONTRACT PROJECT MONITOR

Name: Padmaja Vasudevan
Address: 13401 Crossroads Parkway N City of Industry CA 91746
Telephone: 562- 658-1784
E-Mail Address: pvasudevan@rrcc.lacounty.gov

CONTRACTS QUESTIONS:

For contracts questions, send an e-mail to contracts@rrcc.lacounty.gov
Include the name of your company, contract name and contact number.

INVOICE QUESTIONS:

For invoice questions, send an e-mail to accountspayable@rrcc.lacounty.gov and copy the County Project Director, County Project Manager and County Contract Project Monitor.
Include the name of your company, contract name and contact number.

CONTRACTOR'S ADMINISTRATION

CONTRACTOR: ibml Scanner Tally Maintenance & Support Services.

CONTRACT NO: #25-003

CONTRACTOR'S PROJECT DIRECTOR:

Name:
Title:

Address:
Telephone:
E-Mail Address:

CONTRACTOR'S PROJECT MANAGER:

Name:
Title:

Address:
Telephone:
E-Mail Address:

CONTRACTOR'S AUTHORIZED OFFICIAL:

Name:
Title:

Address:
Telephone:
E-Mail Address:

NOTICES TO CONTRACTOR SHALL BE SENT TO THE FOLLOWING ADDRESS:

Name:
Title:
Address:

Telephone:
E-Mail Address:

Contractor Acknowledgement and Confidentiality Agreement

(Note: This certification is to be executed and returned to County with Contractor's executed Contract. Work cannot begin on the Contract until County receives this executed document.)

Contractor Name: _____ Contract No

9.0 GENERAL INFORMATION:

The Contractor referenced above has entered into a contract with the County of Los Angeles to provide certain services to the County. The County requires the Corporation to sign this Contractor Acknowledgement and Confidentiality Agreement.

10.0 CONTRACTOR ACKNOWLEDGEMENT:

Contractor understands and agrees that the Contractor employees, consultants, Outsourced Vendors and independent Contractors (Contractor's Staff) that will provide services in the above referenced agreement are Contractor's sole responsibility. Contractor understands and agrees that Contractor's Staff must rely exclusively upon Contractor for payment of salary and any and all other benefits payable by virtue of Contractor's Staff's performance of work under the above-referenced contract.

Contractor understands and agrees that Contractor's Staff are not employees of the County of Los Angeles for any purpose whatsoever and that Contractor's Staff do not have and will not acquire any rights or benefits of any kind from the County of Los Angeles by virtue of my performance of work under the above-referenced contract. Contractor understands and agrees that Contractor's Staff will not acquire any rights or benefits from the County of Los Angeles pursuant to any agreement between any person or entity and the County of Los Angeles.

11.0 CONFIDENTIALITY AGREEMENT:

Contractor and Contractor's Staff may be involved with work pertaining to services provided by the County of Los Angeles and, if so, Contractor and Contractor's Staff may have access to confidential data and information pertaining to persons and/or entities receiving services from the County. In addition, Contractor and Contractor's Staff may also have access to proprietary information supplied by other vendors doing business with the County of Los Angeles. The County has a legal obligation to protect all such confidential data and information in its possession, especially data and information concerning health, criminal, and welfare recipient records. Contractor and Contractor's Staff understand that if they are involved in County work, the County must ensure that Contractor and Contractor's Staff, will protect the confidentiality of such data and information. Consequently, Contractor must sign this Confidentiality Agreement as a condition of work to be provided by Contractor's Staff for the County.

Contractor and Contractor's Staff hereby agrees that they will not divulge to any unauthorized person any data or information obtained while performing work pursuant to the above-referenced contract between Contractor and the County of Los Angeles. Contractor and Contractor's Staff agree to forward all requests for the release of any data or information received to County's Project Manager.

Contractor Acknowledgement and Confidentiality Agreement

Contractor and Contractor's Staff agree to keep confidential all health, criminal, and welfare recipient records and all data and information pertaining to persons and/or entities receiving services from the County, design concepts, algorithms, programs, formats, documentation, Contractor proprietary information and all other original materials produced, created, or provided to Contractor and Contractor's Staff under the above-referenced contract. Contractor and Contractor's Staff agree to protect these confidential materials against disclosure to other than Contractor or County employees who have a need to know the information. Contractor and Contractor's Staff agree that if proprietary information supplied by other County vendors is provided to me during this employment, Contractor and Contractor's Staff must keep such information confidential.

Contractor and Contractor's Staff agree to report any and all violations of this agreement by Contractor and Contractor's Staff and/or by any other person of whom Contractor and Contractor's Staff become aware.

Contractor and Contractor's Staff acknowledge that violation of this agreement may subject Contractor and Contractor's Staff to civil and/or criminal action and that the County of Los Angeles may seek all possible legal redress.

SIGNATURE: DATE:

PRINTED NAME: _____

POSITION: _____

Exhibit G

Safely Surrendered Baby Law

Exhibit G

Safely Surrendered Baby Law

Some parents of newborns can find themselves in difficult circumstances. Sadly, babies are sometimes harmed or abandoned by parents who feel that they're not ready or able to raise a child. Many of these mothers or fathers are afraid and don't know where to turn for help.

This is why California has a Safely Surrendered Baby Law, which gives parents the choice to legally leave their baby at any hospital or fire station in Los Angeles County.

FIVE THINGS YOU NEED TO KNOW ABOUT BABY SAFE SURRENDER

1. Your newborn can be surrendered at any hospital or fire station in Los Angeles County up to 72 hours after birth.
2. You must leave your newborn with a fire station or hospital employee.
3. You don't have to provide your name.
4. You will only be asked to voluntarily provide a medical history.
5. You have 14 days to change your mind; a matching bracelet (parent) and anklet (baby) are provided to assist you if you change your mind.

No shame | No blame | No names

BabySafeLA.org

ABOUT THE BABY SAFE SURRENDER PROGRAM

In 2002, a task force was created under the guidance of the Children's Planning Council to address newborn abandonment and to develop a strategic plan to prevent this tragedy.

Los Angeles County has worked hard to ensure that the Safely Surrendered Baby Law prevents babies from being abandoned. We're happy to report that this law is doing exactly what it was designed to do: save the lives of innocent babies. Visit BabySafeLA.org to learn more.

No shame | No blame | No names

ANY FIRE STATION.
ANY HOSPITAL.
ANY TIME.

1.877.222.9723
BabySafeLA.org

THERE'S A BETTER CHOICE.
SAFELY SURRENDER YOUR BABY.

BabySafeLA.org

No shame | No blame | No names

Exhibit G

Safely Surrendered Baby Law

FROM SURRENDER TO ADOPTION: ONE BABY'S STORY

Los Angeles County firefighter Ted and his wife Becki were already parents to two boys. But when they got the call asking if they would be willing to care for a premature baby girl who'd been safely surrendered at a local hospital, they didn't hesitate.

Baby Jenna was tiny, but Ted and Becki felt lucky to be able to take her home. "We had always wanted to adopt," Ted says, "but taking home a vulnerable safely surrendered baby was even better. She had no one, but now she had us. And, more importantly, we had her."

Baby Jenna has filled the longing Ted and Becki had for a daughter—and a sister for their boys. Because her birth parent safely surrendered her when she was born, Jenna is a thriving young girl growing up in a stable and loving family.

ANSWERS TO YOUR QUESTIONS

Who is legally allowed to surrender the baby?
Anyone with lawful custody can drop off a newborn within the first 72 hours of birth.

Do you need to call ahead before surrendering a baby?
No. A newborn can be surrendered anytime, 24 hours a day, 7 days a week, as long as the parent or guardian surrenders the child to an employee of the hospital or fire station.

What information needs to be provided?
The surrendering adult will be asked to fill out a medical history form, which is useful in caring for the child. The form can be returned later and includes a stamped return envelope. No names are required.

What happens to the baby?
After a complete medical exam, the baby will be released and placed in a safe and loving home, and the adoption process will begin.

What happens to the parent or surrendering adult?
Nothing. They may leave at any time after surrendering the baby.

How can a parent get a baby back?
Parents who change their minds can begin the process of reclaiming their baby within 14 days by calling the Los Angeles County Department of Children and Family Services at (800) 540-4000.

If you're unsure of what to do:
You can call the hotline 24 hours a day, 7 days a week and anonymously speak with a counselor about your options or have your questions answered.

1.877.222.9723 or BabySafeLA.org
English, Spanish and 140 other languages spoken.

Exhibit H

Intentionally Omitted

INTENTIONALLY OMITTED

Exhibit I

Intentionally Omitted

INTENTIONALLY OMITTED

INTENTIONALLY OMITTED

INFORMATION SECURITY AND PRIVACY REQUIREMENTS EXHIBIT

The County of Los Angeles ("County") is committed to safeguarding the Integrity of the County systems, Data, Information and protecting the privacy rights of the individuals that it serves. This Information Security and Privacy Requirements Exhibit ("Exhibit") sets forth the County and the Contractor's commitment and agreement to fulfill each of their obligations under applicable state or federal laws, rules, or regulations, as well as applicable industry standards concerning privacy, Data protections, Information Security, Confidentiality, Availability, and Integrity of such Information. The Information Security and privacy requirements and procedures in this Exhibit are to be established by the Contractor before the Effective Date of the Contract and maintained throughout the term of the Contract.

These requirements and procedures are a minimum standard and are in addition to the requirements of the underlying base agreement between the County and Contractor (the "Contract") and any other agreements between the parties. However, it is the Contractor's sole obligation to: (i) implement appropriate and reasonable measures to secure and protect its systems and all County Information against internal and external Threats and Risks; and (ii) continuously review and revise those measures to address ongoing Threats and Risks. Failure to comply with the minimum requirements and procedures set forth in this Exhibit will constitute a material, non-curable breach of Contract by the Contractor, entitling the County, in addition to the cumulative of all other remedies available to it at law, in equity, or under the Contract, to immediately terminate the Contract. To the extent there are conflicts between this Exhibit and the Contract, this Exhibit will prevail unless stated otherwise.

1. DEFINITIONS

Unless otherwise defined in the Contract, the definitions herein contained are specific to the uses within this exhibit.

a. **Availability:** the condition of Information being accessible and usable upon demand by an authorized entity (Workforce Member or process).

b. **Confidentiality:** the condition that Information is not disclosed to system entities (users, processes, devices) unless they have been authorized to access the Information.

c. **County Information:** all Data and Information belonging to the County.

d. **Data:** a subset of Information comprised of qualitative or quantitative values.

e. **Incident:** a suspected, attempted, successful, or imminent Threat of unauthorized electronic and/or physical access, use, disclosure, breach, modification, or destruction of information; interference with Information Technology operations; or significant violation of County policy.

f. **Information:** any communication or representation of knowledge or understanding such as facts, Data, or opinions in any medium or form, including electronic, textual, numerical, graphic, cartographic, narrative, or audiovisual.

g. **Information Security Policy:** high level statements of intention and direction of an organization used to create an organization's Information Security Program as formally expressed by its top management.

h. **Information Security Program:** formalized and implemented Information Security Policies, standards and procedures that are documented describing the program management safeguards and common controls in place or those planned for meeting the County's information security requirements.

i. **Information Technology:** any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of Data or Information.

j. **Integrity**: the condition whereby Data or Information has not been improperly modified or destroyed and authenticity of the Data or Information can be ensured.

k. **Mobile Device Management (MDM):** software that allows Information Technology administrators to control, secure, and enforce policies on smartphones, tablets, and other endpoints.

l. **Privacy Policy:** high level statements of intention and direction of an organization used to create an organization's Privacy Program as formally expressed by its top management.

m. **Privacy Program:** A formal document that provides an overview of an organization's privacy program, including a description of the structure of the privacy program, the resources dedicated to the privacy program, the role of the organization's privacy official and other staff, the strategic goals and objectives of the Privacy Program, and the program management controls and common controls in place or planned for meeting applicable privacy requirements and managing privacy risks.

n. **Risk:** a measure of the extent to which the County is threatened by a potential circumstance or event, Risk is typically a function of: (i) the adverse impacts that would arise if the circumstance or event occurs; and (ii) the likelihood of occurrence.

o. **Threat:** any circumstance or event with the potential to adversely impact County operations (including mission, functions, image, or reputation), organizational assets, individuals, or other organizations through an Information System via unauthorized access, destruction, disclosure, modification of Information, and/or denial of service.

p. **Vulnerability:** a weakness in a system, application, network or process that is subject to exploitation or misuse.

q. **Workforce Member:** employees, volunteers, and other persons whose conduct, in the performance of work for Los Angeles County, is under the direct control of Los Angeles County, whether or not they are paid by Los Angeles County. This includes, but may not be limited to, full and part time elected or appointed officials, employees, affiliates, associates, students, volunteers, and staff from third party entities who provide service to the County.

2. INFORMATION SECURITY AND PRIVACY PROGRAMS

a. **Information Security Program.** The Contractor must maintain a company-wide Information Security Program designed to evaluate Risks to the Confidentiality, Availability, and Integrity of the County Information covered under this Contract.

Contractor's Information Security Program must include the creation and maintenance of Information Security Policies, standards, and procedures. Information Security Policies, standards, and procedures will be communicated to all Contractor employees in a relevant, accessible, and understandable form and will be regularly reviewed and evaluated to ensure operational effectiveness, compliance with all applicable laws and regulations, and addresses new and emerging Threats and Risks.

The Contractor must exercise the same degree of care in safeguarding and protecting County Information that the Contractor exercises with respect to its own Information and Data, but in no event less than a reasonable degree of care. The Contractor will implement, maintain, and

use appropriate administrative, technical, and physical security measures to preserve the Confidentiality, Integrity, and Availability of County Information.

The Contractor's Information Security Program must:

- Protect the Confidentiality, Integrity, and Availability of County Information in the Contractor's possession or control;
- Protect against any anticipated Threats or hazards to the Confidentiality, Integrity, and Availability of County Information;
- Protect against unauthorized or unlawful access, use, disclosure, alteration, or destruction of County Information;
- Protect against accidental loss or destruction of, or damage to, County Information; and
- Safeguard County Information in compliance with any applicable laws and regulations which apply to the Contractor.

b. **Privacy Program.** The Contractor must establish and maintain a company-wide Privacy Program designed to incorporate Privacy Policies and practices in its business operations to provide safeguards for Information, including County Information. The Contractor's Privacy Program must include the development of, and ongoing reviews and updates to Privacy Policies, guidelines, procedures and appropriate workforce privacy training within its organization. These Privacy Policies, guidelines, procedures, and appropriate training will be provided to all Contractor employees, agents, and volunteers. The Contractor's Privacy Policies, guidelines, and procedures must be continuously reviewed and updated for effectiveness and compliance with applicable laws and regulations, and to appropriately respond to new and emerging Threats and Risks. The Contractor's Privacy Program must perform ongoing monitoring and audits of operations to identify and mitigate privacy Threats.

The Contractor must exercise the same degree of care in safeguarding the privacy of County Information that the Contractor exercises with respect to its own Information, but in no event less than a reasonable degree of care. The Contractor will implement, maintain, and use appropriate privacy practices and protocols to preserve the Confidentiality of County Information.
The Contractor's Privacy Program must include:

- A Privacy Program framework that identifies and ensures that the Contractor complies with all applicable laws and regulations;
- External Privacy Policies, and internal privacy policies, procedures and controls to support the privacy program;
- Protections against unauthorized or unlawful access, use, disclosure, alteration, or destruction of County Information;
- A training program that covers Privacy Policies, protocols and awareness;
- A response plan to address privacy Incidents and privacy breaches; and
- Ongoing privacy assessments and audits.

3. PROPERTY RIGHTS TO COUNTY INFORMATION

All County Information is deemed property of the County, and the County will retain exclusive rights and ownership thereto. County Information must not be used by the Contractor for any purpose other than as required under this Contract, nor will such or any part of such be disclosed, sold, assigned, leased, or otherwise disposed of, to third parties by the Contractor, or commercially exploited or otherwise used by, or on behalf of, the Contractor, its officers, directors, employees, or agents. The Contractor may assert no lien on or right to withhold from the County, any County Information it receives from, receives addressed to, or stores on behalf of, the County. Notwithstanding the foregoing, the Contractor may aggregate, compile, and use County Information in order to improve, develop or enhance the System Software and/or other services offered, or to be offered, by the Contractor, provided that (i) no County Information in such aggregated or compiled pool is identifiable as originating from, or can be traced back to the County, and (ii) such Data or Information cannot be associated or matched with the identity of an individual alone, or linkable to a specific individual. The Contractor specifically consents to the County's access to such County Information held, stored, or maintained on any and all devices Contactor owns, leases or possesses.

4. CONTRACTOR'S USE OF COUNTY INFORMATION

The Contractor may use County Information only as necessary to carry out its obligations under this Contract. The Contractor must collect, maintain, or use County Information only for the purposes specified in the Contract and, in all cases, in compliance with all applicable local, state, and federal laws and regulations governing the collection, maintenance, transmission, dissemination, storage, use, and destruction of County Information, including, but not limited to, (i) any state and federal law governing the protection of personal Information, (ii) any state and federal security breach notification

laws, and (iii) the rules, regulations and directives of the Federal Trade Commission, as amended from time to time.

5. SHARING COUNTY INFORMATION AND DATA

The Contractor must not share, release, disclose, disseminate, make available, transfer, or otherwise communicate orally, in writing, or by electronic or other means, County Information to a third party for monetary or other valuable consideration.

6. CONFIDENTIALITY

a. **Confidentiality of County Information.** The Contractor agrees that all County Information is Confidential and proprietary to the County regardless of whether such Information was disclosed intentionally or unintentionally, or marked as "confidential".

b. **Disclosure of County Information.** The Contractor may disclose County Information only as necessary to carry out its obligations under this Contract, or as required by law, and is prohibited from using County Information for any other purpose without the prior express written approval of the County's contract administrator in consultation with the County's Chief Information Security Officer and/or Chief Privacy Officer. If required by a court of competent jurisdiction or an administrative body to disclose County Information, the Contractor must notify the County's contract administrator immediately and prior to any such disclosure, to provide the County an opportunity to oppose or otherwise respond to such disclosure, unless prohibited by law from doing so.

c. **Disclosure Restrictions of Non-Public Information.** While performing work under the Contract, the Contractor may encounter County Non-public Information ("NPI") in the course of performing this Contract, including, but not limited to, licensed technology, drawings, schematics, manuals, sealed court records, and other materials described and/or identified as "Internal Use", "Confidential" or "Restricted" as defined in Board of Supervisors Policy 6.104 – Information Classification Policy as NPI. The Contractor must not disclose or publish any County NPI and material received or used in performance of this Contract. This obligation is perpetual.

d. **Individual Requests.** The Contractor must acknowledge any request or instructions from the County regarding the exercise of any individual's privacy rights provided under applicable federal or state laws. The Contractor must have in place appropriate policies and procedures to promptly respond to such requests and comply with any request or instructions from the County within seven (7) calendar days. If an individual makes a request directly to the Contractor involving County Information, the Contractor must notify the County within five (5) calendar days and the County will coordinate an appropriate response, which may include instructing the Contractor to assist in fulfilling the request. Similarly, if the Contractor receives a privacy or security complaint from an individual regarding County Information, the Contractor must notify the County as described in Section 14 SECURITY AND PRIVACY INCIDENTS, and the County will coordinate an appropriate response.

e. **Retention of County Information.** The Contractor must not retain any County Information for any period longer than necessary for the Contractor to fulfill its obligations under the Contract and applicable law, whichever is longest.

7. CONTRACTOR EMPLOYEES

The Contractor must perform background and security investigation procedures in the manner prescribed in this section unless the Contract prescribes procedures for conducting background and security investigations and those procedures are no less stringent than the procedures described in this section.

To the extent permitted by applicable law, the Contractor must screen and conduct background investigations on all Contractor employees and Subcontractors as appropriate to their role, with access to County Information for potential security Risks. Such background investigations must be obtained through fingerprints submitted to the California Department of Justice to include State, local, and federal-level review and conducted in accordance with the law, may include criminal and financial history to the extent permitted under the law, and will be repeated on a regular basis. The fees associated with the background investigation will be at the expense of the Contractor, regardless of whether the member of the Contractor's staff passes or fails the background investigation. The Contractor, in compliance with its legal obligations, must conduct an individualized assessment of their employees, agents, and volunteers regarding the nature and gravity of a criminal offense or conduct; the time that has passed since a criminal offense or conduct and completion of the sentence; and the nature of the access to County Information to ensure that no individual accesses County Information whose past criminal conduct poses a risk or threat to County Information.

The Contractor must require all employees, agents, and volunteers to abide by the requirements in this Exhibit, as set forth in the Contract, and sign an appropriate written Confidentiality/non-disclosure agreement with the Contractor.

The Contractor must supply each of its employees with appropriate, annual training regarding Information Security procedures, Risks, and Threats. The Contractor agrees that training will cover, but may not be limited to the following topics:

a) **Secure Authentication:** The importance of utilizing secure authentication, including proper management of authentication credentials (login name and password) and multi-factor authentication.

b) **Social Engineering Attacks:** Identifying different forms of social engineering including, but not limited to, phishing, phone scams, and impersonation calls.

c) **Handling of County Information:** The proper identification, storage, transfer, archiving, and destruction of County Information.

d) **Causes of Unintentional Information Exposure:** Provide awareness of causes of unintentional exposure of Information such as lost mobile devices, emailing Information to inappropriate recipients, etc.

e) **Identifying and Reporting Incidents:** Awareness of the most common indicators of an Incident and how such indicators should be reported within the organization.

f) **Privacy:** The Contractor's Privacy Policies and procedures as described in Section 2b. Privacy Program.

The Contractor must have an established set of procedures to ensure the Contractor's employees promptly report actual and/or suspected breaches of security.

8. SUBCONTRACTORS AND THIRD PARTIES

The County acknowledges that in the course of performing its services, the Contractor may desire or require the use of goods, services, and/or assistance of Subcontractors or other third parties or suppliers. The terms of this Exhibit will also apply to all Subcontractors and third parties. The Contractor or third party will be subject to the following terms and conditions: (i) each Subcontractor and third party must agree in writing to comply with and be bound by the applicable terms and conditions of this Exhibit, both for itself and to enable the Contractor to be and remain in compliance with its obligations hereunder, including those provisions relating to Confidentiality, Integrity, Availability, disclosures, security, and such other terms and conditions as may be reasonably necessary to effectuate the Contract including this Exhibit; and (ii) the Contractor will be and remain fully liable for the acts and omissions of each Subcontractor and third party, and fully responsible for the due and proper performance of all Contractor obligations under this Contract.

The Contractor must obtain advanced approval from the County's Chief Information Security Officer and/or Chief Privacy Officer prior to subcontracting services subject to this Exhibit.

9. STORAGE AND TRANSMISSION OF COUNTY INFORMATION

All County Information must be rendered unusable, unreadable, or indecipherable to unauthorized individuals. Without limiting the generality of the foregoing, the Contractor will encrypt all workstations, portable devices (such as mobile, wearables, tablets,) and removable media (such as portable or removable hard disks, floppy disks, USB memory drives, CDs, DVDs, magnetic tape, and all other removable storage media) that store County Information in accordance with Federal Information Processing Standard (FIPS) 140-2 or otherwise approved by the County's Chief Information Security Officer.

The Contractor will encrypt County Information transmitted on networks outside of the Contractor's control with Transport Layer Security (TLS) or Internet Protocol Security **(**IPSec**)**, at a minimum cipher strength of 128 bit or an equivalent secure transmission protocol or method approved by County's Chief Information Security Officer.

In addition, the Contractor must not store County Information in the cloud or in any other online storage provider without written authorization from the County's Chief Information Security Officer. All mobile devices storing County Information must be managed by a Mobile Device Management system. Such system must provide provisions to enforce a password/passcode on enrolled mobile devices. All workstations/Personal Computers

(including laptops, 2-in-1s, and tablets) will maintain the latest operating system security patches, and the latest virus definitions. Virus scans must be performed at least monthly. Request for less frequent scanning must be approved in writing by the County's Chief Information Security Officer.

10. RETURN OR DESTRUCTION OF COUNTY INFORMATION

The Contractor must return or destroy County Information in the manner prescribed in this section unless the Contract prescribes procedures for returning or destroying County Information and those procedures are no less stringent than the procedures described in this section.

a. **Return or Destruction.** Upon County's written request, or upon expiration or termination of this Contract for any reason, Contractor must (i) promptly return or destroy, at the County's option, all originals and copies of all documents and materials it has received containing County Information; or (ii) if return or destruction is not permissible under applicable law, continue to protect such Information in accordance with the terms of this Contract; and (iii) deliver or destroy, at the County's option, all originals and copies of all summaries, records, descriptions, modifications, negatives, drawings, adoptions and other documents or materials, whether in writing or in machine-readable form, prepared by the Contractor, prepared under its direction, or at its request, from the documents and materials referred to in Subsection (i) of this Section. For all documents or materials referred to in Subsections (i) and (ii) of this Section that the County requests be returned to the County, the Contractor must provide a written attestation on company letterhead certifying that all documents and materials have been delivered to the County. For documents or materials referred to in Subsections (i) and (ii) of this Section that the County requests be destroyed, the Contractor must provide an attestation on company letterhead and certified documentation from a media destruction firm consistent with subdivision b of this Section. Upon termination or expiration of the Contract or at any time upon the County's request, the Contractor must return all hardware, if any, provided by the County to the Contractor. The hardware should be physically sealed and returned via a bonded courier, or as otherwise directed by the County.

b. **Method of Destruction.** The Contractor must destroy all originals and copies by (i) cross-cut shredding paper, film, or other hard copy media so that the Information cannot be read or otherwise reconstructed; and (ii) purging, or destroying electronic media containing County Information consistent with NIST Special Publication 800-88, "Guidelines for Media Sanitization" such that the County Information cannot be retrieved. The Contractor will provide an attestation on company letterhead and certified documentation from a media destruction firm, detailing the destruction method used and the County Information involved, the date of destruction, and the company or individual who performed the destruction. Such statement will be sent to the designated County contract manager within ten (10) days of termination or expiration of the Contract or at any time upon the County's request. On termination or expiration of this Contract, the County will return or destroy all Contractor's Information

marked as confidential (excluding items licensed to the County hereunder, or that provided to the County by the Contractor hereunder), at the County's option.

11. PHYSICAL AND ENVIRONMENTAL SECURITY

All Contractor facilities that process County Information will be located in secure areas and protected by perimeter security such as barrier access controls (e.g., the use of guards and entry badges) that provide a physically secure environment from unauthorized access, damage, and interference.

All Contractor facilities that process County Information will be maintained with physical and environmental controls (temperature and humidity) that meet or exceed hardware manufacturer's specifications.

12. ACCESS CONTROL

Subject to and without limiting the requirements under Section 9 STORAGE AND TRANSMISSION OF COUNTY INFORMATION, County Information (i) may only be made available and accessible to those parties explicitly authorized under the Contract or otherwise expressly approved by the County Project Director or Project Manager in writing; and (ii) if transferred using removable media (as described in Section 9 STORAGE AND TRANSMISSION OF COUNTY INFORMATION) must be sent via a bonded courier and protected using encryption technology designated by the Contractor and approved by the County's Chief Information Security Officer in writing. The foregoing requirements will apply to back-up media stored by the Contractor at off-site facilities.

The Contractor must implement formal procedures to control access to County systems, services, and/or Information, including, but not limited to, user account management procedures and the following controls:

a. Network access to both internal and external networked services must be controlled, including, but not limited to, the use of industry standard and properly configured firewalls;

b. Operating systems will be used to enforce access controls to computer resources including, but not limited to, multi-factor authentication, use of virtual private networks (VPN), authorization, and event logging;

c. The Contractor will conduct regular, no less often than semi-annually, user access reviews to ensure that unnecessary and/or unused access to County Information is removed in a timely manner;

d. Applications will include access control to limit user access to County Information and application system functions;

e. All systems will be monitored to detect deviation from access control policies and identify suspicious activity. The Contractor must record, review and act upon all events in accordance with Incident response policies set forth in Section 14 SECURITY AND PRIVACY INCIDENTS; and

f. In the event any hardware, storage media, or removable media (as described in Section 9 STORAGE AND TRANSMISSION OF COUNTY INFORMATION) must be disposed of or sent off-site for servicing, the Contractor must ensure all County Information, has been eradicated from such hardware and/or media using industry best practices as discussed in Section 9 STORAGE AND TRANSMISSION OF COUNTY INFORMATION.

13. SECURITY AND PRIVACY INCIDENTS

In the event of a Security or Privacy Incident, the Contractor must:

a. Promptly notify the County's Chief Information Security Officer, the Departmental Information Security Officer, and the County's Chief Privacy Officer of any Incidents involving County Information, within twenty-four (24) hours of detection of the Incident. All notifications must be submitted via encrypted email and telephone.

County Chief Information Security Officer and Chief Privacy Officer email
CISO-CPO_Notify@lacounty.gov
Chief Information Security Officer:
Jeffrey Aguilar
Chief Information Security Officer
320 W Temple, 7th Floor
Los Angeles, CA 90012
(213) 253-5600

Chief Privacy Officer:
Lillian Russell
Chief Privacy Officer
320 W Temple, 7th Floor
Los Angeles, CA 90012
(213) 351-5363

Departmental Information Security Officer:
Jeremy Keller
Departmental Information Security Officer
12400 Imperial Hwy
Norwalk, CA 90650
(562) 462-2445
Jkeller@rrcc.lacounty.gov

b. Include the following Information in all notices:

i. The date and time of discovery of the Incident,

ii. The approximate date and time of the Incident,

iii. A description of the type of County Information involved in the reported Incident, and

iv. A summary of the relevant facts, including a description of measures being taken to respond to and remediate the Incident, and any planned corrective actions as they are identified.

v. The name and contact information for the organizations official representative(s), with relevant business and technical information relating to the incident.

c. Cooperate with the County to investigate the Incident and seek to identify the specific County Information involved in the Incident upon the County's written request, without charge, unless the Incident was caused by the acts or omissions of the County. As Information about the Incident is collected or otherwise becomes available to the Contractor, and unless prohibited by law, the Contractor must provide Information regarding the nature and consequences of the Incident that are reasonably requested by the County to allow the County to notify affected individuals, government agencies, and/or credit bureaus.

d. Assist and cooperate with forensic investigators, the County, law firms, and and/or law enforcement agencies at the direction of the County to help determine the nature, extent, and source of any Incident, and reasonably assist and cooperate with the County on any additional disclosures that the County is required to make as a result of the Incident.

e. Allow the County or its third-party designee at the County's election to perform audits and tests of the Contractor's environment that may include, but are not limited to, interviews of relevant employees, review of documentation, or technical inspection of systems, as they relate to the receipt, maintenance, use, retention, and authorized destruction of County Information.

Notwithstanding any other provisions in this Contract and Exhibit, The Contractor will be (i) liable for all damages and fines, (ii) responsible for all corrective action, and (iii) responsible for all notifications arising from an Incident involving County Information caused by the Contractor's weaknesses, negligence, errors, or lack of Information Security or privacy controls or provisions.

14. NON-EXCLUSIVE EQUITABLE REMEDY

The Contractor acknowledges and agrees that due to the unique nature of County Information there can be no adequate remedy at law for any breach of its obligations hereunder, that any such breach may result in irreparable harm to the County, and therefore, that upon any such breach, the County will be entitled to appropriate equitable remedies, and may seek injunctive relief from a court of competent jurisdiction without the necessity of proving actual loss, in addition to whatever remedies are available within law or equity. Any breach of Section 6 CONFIDENTIALITY will constitute a material breach of this Contract and be grounds for immediate termination of this Contract in the exclusive discretion of the County.

15. AUDIT AND INSPECTION

a. **Self-Audits.** The Contractor must periodically conduct audits, assessments, testing of the system of controls, and testing of Information Security and privacy procedures, including penetration testing, intrusion detection, and firewall configuration reviews. These periodic audits will be conducted by staff certified to perform the specific audit in question at Contractor's sole cost and expense through either (i) an internal independent audit function, (ii) a nationally recognized, external, independent auditor, or (iii) another independent auditor approved by the County.

The Contractor must have a process for correcting control deficiencies that have been identified in the periodic audit, including follow up documentation providing evidence of such corrections. The Contractor must provide the audit results and any corrective action documentation to the County promptly upon its completion at the County's request. With respect to any other report, certification, or audit or test results prepared or received by the Contractor that contains any County Information, the Contractor must promptly provide the County with copies of the same upon the County's reasonable request, including identification of any failure or exception in the Contractor's Information systems, products, and services, and the corresponding steps taken by the Contractor to mitigate such failure or exception. Any reports and related materials provided to the County pursuant to this Section must be provided at no additional charge to the County.

b. **County Requested Audits.** At its own expense, the County, or an independent third-party auditor commissioned by the County, will have the right to audit the Contractor's infrastructure, security and privacy practices, Data center, services and/or systems storing or processing County Information via an onsite inspection at least once a year. Upon the County's request the Contractor must complete a questionnaire regarding Contractor's Information Security and/or program. The County will pay for the County requested audit unless the auditor finds that the Contractor has materially breached this Exhibit, in which case the Contractor must bear all costs of the audit**;** and if the audit reveals material non-compliance with this Exhibit, the County may exercise its termination rights underneath the Contract.

Such audit will be conducted during the Contractor's normal business hours with reasonable advance notice, in a manner that does not materially disrupt or otherwise unreasonably and adversely affect the Contractor's normal business operations. The County's request for the audit will specify the scope and areas (e.g., Administrative, Physical, and Technical) that are subject to the audit and may include, but are not limited to physical controls inspection, process reviews, policy reviews, evidence of external and internal Vulnerability scans, penetration test results, evidence of code reviews, and evidence of system configuration and audit log reviews. It is understood that the results may be filtered to remove the specific Information of other Contractor customers such as IP address, server names, etc. The Contractor must cooperate with the County in the development of the scope and methodology for the audit, and the timing and implementation of the audit. This right of access will extend to any regulators with oversight of the County. The Contractor agrees to comply with all

reasonable recommendations that result from such inspections, tests, and audits within reasonable timeframes.

When not prohibited by regulation, the Contractor will provide to the County a summary of: (i) the results of any security audits, security reviews, or other relevant audits, conducted by the Contractor or a third party; and (ii) corrective actions or modifications, if any, the Contractor will implement in response to such audits.

17. PRIVACY AND SECURITY INDEMNIFICATION

In addition to the indemnification provisions in the Contract, the Contractor agrees to indemnify, defend, and hold harmless the County, its Special Districts, elected and appointed officers, agents, employees, and volunteers from and against any and all claims, demands liabilities, damages, judgments, awards, losses, costs, expenses or fees including reasonable attorneys' fees, accounting and other expert, consulting or professional fees, and amounts paid in any settlement arising from, connected with, or relating to:

- The Contractor's violation of any federal and state laws in connection with its accessing, collecting, processing, storing, disclosing, or otherwise using County Information;
- The Contractor's failure to perform or comply with any terms and conditions of this Contract or related agreements with the County; and/or,
- Any Information loss, breach of Confidentiality, or Incident involving any County Information that occurs on the Contractor's systems or networks (including all costs and expenses incurred by the County to remedy the effects of such loss, breach of Confidentiality, or Incident, which may include (i) providing appropriate notice to individuals and governmental authorities, (ii) responding to individuals' and governmental authorities' inquiries, (iii) providing

  credit monitoring to individuals, and (iv) conducting litigation and settlements with individuals and governmental authorities). Notwithstanding the preceding sentences, the County will have the right to participate in any such defense at its sole cost and expense, except that in the event contractor fails to provide County with a full and adequate defense, as determined by County in its sole judgment, County will be entitled to retain its own counsel, including, without limitation, County Counsel, and to reimbursement from contractor for all such costs and expenses incurred by County in doing so. Contractor will not have the right to enter into any settlement, agree to any injunction or other equitable relief, or make any admission, in each case, on behalf of County without County's prior written approval.

Exhibit L

DEBARMENT CERTIFICATION

I, _____, on behalf of_____,
(the "Contractor"), certify that on County Contract
_____
_[ENTER CONTRACT NUMBER AND NAME]:

By checking the boxes the vendor is certifying that it is not on the following lists below:

☐ Federal Suspended and Debarred Vendors List
https://sam.gov/content/home_
Contractor certifies that they are not suspended, excluded or debarred.

☐ State of California Debarred Vendors List
https://www.dir.ca.gov/dlse/debar.html
Contractor certifies that they are not suspended, excluded or debarred.

County reserves the right to monitor federal, state, or local level databases at any time during the Contract to ensure Contractor is deemed responsible.

If Contractor is found to be suspended, excluded or debarred, it may constitute a material breach of the Contract. In the event of such material breach, County may, in its sole discretion, terminate the Contract.

*Contractor Personnel includes subcontractors (If applicable).

I have authority to bind the Contractor and have reviewed the requirements above and further certify that I will comply with said requirements.

Name (Print): _____

Title: _____

Signature: _____ Date: _____

_____
Company/Contractor Name

Exhibit M

BACKGROUND CHECK ATTESTATION FORM

This letter is to acknowledge and attest that all Contractor and approved Subcontractor principals, officers, employees, staff, agents, and contractors (collectively, "Staff") working under Contract # 25-003 will have completed a background investigation as required under Paragraph 7.5 Background and Security Investigations.

- Under no circumstance may any Staff perform work under the Contract until they have completed and passed the required background check.
- All fees associated with the background check shall be at the expense of the Contractor.
- Contractor must maintain background check records for all Staff and must provide such records to the County for audit purposes, as requested by the County.
- Staff who have a history that would render them unsuitable for the position or work duties required (such as certain kinds of criminal activity or a history that has a direct or adverse relationship with specific work duties), as determined by the County in its sole discretion, may not perform services under this Contract.
- No Staff shall perform services under this Contract if the Staff member is on active probation or parole.
- No Staff having access to County information or records shall have a criminal conviction record or pending criminal charges unless such information has been fully disclosed to the County and utilization of that Staff for this service is approved in writing by the County.
- Contractor must monitor all Staff during the duration of the Contract term, even after the initial background check has been completed. All subsequent arrests or noncompliance with background investigation requirements for any Staff must be disclosed to the County Project Manager immediately which will be reviewed by the County to determine if there is a job nexus and to take appropriate action as needed.
- If identified by County as being required for certain services, additional background investigations(s) may be required.

All information collected on Staff has been and will be managed and retained in accordance with all applicable laws and regulations.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I am authorized to represent this Contractor.

Contractor Name	
Contractor Address	
Name and Title	
Signature	
Date	

BOARD LETTER/MEMO
CLUSTER FACT SHEET

☒ Board Letter ☐ Board Memo ☐ Other

OPS CLUSTER AGENDA REVIEW DATE	1/15/2025
BOARD MEETING DATE	2/4/2025
SUPERVISORIAL DISTRICT AFFECTED	☒ All ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th
DEPARTMENT(S)	PUBLIC HEALTH
SUBJECT	APPROVAL TO AMEND A SOLE SOURCE DATA MANAGEMENT SERVICES CONTRACT WITH AUTOMATED CASE MANAGEMENT SYSTEMS, INC. TO EXTEND THE TERM THROUGH FEBRUARY 28, 2026 (ALL SUPERVISORIAL DISTRICTS) (3 VOTES)
PROGRAM	DIVISION OF HIV AND STD PROGRAMS
AUTHORIZES DELEGATED AUTHORITY TO DEPT	☒ Yes ☐ No
SOLE SOURCE CONTRACT	☒ Yes ☐ No If Yes, please explain why: Public Health must extend this contract until the migration of data between HIV Casewatch and e2LAS, the new data system is complete. The continuation of the HIV Casewatch system in the interim will help DHSP maintain its current operations and avoid federal sanctions up to, and including, the elimination of federal funding for these services to LAC.
SB 1439 SUPPLEMENTAL DECLARATION FORM REVIEW COMPLETED BY EXEC OFFICE	☒ Yes ☐ No – Not Applicable **If unsure whether a matter is subject to the Levine Act, email your packet to EOLevineAct@bos.lacounty.gov to avoid delays in scheduling your Board Letter.**
DEADLINES/ TIME CONSTRAINTS	Amendment needs to be executed by 2/28/25 to avoid a gap in services
COST & FUNDING	Total cost: $660,000 — Health Resources and Services Administration (HRSA), Ryan White Program funds, HRSA Ending the HIV Epidemic funds, and existing Departmental resources TERMS (if applicable): 3/1/25 through 2/28/26 with optional extension to 8/31/26 Explanation:
PURPOSE OF REQUEST	To extend the current sole source contract with Automated Case Management Systems, Inc. (ACMS) through 2/28/26, and an option to extend through 8/31/26, if needed, to accommodate time for implementation of a replacement data management (DM) system already approved by the Board.
BACKGROUND	HIV Casewatch, managed by ACMS, is used to meet reporting requirements and includes database services such as: administration, security, maintenance, encryption, conversion and migration, design and modification, and development of interfaces with other EHR systems
EQUITY INDEX OR LENS WAS UTILIZED	☒ Yes ☐ No Develop and implement strategies that identify, prioritize, and effectively support the most disadvantaged geographies and populations. Ryan White Program funded services are for people living with HIV who have no source of medical coverage.
SUPPORTS ONE OF THE NINE BOARD PRIORITIES	☒ Yes ☐ No Alliance for Health Integration; supports the current data management system which collects client-level data for clients living with HIV in Los Angeles County.
DEPARTMENTAL CONTACTS	Joshua Bobrowsky, Director Government Affairs, Public Health (213) 288-7871, jbobrowsky@ph.lacounty.gov Mario Perez, Director, Division of HIV and STD Programs (213) 351-8001, mjperez@ph.lacounty.gov Truc Moore, Senior Deputy County Counsel, (213) 972-5719 tlmoore@counsel.lacounty.gov

COUNTY OF LOS ANGELES
Public Health

BARBARA FERRER, Ph.D., M.P.H., M.Ed.
Director

MUNTU DAVIS, M.D., M.P.H.
County Health Officer

ANISH P. MAHJAN, M.D., M.S., M.P.H.
Chief Deputy Director

313 North Figueroa Street, Room 806
Los Angeles, California 90012
TEL (213) 240-8117 • FAX (213) 975-1273

www.publichealth.lacounty.gov

BOARD OF SUPERVISORS

Hilda L. Solis
First District

Holly J. Mitchell
Second District

Lindsey P. Horvath
Third District

Janice Hahn
Fourth District

Kathryn Barger
Fifth District

February 4, 2025

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, CA 90012

Dear Supervisors:

APPROVAL TO AMEND A SOLE SOURCE DATA MANAGEMENT SERVICES CONTRACT WITH AUTOMATED CASE MANAGEMENT SYSTEMS, INC. TO EXTEND THE TERM THROUGH FEBRUARY 28, 2026 (ALL SUPERVISORIAL DISTRICTS) (3 VOTES)

CIO RECOMMENDATION: APPROVE (X) APPROVE WITH MODIFICATION ( ) DISAPPROVE ( )

SUBJECT

Request approval to execute a sole source amendment to sole source Contract Number H-204251 for the provision of Data Management (DM) services with Automated Case Management Systems, Inc. for HIV Casewatch to extend the term effective March 1, 2025, through February 28, 2026, with an option to extend the term for an additional six months, as needed, through August 31, 2026. An extension is needed to keep HIV Casewatch operational while Public Health implements a new DM system previously approved by your Board on October 8, 2024.

IT IS RECOMMENDED THAT THE BOARD:

1. Approve and instruct the Director of the Department of Public Health (Public Health), or designee, to execute a sole source contract amendment, substantially similar to Exhibit I, with Automated Case Management Systems, Inc. (ACMS) for the provision of Data Management (DM) services for various HIV/STD services contracts, to extend the contract term for 12 months, at an annual maximum obligation of $660,000 through February 28, 2026, with an option to extend the term for an

additional six months, as needed, through August 31, 2026, contingent upon performance and the availability of funding, and exercised through written notification from the Director of Public Health, or designee, to the Contractor prior to the end of the contract term; 100 percent funded by Health Resources and Services Administration (HRSA) Ryan White Program (RWP) Part A funds, Assistance Listing Number (ALN) 93.914, HRSA Ending the HIV Epidemic (EHE) funds, ALN 93.686 and existing Departmental resources.

2. Delegate authority to the Director of Public Health, or designee, to execute amendments to Contract Number H-204251 that provide an increase or decrease in funding up to 10 percent above or below the annual base maximum obligation effective upon execution or beginning of applicable funding period; rollover unspent contract funds, if allowable by the grantor; update the statement of work and/or scope of work, as necessary; and/or correct errors in the contract's terms and conditions, subject to review and approval by County Counsel, and the Chief Information Office (CIO), and notification to your Board and the Chief Executive Office (CEO).

3. Delegate authority to the Director of Public Health, or designee, to execute change notices to the contract that authorize modifications to the budget with corresponding modifications to the statement of work, that are within the same scope of services, as necessary, and changes to hours of operation and/or service locations.

4. Delegate authority to the Director of Public Health, or designee, to immediately suspend or terminate the contract upon issuing written notice if contractor fails to perform and/or fully comply with program requirements and terminate the contract for convenience by providing a 30-calendar day advance written notice to contractor.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

Public Health's Division of HIV and STD Programs (DHSP) has approximately 108 HIV/AIDS care service contracts that require ongoing submission of client-level data to State and federal funders. DHSP's current DM system, HIV Casewatch, managed by ACMS, is used to meet this reporting requirement. This system includes a significant amount of historical information and is used by all DHSP contracted HIV care service providers for invoicing and other critical financial functions. HIV Casewatch includes database services such as: administration, security, maintenance, encryption, conversion and migration, design and modification, and development of interfaces with other Electronic Health Record systems.

The DM system is used as a tool to help quantify the delivery of HIV/AIDS care services to people living with HIV/AIDS and is an important tool to ensure accountability and productivity among contracted providers. HIV Casewatch also provides valuable clinical outcome data for clients served by DHSP.

Public Health will be transitioning to e2LAS, a new DM system, approved by your Board on October 8, 2024, that will conform to Los Angeles County's (LAC) data system requirements and replace HIV Casewatch. The new data system will improve DHSP's ability to meet reporting requirements, improve reporting efficiency, add new data system functionality, as well as meet or exceed County data security requirements.

The ACMS contract must be extended to allow for the continuation of data management services and must be operational to allow contracted providers to complete data submission, invoicing, and reporting for the remainder of fiscal year (FY) 2024/25 through the first quarter of FY 2025/26. In addition, Public Health will need to have HIV Casewatch and e2LAS operating simultaneously during the transition period to allow Public Health to migrate critical client data from HIV Casewatch to e2LAS.

Approval of Recommendation 1 will allow Public Health to continue providing uninterrupted HIV data management and billing support to DHSP contracted HIV/AIDS care services providers and ensure compliance with State and federal data collection and reporting requirements associated with the delivery of HIV Care services to LAC residents. Public Health must continue extending these services until the e2LAS DM system is fully developed, implemented, and functioning. Upon successful development and implementation of e2LAS, DHSP will need to have the two systems operating concurrently to allow Public Health time to reconcile all final data variables in the transfer between data management systems. This will ensure that data collection efforts are not jeopardized nor interrupted before the new DM system is finalized.

Approval of Recommendation 2 will allow Public Health to execute an amendment to the contract to provide an increase and/or decrease funding up to 10 percent above or below each term's annual base maximum obligation; rollover unspent contract funds; update the statement of work and/or scope of work; and/or correct errors in the contract's terms and conditions, as necessary.

Approval of Recommendation 3 will allow Public Health to execute change notices to the contract such as authorizing modifications to, or within budget categories, with corresponding modifications to the statement of work and/or scope of work that are within the same scope of services, as necessary; and changes to hours of operation and/or service locations.

Approval of Recommendation 4 will allow Public Health to immediately suspend or terminate the contract if the contractor fails to perform and/or fully comply with contract requirements; and to terminate the contract for convenience by providing 30-calendar days advance written termination notice to the contractor.

Implementation of Strategic Plan Goals

The recommended actions support North Star 1, Make Investments that Transform Lives, of the County's Strategic Plan.

FISCAL IMPACT/FINANCING

The total program cost for the amendment is $660,000 for the term effective March 1, 2025, through February 28, 2026; and up to an additional $330,000, if needed, to extend the agreement for an additional six months, 100 percent funded by HRSA RWP Part A funds, HRSA EHE funds, and existing Departmental resources.

Funding for this contract is included in Public Health's Adopted Budget for FY 2024-25 and will be included in future FYs, as necessary.

There is no additional net County cost associated with this action.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

DHSP initiated a multi-phased modernization initiative to replace its outdated legacy DM systems. In February 2018, Phase I of the DM system modernization effort began with the implementation of the On-line Real-Time Centralized Health Information Database (ORCHID) to track clinical services such as STD screening, diagnosis and treatment and pre-exposure prophylaxis (PrEP) services provided in Public Health sexual health clinics.

Phase II includes the extension of the ACMS contract until the new E2LAS DM system is implemented and fully functional. The final phase includes the full migration and implementation of the new DM system.

The continuation of the HIV Casewatch system in the interim will help DHSP maintain its current operations and avoid federal sanctions up to, and including, the elimination of federal funding for these services to LAC.

As required under Board Policy 5.100, your Board was notified on October 17, 2024, of Public Health's intent to extend the term of the sole source contract with ACMS.

County Counsel has reviewed and approved Exhibit I as to form. Attachment A is the Sole Source Checklist signed by the CEO. The CIO has reviewed this request and has determined that this does not introduce any new technology-related issues that would necessitate a formal CIO analysis.

CONTRACTING PROCESS

Since the original award, Contract Number H-204251 has undergone multiple amendments including term extensions, adjustments to funding allocations, and revisions to the statement of work and scope of work.

On February 7, 2023, your Board approved an amendment to Contract Number H-204251, to extend the contract term for 12 months through February 29, 2024, with an option to extend the contract term through February 28, 2025, with notification to the Contractor.

On February 1, 2024, Public Health notified ACMS of its intent to exercise the optional extension term and extended the contract for 12 additional months through February 28, 2025.

This current extension will allow for the continuation of DM services and for Public Health to continue the development, implementation and migration of client level data into the new e2LAS DM system.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

Approval of the recommended actions will allow Public Health to continue providing uninterrupted HIV data management and billing support to Public Health contracted HIV/AIDS care and treatment providers and ensure compliance with State and federal data collection and reporting requirements associated with the delivery of HIV/AIDS care services to LAC residents.

Respectfully submitted,

Barbara Ferrer, Ph.D., M.P.H., M.Ed.
Director

Reviewed By:

Peter Loo
Chief Information Officer

BF:mo
BL #07965

Enclosures

c: Chief Executive Officer
County Counsel
Executive Officer, Board of Supervisors

COUNTY OF LOS ANGELES
Public Health
CONTRACTS AND GRANTS DIVISION

CONTRACTS AND GRANTS DIVISION

BOARD LETTER APPROVAL SHEET
(CHECKLIST OF APPROVALS)

Assignment Number: 07965

Health and Mental Health Services Cluster Meeting (HMHS):
Operations Cluster Meeting: (if needed) 01/15/2024
Board Agenda: 02/04/2025

TITLE:
APPROVAL TO AMEND A SOLE SOURCE DATA MANAGEMENT SERVICES CONTRACT WITH AUTOMATED CASE MANAGEMENT SYSTEMS, INC. TO EXTEND THE TERM THROUGH FEBRUARY 28, 2026
(ALL SUPERVISORIAL DISTRICTS) (3 VOTES)

The following approvals have been obtained:

Check if needed (otherwise indicate "N/A")		DEPARTMENT/PUBLIC HEALTH DIVISION	APPROVED BY	DATE OF APPROVAL
☒	☐ N/A	Bureau Director (initial draft)	Rita Singhal, MD	11/8/2024
☒	☐ N/A	Contracts and Grants	Karen Buehler	12/10/24
☒	☐ N/A	Program Office	Monique Collins	11/12/2024
☒	☐ N/A	DPH Finance	Babatunde Yates	12.19.24
☒	☐ N/A	CEO Risk Management	Ray Young	12.24.24
☒	☐ N/A	County Counsel	Truc Moore	12.20.24
☒	☐ N/A	County Chief Information Office	Peter Loo	12.19.24
☐	☒ N/A	DPH Information Systems		

NOTED AND APPROVED:

Barbara Ferrer
Barbara Ferrer (Dec 30, 2024 14:28 PST)
Barbara Ferrer, Ph.D., M.P.H., M.Ed.
Director

12/30/2024
Date

Contract Analyst: Megan O'Brien

Telephone: (909) 800-8829

EXHIBIT I

Contract No. H-204251

Amendment No. 30

**HUMAN IMMUNODEFICIENCY VIRUS (HIV)/
ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)
DATA MANAGEMENT, TRAINING, SYSTEMS LICENSE AND
MAINTENANCE SERVICES AGREEMENT**

THIS AMENDMENT is made and entered on_____.

by and between	COUNTY OF LOS ANGELES (hereafter "County"),
and	AUTOMATED CASE MANAGEMENT SYSTEMS, INC. (hereafter "Contractor").

WHEREAS, reference is made to that certain agreement entitled "HUMAN IMMUNODEFICIENCY VIRUS (HIV)/ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS) DATA MANAGEMENT, TRAINING, SYSTEMS LICENSE AND MAINTENANCE SERVICES AGREEMENT", dated January 3, 1995, identified as Agreement Number H-204251, and all subsequent amendments (all hereinafter "Agreement"); and

WHEREAS, on February 4, 2025, the Board of Supervisors authorized the Director of Public Health (Public Health), or designee, to execute an amendment to the Agreement to extend the term for 12 months through February 28, 2026, with an option to extend the term for an additional six months, as needed, through written notification from the Director of Public Health, or designee, to the Contractor prior to the end of the contract term; and

WHEREAS, County has been allocated funds from the Health Resources and Services Administration, (“HRSA”), which is authorized by the Ryan White Comprehensive AIDS Resources Emergency Act of 1990, its amendments of 1996, and Subsequent Reauthorizations of the Act (“Ryan White Program”) Part A funds; Assistance Listing Number (ALN) 93.914; HRSA Ending the HIV Epidemic (“EHE”); ALN 93.686; and

net County cost funds ("NCC"), a portion of which have been designated to this Agreement; and

WHEREAS, it is the intent of the parties hereto to amend the Agreement to extend the term through February 28, 2026,for the continued provision of data management, training, systems license and maintenance services; and make other hereafter designated changes, including updating certain terms and provisions and amending exhibits and schedules to update the statement of work and budget(s); and

WHEREAS, if needed, parties hereto agree to extend the term for an additional six months through written notification from the Director of Public Health or designee to the Contractor prior to the end of the contract term;

WHEREAS, said Agreement provides that changes may be made in the form of a written amendment which is formally approved and executed by the parties; and

WHEREAS, Contractor warrants that it continues to possess the competence, expertise, and personnel necessary to provide services consistent with the requirements of this Agreement and consistent with the professional standard of care for these services.

NOW, THEREFORE, the parties hereto agree as follows:

1. This Amendment is effective upon execution for the period of March 1, 2025 through February 28, 2026.

2.The first paragraph of Paragraph 1, TERM, is deleted in its entirety and replaced as follows:

> "This Agreement is effective January 3, 1995 through February 28, 2026, subject to the availability of federal, State, or County funding sources. In any event, the County may terminate this Agreement in accordance with the TERMINATION Paragraphs of the ADDITIONAL PROVISIONS hereunder. The County will have the sole option to extend this Contract term for an additional six-month period through August 31, 2026. Each such extension option may be exercised at the sole discretion of the Director through written notification from the Director to Contractor prior to the end of the Contract term."

3. Paragraph 2, DESCRIPTION OF SERVICES, is deleted in its entirety and replaced to read as follows:

"A. Contractor will provide services in the manner described in Exhibits (Statements of Work and Scopes of Work), attached hereto and incorporated by reference.

B. Contractor acknowledges that the quality of service(s) provided under this Contract will be at least equivalent to that which Contractor provides to all other clients it serves.

C. If Contractor provides any tasks, deliverables, goods, services, or other work, other than as specified in this Agreement, the same will be deemed to be a gratuitous effort on the part of Contractor, and Contractor will have no claim whatsoever against the County.

D. Federal Award Information for this Agreement is detailed in Exhibits JJ, JJ.1 and JJ.2, Notice of Federal Subaward Information."

4. Paragraph 3, MAXIMUM OBLIGATION OF COUNTY, Subparagraphs HH and HI are added to read as follows:

"HH. During the period of March 1, 2025 through February 28, 2026, the maximum obligation of County for all services provided hereunder will not exceed six hundred sixty thousand dollars ($660,000).

Such maximum obligation is comprised of Ryan White Program, Part A funds, HRSA EHE funds and NCC funds. This sum represents the total maximum obligation of the County as shown in Schedule 43."

HI. If option to extend is needed, during the period of March 1, 2026 through August 31, 2026, the maximum obligation of County for all services provided hereunder will not exceed three hundred thirty thousand dollars ($330,000).

Such maximum obligation is comprised of Ryan White Program, Part A funds, HRSA EHE funds and NCC funds. This sum represents the total maximum obligation of the County as shown in Schedule 44."

5. Paragraph 6, COMPENSATION, is amended to read as follows:

"The County agrees to compensate Contractor for performing services hereunder for actual allowable paid cost as set forth in Schedules 1 through 44 and the BILLING AND PAYMENT Paragraph of the Agreement. Invoices and

cost reports must be submitted and will be paid in accordance with approved line-item detailed budgets."

6. Paragraph 8, CONSIDERATION OF HIRING GAIN/GROW PARTICIPANTS, is deleted in its entirety and replaced as follows:

"A. Should Contractor require additional or replacement personnel after the effective date of this Contract, Contractor will give consideration for any such employment openings to participants in the County's Department of Public Social Services Greater Avenues for Independence (GAIN) Program or Skills and Training to Achieve Readiness for Tomorrow (START) Program who meet Contractor's minimum qualifications for the open position(s). For this purpose, consideration means that Contractor will interview qualified candidates. The County will refer GAIN/START participants by job category to Contractor. Contractor must report all job openings with job requirements to: gainstart@dpss.lacounty.gov and bservices@opportunity.lacounty.gov and DPSS will refer qualified GAIN/START job candidates.

B. In the event that both laid-off County employees and GAIN/GROW participants are available for hiring, County employees must be given first priority."

7. Paragraph 12, CONFIDENTIALITY, Subparagraph A, is deleted in its entirety and replaced as follows:

"A. Contractor must maintain the confidentiality of all records and information in accordance with all applicable federal, State, and local laws, rules, regulations, ordinances, directives, guidelines, policies, and procedures relating to confidentiality, including, without limitation, County policies concerning information technology security and the protection of confidential records and information. In the event of a breach, suspected breach, or unlawful use or disclosure of confidential records, Contractor must immediately, no later than 24 hours after discovery, notify the County's Project Manager."

8. Paragraph 25, TERMINATION FOR INSOLVENCY, DEFAULT, AND/OR IMPROPER CONSIDERATIONS, AND CONVENIENCE, Subparagraph B, is deleted in its entirety and replaced as follows:

"The County may, by written notice to Contractor, terminate the whole or any part of this Contract, if, in the judgement of County's Project Director:

A. Contractor has materially breached this Contract; or

B. Contractor fails to timely provide and/or satisfactorily perform any task, deliverable, service, or other work required either under this Contract; or

C. Contractor fails to demonstrate a high probability of timely fulfillment of performance requirements under this Contract, or of any obligations of this Contract and in either case, fails to demonstrate convincing progress toward a cure within five working days (or such longer period as the County may authorize in writing) after receipt of written notice from the County specifying such failure.

In the event that the County terminates this Contract in whole or in part as provided hereinabove, the County may procure, upon such terms and in such manner as the County may deem appropriate, goods and services similar to those so terminated. Contractor will be liable to the County for such similar goods and services. Contractor will continue the performance of this Contract to the extent not terminated under the provisions of this Paragraph.

Except with respect to defaults of any subcontractor, Contractor will not be liable for any such excess costs of the type identified in the Paragraph above if its failure to perform this Contract arises out of causes beyond the control and without the fault or negligence of Contractor. Such causes may include, but are not limited to: acts of God or of the public enemy, acts of the County in either its sovereign or contractual capacity; acts of federal or State governments in their sovereign capacities; or fires, floods, strikes, freight embargoes, and unusually severe weather; but in

every case, the failure to perform must be beyond the control and without the fault or negligence of Contractor. If the failure to perform is caused by the default of a subcontractor, and if such default arises out of causes beyond the control of both Contractor and any subcontractor, and without the fault or negligence of either of them, Contractor will not be liable for any such excess costs for failure to perform, unless the goods or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit Contractor to meet the required performance schedule. As used in this Paragraph, the term "subcontractor(s)" means subcontractor(s) at any tier.

If, after the County has given notice of termination under the provisions of this Paragraph, it is determined by the County that Contractor was not in default under the provisions of this Paragraph or that the default was excusable under the provisions hereinabove, the rights and obligations of the parties will be the same as if the notice of termination had been issued pursuant to the Paragraph entitled TERMINATION FOR CONVENIENCE, herein.

The rights and remedies of County provided in this Paragraph are not exclusive and are in addition to any other rights and remedies provided by law or under this Contract."

9. Paragraph 63, PUBLIC RECORDS ACT, will be added to the ADDITIONAL PROVISIONS of the Agreement to read as follows:

"Any documents submitted by Contractor; all information obtained in connection with the County's right to audit and inspect the Contractor's documents, books, and accounting records pursuant to the RECORD RETENTION AND AUDITS Paragraph of this Contract; as well as those documents which were required to be submitted in response to the solicitation process for this Contract, become the exclusive property of the County. All such documents become a matter of public record and will be regarded as public records. Exceptions listed in California Government Code Section 7921.000 et seq. (Public Records Act) may be applied to

documents which are marked "trade secret," "confidential," or "proprietary." The County will not in any way be liable or responsible for the disclosure of any such records including, without limitation, those so marked, if disclosure is required by law, or by an order issued by a court of competent jurisdiction.

B. In the event the County is required to defend an action on a Public Records Act request for any of the aforementioned documents, information, books, records, and/or contents of a proposal marked "trade secret," "confidential," or "proprietary," Contractor agrees to defend and indemnify the County from all costs and expenses, including reasonable attorney's fees, in action or liability arising under the Public Records Act."

10. Paragraph 64, CAMPAIGN CONTRIBUTION PROHIBITION FOLLOWING FINAL DECISION IN CONTRACT PROCEEDING, is added to the Agreement as follows:

"Pursuant to Government Code Section 84308, Contractor and its subcontractors are prohibited from making a contribution of more than $250 to a County officer for 12 months after the date of the final decision in the proceeding involving this Contract, including any amendment to this Contract. Failure to comply with the provisions of Government Code Section 84308 and of this paragraph, may be a material breach of this Contract as determined in the sole discretion of the County."

11. Exhibit JJ.2, Notice of Federal Subaward Information, attached hereto and incorporated herein by reference, is added to the Agreement.

12. Exhibit KK-1 and KK-2, SCOPES OF WORK for HIV/AIDS DATA MANAGEMENT, TRAINING, SYSTEMS LICENSE AND MAINTENANCE SERVICES, attached hereto and incorporated herein by reference, are added to the Agreement.

13. Schedules 43 and 44, BUDGETS FOR HIV/AIDS DATA MANAGEMENT, TRAINING, SYSTEMS LICENSE AND MAINTENANCE SERVICES, attached hereto and incorporated herein by reference, are added to the Agreement

14. Except for the changes set forth herein above, the Agreement will not be

changed in any other respects by this Amendment.

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IN WITNESS WHEREOF, the Board of Supervisors of the County of Los Angeles has caused this Amendment to be executed by its Director of Public Health, or designee, and Contractor has caused this Amendment to be executed in its behalf by its duly authorized officer, the day, month, and year first above written.

COUNTY OF LOS ANGELES

By _____
Barbara Ferrer, Ph.D., M.P.H., M.Ed.
Director

AUTOMATED CASE MANAGEMENT SYSTEMS, INC.
Contractor

By _____
Signature

_____
Printed Name

Title _____

APPROVED AS TO FORM
BY THE OFFICE OF THE COUNTY COUNSEL
DAWYN R. HARRISON
County Counsel

APPROVED AS TO CONTRACT ADMINISTRATION:

Department of Public Health

By _____
Contracts and Grants Division Management

#07965:mo

SCHEDULE 43

AUTOMATED CASE MANAGEMENT SYSTEMS, INC.

HIV/AIDS DATA MANAGEMENT, TRAINING, SYSTEMS LICENSE AND MAINTENANCE SERVICES

		Budget Period March 1, 2025 through February 28, 2026
Salaries	$	0
Employee Benefits	$	0
Travel	$	0
Equipment	$	0
Supplies	$	0
Other Costs	$	660,000
Indirect Cost	$	0
TOTAL PROGRAM BUDGET	$	660,000

During the term of this Agreement, any variation to the above budget must be executed through a written Change Notice, executed by the Division of HIV and STD Programs' Director and the Contractor. Funds may only be utilized for eligible program expenses. Invoices and cost reports must be submitted and will be paid in accordance with approved line-item detailed budgets.

(OPTIONAL TERM IF EXERCISED)

SCHEDULE 44

AUTOMATED CASE MANAGEMENT SYSTEMS, INC.

HIV/AIDS DATA MANAGEMENT, TRAINING, SYSTEMS LICENSE AND MAINTENANCE SERVICES

	Budget Period March 1, 2026 through August 31, 2026
Salaries	$ 0
Employee Benefits	$ 0
Travel	$ 0
Equipment	$ 0
Supplies	$ 0
Other Costs	$ 330,000
Indirect Cost	$ 0
TOTAL PROGRAM BUDGET	$ 330,000

During the term of this Agreement, any variation to the above budget must be executed through a written Change Notice, executed by the Division of HIV and STD Programs' Director and the Contractor. Funds may only be utilized for eligible program expenses. Invoices and cost reports must be submitted and will be paid in accordance with approved line-item detailed budgets.

OPTIONAL, IF EXTENDED

EXHIBIT KK-2
SCOPE OF WORK
March 1, 2026 – August 31, 2026

The Contractor shall achieve the following goals and objectives. Objectives are achieved by following the work plan, composed of implementation and evaluation activities. Activities are to be completed according to the stated time lines and are to be documented as specified.

This section may not list all required ACMS tasks and/or responsibilities. Statements made in this section in no way limit the responsibilities of ACMS and, where conflicts appear with other statements or requirements in this Scope of Work, the statement resulting in the greatest benefit to DHSP should be deemed the binding one.

MEASURABLE OBJECTIVE(S)	IMPLEMENTATION ACTIVITIES	TIMELINE	METHOD(S) OF EVALUATING OBJECTIVE(S) AND DOCUMENTATION
1.0 Provide Systems License Services	1.1 Provide Casewatch Millennium ® System Software Licenses as required by DHSP. License distribution must be approved by DHSP prior to delivery.	Begin 3/1/25 and ongoing through 2/28/26	1.1 DHSP monthly report.
	1.2 Deliver, Install and Upgrade, when applicable, the most current version of the Casewatch Millennium® software for each License distributed.	Begin 3/1/25 and ongoing through 2/28/26	1.2 DHSP monthly report.
	1.3 Conduct License Management activities. - Ensure the number of Licenses distributed coincide with the software deployed. - Ensure Licenses are assigned only when authorized by DHSP. - Ensure all unapproved or unauthorized instances of software are reported to DHSP. - Uninstall and redistribute Licenses that are not utilized for six (6) months or longer. - Track each License distributed. - Report over and under licensing to DHSP.	Begin 3/1/25 and ongoing through 2/28/26	1.3 License management activity documentation will be kept on file and available for DHSP review upon request.
	1.4 Develop and maintain a software license registry and inventory for the Casewatch Millennium®. - Product edition - Product version	Begin 3/1/25 and ongoing through 2/28/26	1.4 License registry and inventory documentation will be kept on file and available for DHSP review upon request.

	- Product release date - Product description		
	1.5 Document License Distribution. - User Name - Location, telephone - Issued Date - Type of user	Begin 3/1/25 and ongoing through 2/28/26	1.5 License documentation will be kept on file and available for DHSP review upon request.
2.0 Provide Data Administration Services	2.1 Provide data administration services as follows, but not limited to:	Begin 3/1/25 and ongoing through 2/28/26	2.1 Database Administration procedures, protocols, and documentation will be kept on file and available for DHSP review upon request.
2A.0 Database Administration	2A.1 Perform all the Database Administration functions for Casewatch.	Begin 3/1/25 and ongoing through 2/28/26	2A.1 Database Administration procedures, protocols, and documentation will be kept on file and available for DHSP review upon request.
	2A.2 Implement data standardization as indicated by DHSP.	Begin 3/1/25 and ongoing through 2/28/26	2A.2 Data standardization documentation will be kept on file and available for DHSP review upon request.
	2A.3 Implement and manage data tune-ups and other DBA tasks. - Perform database tune-ups and synchronization regularly and on schedule. - Create/modify Caché database user accounts. - Record all Cache database modifications and events in log. - Restart the Caché database immediately. Casewatch must be up and running within one hour after crashes or power failures. - Upgrade Caché database regularly and as required.	Begin 3/1/25 and ongoing through 2/28/26	2A.3 Data synchronization documentation will be kept on file and available for DHSP review upon request.
	2B.1 Manage all aspects of database security including, but not limited to:		2B.1 User, logging activities, system rights, intrusion, error logs and

2B.0 Database Security	- Ensure only approved users have access to application system functions and "data" for which they are authorized. - Secure the database from intrusion by hackers. System should generate a message following an attempted security break. - Secure the database "data" from mistakes made by ACMS' development staff, maintenance staff, and production database administrator/s. - Secure the database from all sources of invalid "data" including records imported from the Electronic Data Interchange (EDI) modules and/or other servers, and "data" from other ACMS or DHSP application software. - Secure all data and information provided or processed through or on Casewatch, its various functions/modules, all interfaces (to or from). This has to be (at a minimum) to the specifications required by Governmental Authorities and applicable law.	Begin 3/1/25 and ongoing through 2/28/26	data validation reports will be kept on file and available for DHSP review upon request.
	2B.2 Provide and maintain secure login procedures including the following: - Intruder Detection – incorrect login attempts. - Password Restrictions – minimum password length, forced periodic changes, unique passwords and limited grace logons.	Begin 3/1/25 and ongoing through 2/28/26	2B.2 Security logs will be kept on file and available for DHSP review upon request.
	2B.3 Develop and Implement Security Access Control Groups in Casewatch Millennium®. - Security access control group must ensure that authenticated users have access to the functionality and information that they required and are authorized to and no more.	Begin 3/1/25 and ongoing through 2/28/26	2B.3 Security Access Control Group documentation will be submitted to DHSP.
	2C.1 Monitor the database performance. - Perform active monitoring and tracking of database performance, disk size allocation,		

2C.0 Database Maintenance	and overall system (application and database) responsiveness. - Install DBMS upgrades and manage all changes to the database.	Begin 3/1/25 and ongoing through 2/28/26	2C.1 Upgrades and performance documentation will be kept on file and available for DHSP review upon request.
2D.0 Database Backup and Recovery	2D.1 Perform Database Backup and Recovery as indicated by DHSP. - Perform system Backup and Recovery of the Casewatch database and application software. This has to be performed with a documented, tested, and automated method/s and tool/s to ensure fastest recovery and integrity of both the database and the application. - Implement procedures to restore the database by having several ways of recovering the database information. - Implement a disaster recovery plan in coordination with DHSP allowing no more than one hour of system downtime.	Begin 3/1/25 and ongoing through 2/28/26	2D.1 Database recovery plan documentation will be submitted to DHSP. If revisions are made to the recovery plan, such revised portion of the plan must be submitted to DHSP.
2E.0 Data Encryption	2E.1 Implement and maintain data encryption implementation in Casewatch. - At the point where sensitive data first enters the application. - As the data are transmitted between user and the server, EDI processing, and Shadow server. - Where the Casewatch data are stored on a server and database. - Where application data are managed, such as via backup facilities.	Begin 3/1/25 and ongoing through 2/28/26	2E.1 Encryption methodology will be submitted to DHSP.
2F.0 Data Conversion and Migration	2F.1 Provide data conversion and migration services as follows, but not limited to: 2F.2 Data Extraction	Begin 3/1/25 and ongoing through 2/28/26	2F.1 Data conversion and migration services will be reported to DHSP.

	- Process data extraction for each of the internal repository sources in the Casewatch Millennium® system. - Provide output files of information containing agreed data components in an agreed structured format (e.g. text delimited, Excel) generated according to an agreed running schedule.	Begin 3/1/25 and ongoing through 2/28/26	2F.2 Data will be extracted and submitted in an agreed structured format to DHSP.
	2F.3 Data Transport - Transport extracted data in a specify form from the source system, Casewatch to DHSP or specify entity for processing, via a temporary storage medium.	Begin 3/1/25 and ongoing through 2/28/26	2F.3 Extracted data will be transported via a storage medium and submitted to DHSP.
3.0 Provide Database Design and Modification Services	3.1 Provide Database Flexibility - Provide the ability for the database and the application system to accommodate all future growth in capacity and capability as new additional requirements come. - Ensure Casewatch database and the application system modules are flexible and easy to use. - Provide high level of flexibility to the Casewatch form, reports, and process flow.	Begin 3/1/25 and ongoing through 2/28/26	3.1 Database flexibility documentation will be kept on file and available for DHSP review upon request.
	3.2 Modify Database Designs - Ensure that the Database modification processes (Add, Delete, or Modify schema) of databases, tables, data sets, and fields is performed without any service interruptions and with relative ease. - Ensure the accuracy of "data" values whenever database modifications are performed. - Provide database model (subschema) and documentations of changes whenever database modifications are performed.	Begin 3/1/25 and ongoing through 2/28/26	3.2 Database design documentation will be kept on file and available for DHSP review upon request.

	- Establish database relationships or methods to ensure database integrity and facilitate future data mining and reporting tools.		
	3.3 Implement and Maintain Data Integrity		
	- Ensure that the integrity of "data" must be guaranteed and documented with an up to date Database design diagram at all times. - Implement database constraints to enforce new business rules once they are identified by DHSP. - Ensure the accuracy of "data" values whenever data modifications are performed.	Begin 3/1/25 and ongoing through 2/28/26	3.3 Data integrity documentation and reports will be kept on file and available for DHSP review upon request.
4.0 Provide Reporting Services	4.1 Provide User Friendly reporting function and effective report layouts as indicated by DHSP. - All reports are to provide the specified information, and are understandable, legible, and generated and submitted in a 24-hour period.	Begin 3/1/25 and ongoing through 2/28/26	4.1 Letter(s) of DHSP approval and reports will be kept on file.
	4.2 Make reports available for every data element collected in the system.	Begin 3/1/25 and ongoing through 2/28/26	4.2 Run any report on any given time based on the data collected from Casewatch.
	4.3 Provide the ability for users to view and print reports via local or network printer.	Begin 3/1/25 and ongoing through 2/28/26	4.3 Print reports via local or network printer at any given time.
4A.0 Standard Reports	4A.1 Prepare and provide DHSP with access to Standard Casewatch Reports on such dates or at such time intervals and in such format as indicated by DHSP.	Begin 3/1/25 and ongoing through 2/28/26	4A.1 Run Standard reports at any given time.
	4A.2 Remain current at all times on reporting expectations for HRSA, CDC, State-OA, and DHSP.	Begin 3/1/25 and ongoing through 2/28/26	4A.2 Run HRSA, CDC, and State-OA reports.
	4A.3 Provide aggregate, comparable, demographic and geographic reports and make accessible and available at any given time.	Begin 3/1/25 and ongoing through 2/28/26	4A.3 Run any given aggregate, comparable, demographic, and

	4A.4 Provide very detailed Clients and services level reports and make accessible and available at any given time.	Begin 3/1/25 and ongoing through 2/28/26	geographic report at any given time. 4A.4 Run any given aggregate, comparable, demographic, and geographic report at any given time.
4B.0 Ad Hoc Reports	4B.1 Provide Ad Hoc reporting capability through a user-friendly graphical interface. 4B.2 Provide canned reports and make available from a menu. - Provide the ability to filter the data on each report.	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	4B.1 Run Ad Hoc reports through the user-friendly graphical interface on a daily, weekly, or monthly basis. 4B.2 Run canned reports from the given menu with the applicable filtering on a daily, weekly, or monthly basis.
4C.0 Implement and maintain a Centralized Reporting Graphical User Interface	4C.1 Implement a centralized user-friendly graphical interface that gives the user the full flexibility of the system and the capability to run all reports under one screen, form or menu. - Make available any section specific and/or related field for query. - Provide the ability to sort data by multiple fields. - Provide the ability to get full print control functions such as, print preview, pagination and layout controls.	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	4C.1 Review and test the centralized user-friendly graphical interface in the server. All GUI reporting features documentation will be kept on file and available for DHSP review upon request.
4D.0 Implement Filtering Parameters to the Centralized Reporting GUI	4D.1 Maintain field parameters up-to-date on to the centralized reporting GUI for the following data fields, but not limited to: - Date, Month, Year parameters selection. - Provider and Site parameter selection - SPA parameter selection - Services Category, Sub Category, and Service, - Ethnicity, Age, and Gender parameter selection - Contract Number	Begin 3/1/25 and ongoing through 2/28/26	4D.1 Review and test the parameter selection on user-friendly graphical interface in the report server. All GUI reporting features documentation will be kept on file and available for DHSP review upon request.
4E.0 Shadow Server	4E.1 Provide shadow server maintenance. - Shadow server is to be the exact replica and serve as the full back-up of the Casewatch Millennium®.	Begin 3/1/25 and ongoing through 2/28/26	4E.1 Test shadow server by running various reports and viewing information.

	- Keep server's data up-to-date by replicating Casewatch's data onto the shadow server on a daily basis. - Provide the ability for the shadow server to accommodate all future growth in capacity and capability as new additional requirements are identified. - Shadow server is to be the exact replica of the Casewatch Millennium®.		
5.0 Data Extraction Requirements	5.1 Data extraction requirements for DHSP, State-OA, CDC, and HRSA.		
	5.2 Provide in a predefine format all the data, including historical and archive data, collected in the Casewatch Millennium® and preceding application systems to DHSP electronically via a method indicated by DHSP. - All data must be exported as requested by DHSP.	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	5.1 Data set log will be kept on file and available for DHSP to review upon request. 5.2 Data set log will be kept on file and available for DHSP to review upon request.
6.0 Provide Application System Modification and Programming Services	6.1 Provide system application modification as needed or as requested by DHSP not to exceed 1,600 programming hours for the term (programming hour cap applies to 6.0, 6.1 and 6.2 together). - Provision for Casewatch changes requested by DHSP, to collect data more efficiently.	Begin 3/1/25 and ongoing through 2/28/26	6.1 DHSP monthly status report.
	6.2 Provide programming support. - Perform Bug fixes and enhancements.		
	6.3 Provide programs modification for the Casewatch's Electronic Data Interface (EDI) module for new agencies as requested by DHSP.	Begin 3/1/25 and ongoing through 2/28/26	6.2 DHSP monthly status report.
7.0 Provide on-going Electronic Data Interchange (EDI) services to Care System providers.	7.1 Support the use of Electronic Data Interchange (EDI) to Care Services providers as indicated by DHSP. - Support all inbound/outbound EDI transactions, data standards, code sets and industry	Begin 3/1/25 and ongoing through 2/28/26	6.3 EDI modification documentation will be kept on file and available for DHSP review upon request. 7.1 DHSP monthly status report.

	standards and extension such as, but not limited to CPT4.	Begin 3/1/25 and ongoing through 2/28/26	
	7.2 Perform data validation and apply methods and rules to ensure data quality in the EDI module.		
	7.3 Make available all data imported by the EDI module in all Casewatch modules and functions, including, but not limited to: - Add, Delete, Modify/Editing and reporting	Begin 3/1/25 and ongoing through 2/28/26	7.2 System documentation and logs will be kept on file and available for DHSP review upon request.
	7.4 Provide the feature to perform interface data maintenances for all Casewatch EDI transmitted data: - Adding, Deleting, Modifying and View/Print.	Begin 3/1/25 and ongoing through 2/28/26	7.3 Monthly Electronic generated Casewatch report.
	7.5 Installation of new Electronic Data Interchange (EDI) module must be approved by DHSP prior to initiating work.	Begin 3/1/25 and ongoing through 2/28/26	7.4 Maintenance logs will be kept on file and available for DHSP review upon request.
8.0 Quality Assurance & Utilization Review of Care Services	8.1 Collaborate with DHSP to maintain a quality assurance system to monitor the quality of Care Services. - Compile data using sampling techniques, statistical analysis and computer resources. - Assist DHSP to analyze and interpret data to determine quality of patient care and to identify problems, patterns, and high-risk activities. - Assist DHSP to disseminates data and results of studies; develop and maintain clinical and administrative records and reporting systems.	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	7.5 Letter(s) of DHSP approval and materials will be kept on file. 8.1 Letter(s) of DHSP approval and materials will be kept on file.
8A.0 Casewatch Data Quality Assurance	8A.1 Collaborate with DHSP Data Management to maintain and support Data Quality Assurance tasks. - Collaborate with DHSP in identifying and developing data standards, validation rules, database constraints, and business rules.	Begin 3/1/25 and ongoing through 2/28/26	8A.1 Letter(s) of DHSP approval and materials will be kept on file.

	- Maintain system, module, function, and form level data entry validation rules, database constraints, business rules, and data standards. - The implementation of database and application system validations, database constraints, and business rules must enable rejection of all types of data that don't conform to these rules. - Additionally utilize Data Entry/Maintenance Reports "Error Report" to print data with discrepancies, errors, and problems from a temporary file.		
9.0 Provide Regular System Updates	9.1 Provide application system software updates as needed to all HIV Care Services providers and DHSP.		
	9.2 Install and configure the server software updates and the client software updates to all Providers. ACMS will then train the IT personnel assigned to the project for ongoing client software installations.	Begin 3/1/25 and ongoing through 2/28/26	9.1 DHSP monthly status report. 9.2 DHSP monthly status report.
10.0 Provide Application System Support	10.1 Provide system configuration, installation, and set up support for Casewatch users.	Begin 3/1/25 and ongoing through 2/28/26	
	10.2 Provide maintenance for all the Casewatch modules including the following functions: - Adding, Deleting, Modifying, and Programming	Begin 3/1/25 and ongoing through 2/28/26	10.1 DHSP monthly status report.
10A.0 Provide Application Systems Administration	10A.1 Provide application development support to keep the application operating in a changing business & technical environment.	Begin 3/1/25 and ongoing through 2/28/26	10.2 System documentation, diagrams, and logs will be kept on file and available for DHSP review upon request
	- Create/modify Casewatch Application System user accounts. - Record all Application System/Modules modifications and events in log.	Begin 3/1/25 and ongoing through 2/28/26	10A.1 DHSP monthly status report. System maintenance and modification, user, and event logs will be kept on file and available for DHSP review upon request.

	- Restart the Application System within one hour after panics, crashes, or power failures. - Upgrade Casewatch Application System regularly and as required.		
11.0 Provide End-User Support	11.1 Casewatch end user support includes, but not limited to: - Provide on-going telephone customer support and help desk coverage. - Return phone calls within thirty minutes. - Provide help desk support and coordinate resolution when a problem arises with the system. - Employ a help-desk system as a tool for managing duties, communicating issues and to generate daily, weekly and monthly log reports. - Implement a triage system for all Casewatch technology needs and inquiries from providers and DHSP. - Provide services from 8:00 A.M. and 5:00 P.M., Monday through Friday, Pacific Time, excluding Los Angeles County legal holidays. 11.1 Resolve Casewatch user problems for all related modules.	Begin 3/1/25 and ongoing through 2/28/26	11.1 DHSP monthly status report.
	11.2 Provide Software Support - Install, configure, and setup the Casewatch application, including the installation and updating of drivers and other files necessary to allow the application to work properly on all users' computers. These activities apply to all providers and DHSP on an ongoing basis.	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	11.1 Support log will be kept on file and available for DHSP review upon request. 11.2 DHSP monthly status report.
12.0 Provide Implementation Services	12.1 Migrate new providers to Casewatch.		

	12.2 Submit Implementation Plan Submit a written implementation plan showing: - List of tasks - Task duration - Milestones - Resource levels and allocation - Resource levels and allocation ACMS must submit a written plan explaining any possible constraints or deviations to the submitted plan.	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	12.1 DHSP monthly status report. 12.2 Implementation Plan will be submitted to DHSP for approval.
	12.3 Install and configure the server software and the client software to all Providers and train the IT personnel assigned to the project for ongoing client software installations.		12.3 Implementation Plan will be submitted to DHSP.
13.0 System Documentation	13.1 Provide Casewatch Millennium® Manuals.	Begin 3/1/25 and ongoing through 2/28/26	13.1 Manuals will be submitted to DHSP.
	13.2 Provide User Manual - User Manual must be updated annually or as requested by DHSP. - Determine the effectiveness of the user manual by documenting feedback from users.	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	13.2 User Manual will be annually submitted to DHSP.
	13.3 Provide Administration and Operations Manual - Manuals must be updated annually or as requested by DHSP.		13.3 Administration and Operations Manuals will be annually submitted to DHSP.
	13.4 Maintain an up-to-date Casewatch's dictionary's data element documentation for all service modules as follows: - Data Element Name - Description - Screen location including a screenshot - Physical Attributes - Validation Rules and Business Rules associated with the data element - Default Values	Begin 3/1/25 and ongoing through 2/28/26 Begin 3/1/25 and ongoing through 2/28/26	13.4 Data element documentation will be kept on file kept and available for DHSP review upon request.

	13.5 Maintain an up-to-date documentation on how the Casewatch's Electronic Data Interface (EDI) module software provides data validation.		
	13.6 Maintain an up-to-date documentation on the methodologies, algorithms, and business rules utilized by the Casewatch's Electronic Data Interface (EDI) module.	Begin 3/1/25 and ongoing through 2/28/26	13.5 EDI's data validation documents will be kept on file and available for DHSP review upon request. 13.6 Methodologies, algorithms, and business rules documentation will be kept on file and available for DHSP review upon request.
	14.1 Create, update and maintain system dictionaries and tables, including service provider specific fee schedules.	Begin 3/1/25 and ongoing through 2/28/26	
14.0 Data Dictionary Maintenance	14.2 Provide maintenance of all Casewatch dictionaries including, but not limited to: - Adding, Deleting, Modifying, & Programming	Begin 3/1/25 and ongoing through 2/28/26	14.1 Logs will be kept on file and available for DHSP review upon request. 14.2 System documentation, diagrams, and logs will be kept on file and available for DHSP review upon request.
	15.1 Provide hands-on technical software training to DHSP personnel as needed or as requested by DHSP.	Begin 3/1/25 and ongoing through 2/28/26	15.1 DHSP monthly status report.
15.0 Provide Training Services	15.2 Provide classroom and hands-on Casewatch application training to provider's end-users and DHSP staff.	Begin 3/1/25 and ongoing through 2/28/26	15.2 Classroom location and capacity report will be submitted to DHSP.
	15.3 Provide up to date training materials to all attendees. - Material must be updated annually or as requested by DHSP	Begin 3/1/25 and ongoing through 2/28/26	15.3 Training materials will be submitted to DHSP.
	15.4 Provide a "Train the Trainer" curriculum with training materials.	Begin 3/1/25 and ongoing through 2/28/26	15.4 Curriculum will be submitted to DHSP.
	15.5 Provide a training curriculum to be approved by DHSP in writing fifteen (15) days prior to training.	Begin 3/1/25 and ongoing through 2/28/26	15.5 Training curriculum will be submitted to DHSP for approval.
	15.6 Submit a list of available training sessions with content overview.		

	15.7 Submit a training plan for both providers and DHSP personnel.	Begin 3/1/25 and ongoing through 2/28/26	15.6 Training schedule will be submitted to DHSP.
	15.8 Submit examples of the existing training material.	Begin 3/1/25 and ongoing through 2/28/26	15.7 Training plan will be submitted to DHSP.
	15.9 Create monthly training schedule. (Classes will be offered weekly for each service category.)	Begin 3/1/25 and ongoing through 2/28/26	15.8 Existing material will be submitted to DHSP.
	15.10 Distribute class schedule to all providers and DHSP staff at least one month prior to the training.	Begin 3/1/25 and ongoing through 2/28/26	15.9 Monthly schedule will be submitted to DHSP.
	15.11 Conduct enrollment activities.	Begin 3/1/25 and ongoing through 2/28/26	15.10 Monthly schedule will be submitted to DHSP one month prior to the training.
	15.12 Develop a post exam for the end-user trainee on the course content to determine if additional training is needed.	Begin 3/1/25 and ongoing through 2/28/26	15.11 Enrollment logs will be kept on file and available for DHSP review upon request.
	- If needed, re-scheduling of training must be provided.	Begin 3/1/25 and ongoing through 2/28/26	15.12 Incorporate post exam to determine effectiveness of training. Effectiveness documentation, post exams and certifications will be kept on file and available for DHSP review upon request.
	- Provide a certification of completion for trainees who pass the post exam and include a letter recommending a follow-up training every six months.	Begin 3/1/25 and ongoing through 2/28/26	
	15.13 Distribute DHSP's class evaluation, which should be completed by the end-user that attends the class.	Begin 3/1/25 and ongoing through 2/28/26	15.13 Class evaluations will be submitted to DHSP.

OPTIONAL, IF EXTENDED

EXHIBIT KK-2
SCOPE OF WORK
March 1, 2026 – August 31, 2026

The Contractor shall achieve the following goals and objectives. Objectives are achieved by following the work plan, composed of implementation and evaluation activities. Activities are to be completed according to the stated time lines and are to be documented as specified.

This section may not list all required ACMS tasks and/or responsibilities. Statements made in this section in no way limit the responsibilities of ACMS and, where conflicts appear with other statements or requirements in this Scope of Work, the statement resulting in the greatest benefit to DHSP should be deemed the binding one.

MEASURABLE OBJECTIVE(S)	IMPLEMENTATION ACTIVITIES	TIMELINE	METHOD(S) OF EVALUATING OBJECTIVE(S) AND DOCUMENTATION
1.0 Provide Systems License Services	1.1 Provide Casewatch Millennium ® System Software Licenses as required by DHSP. License distribution must be approved by DHSP prior to delivery.	Begin 3/1/26 and ongoing through 8/31/26	1.1 DHSP monthly report.
	1.2 Deliver, Install and Upgrade, when applicable, the most current version of the Casewatch Millennium® software for each License distributed.	Begin 3/1/26 and ongoing through 8/31/26	1.2 DHSP monthly report.
	1.3 Conduct License Management activities. - Ensure the number of Licenses distributed coincide with the software deployed. - Ensure Licenses are assigned only when authorized by DHSP. - Ensure all unapproved or unauthorized instances of software are reported to DHSP. - Uninstall and redistribute Licenses that are not utilized for six (6) months or longer. - Track each License distributed. - Report over and under licensing to DHSP.	Begin 3/1/26 and ongoing through 8/31/26	1.3 License management activity documentation will be kept on file and available for DHSP review upon request.
	1.4 Develop and maintain a software license registry and inventory for the Casewatch Millennium®. - Product edition - Product version	Begin 3/1/26 and ongoing through 8/31/26	1.4 License registry and inventory documentation will be kept on file and available for DHSP review upon request.

	- Product release date - Product description		
	1.5 Document License Distribution. - User Name - Location, telephone - Issued Date - Type of user	Begin 3/1/26 and ongoing through 8/31/26	1.5 License documentation will be kept on file and available for DHSP review upon request.
2.0 Provide Data Administration Services	2.1 Provide data administration services as follows, but not limited to:	Begin 3/1/26 and ongoing through 8/31/26	2.1 Database Administration procedures, protocols, and documentation will be kept on file and available for DHSP review upon request.
2A.0 Database Administration	2A.1 Perform all the Database Administration functions for Casewatch.	Begin 3/1/26 and ongoing through 8/31/26	2A.1 Database Administration procedures, protocols, and documentation will be kept on file and available for DHSP review upon request.
	2A.2 Implement data standardization as indicated by DHSP.	Begin 3/1/26 and ongoing through 8/31/26	2A.2 Data standardization documentation will be kept on file and available for DHSP review upon request.
	2A.3 Implement and manage data tune-ups and other DBA tasks. - Perform database tune-ups and synchronization regularly and on schedule. - Create/modify Caché database user accounts. - Record all Cache database modifications and events in log. - Restart the Caché database immediately. Casewatch must be up and running within one hour after crashes or power failures. - Upgrade Caché database regularly and as required.	Begin 3/1/26 and ongoing through 8/31/26	2A.3 Data synchronization documentation will be kept on file and available for DHSP review upon request.
	2B.1 Manage all aspects of database security including, but not limited to:		2B.1 User, logging activities, system rights, intrusion, error logs and

2B.0 Database Security	- Ensure only approved users have access to application system functions and "data" for which they are authorized. - Secure the database from intrusion by hackers. System should generate a message following an attempted security break. - Secure the database "data" from mistakes made by ACMS' development staff, maintenance staff, and production database administrator/s. - Secure the database from all sources of invalid "data" including records imported from the Electronic Data Interchange (EDI) modules and/or other servers, and "data" from other ACMS or DHSP application software. - Secure all data and information provided or processed through or on Casewatch, its various functions/modules, all interfaces (to or from). This has to be (at a minimum) to the specifications required by Governmental Authorities and applicable law.	Begin 3/1/26 and ongoing through 28/31/26	data validation reports will be kept on file and available for DHSP review upon request.
	2B.2 Provide and maintain secure login procedures including the following: - Intruder Detection – incorrect login attempts. - Password Restrictions – minimum password length, forced periodic changes, unique passwords and limited grace logons.	Begin 3/1/26 and ongoing through 8/31/26	2B.2 Security logs will be kept on file and available for DHSP review upon request.
	2B.3 Develop and Implement Security Access Control Groups in Casewatch Millennium®. - Security access control group must ensure that authenticated users have access to the functionality and information that they required and are authorized to and no more.	Begin 3/1/26 and ongoing through 8/31/26	2B.3 Security Access Control Group documentation will be submitted to DHSP.

2C.0 Database Maintenance	2C.1 Monitor the database performance. - Perform active monitoring and tracking of database performance, disk size allocation, and overall system (application and database) responsiveness. - Install DBMS upgrades and manage all changes to the database.	Begin 3/1/26 and ongoing through 28/3126	2C.1 Upgrades and performance documentation will be kept on file and available for DHSP review upon request.
2D.0 Database Backup and Recovery	2D.1 Perform Database Backup and Recovery as indicated by DHSP. - Perform system Backup and Recovery of the Casewatch database and application software. This has to be performed with a documented, tested, and automated method/s and tool/s to ensure fastest recovery and integrity of both the database and the application. - Implement procedures to restore the database by having several ways of recovering the database information. - Implement a disaster recovery plan in coordination with DHSP allowing no more than one hour of system downtime.	Begin 3/1/26 and ongoing through 8/31/26	2D.1 Database recovery plan documentation will be submitted to DHSP. If revisions are made to the recovery plan, such revised portion of the plan must be submitted to DHSP.
2E.0 Data Encryption	2E.1 Implement and maintain data encryption implementation in Casewatch. - At the point where sensitive data first enters the application. - As the data are transmitted between user and the server, EDI processing, and Shadow server. - Where the Casewatch data are stored on a server and database. - Where application data are managed, such as via backup facilities.	Begin 3/1/26 and ongoing through 8/31/26	2E.1 Encryption methodology will be submitted to DHSP.
2F.0 Data Conversion and Migration	2F.1 Provide data conversion and migration services as follows, but not limited to:	Begin 3/1/26 and ongoing through 8/31/26	2F.1 Data conversion and migration services will be reported to DHSP.

	2F.2 Data Extraction - Process data extraction for each of the internal repository sources in the Casewatch Millennium® system. - Provide output files of information containing agreed data components in an agreed structured format (e.g. text delimited, Excel) generated according to an agreed running schedule.	Begin 3/1/26 and ongoing through 8/31/26	2F.2 Data will be extracted and submitted in an agreed structured format to DHSP.
	2F.3 Data Transport - Transport extracted data in a specify form from the source system, Casewatch to DHSP or specify entity for processing, via a temporary storage medium.	Begin 3/1/26 and ongoing through 8/31/26	2F.3 Extracted data will be transported via a storage medium and submitted to DHSP.
3.0 Provide Database Design and Modification Services	3.1 Provide Database Flexibility - Provide the ability for the database and the application system to accommodate all future growth in capacity and capability as new additional requirements come. - Ensure Casewatch database and the application system modules are flexible and easy to use. - Provide high level of flexibility to the Casewatch form, reports, and process flow.	Begin 3/1/26 and ongoing through 28/31/26	3.1 Database flexibility documentation will be kept on file and available for DHSP review upon request.
	3.2 Modify Database Designs - Ensure that the Database modification processes (Add, Delete, or Modify schema) of databases, tables, data sets, and fields is performed without any service interruptions and with relative ease. - Ensure the accuracy of "data" values whenever database modifications are performed. - Provide database model (subschema) and documentations of changes whenever database modifications are performed.	Begin 3/1/26 and ongoing through 8/31/26	3.2 Database design documentation will be kept on file and available for DHSP review upon request.

	- Establish database relationships or methods to ensure database integrity and facilitate future data mining and reporting tools. 3.3 Implement and Maintain Data Integrity - Ensure that the integrity of "data" must be guaranteed and documented with an up to date Database design diagram at all times. - Implement database constraints to enforce new business rules once they are identified by DHSP. - Ensure the accuracy of "data" values whenever data modifications are performed.	Begin 3/1/26 and ongoing through 8/31/26	3.3 Data integrity documentation and reports will be kept on file and available for DHSP review upon request.
4.0 Provide Reporting Services	4.1 Provide User Friendly reporting function and effective report layouts as indicated by DHSP. - All reports are to provide the specified information, and are understandable, legible, and generated and submitted in a 24-hour period. 4.2 Make reports available for every data element collected in the system. 4.3 Provide the ability for users to view and print reports via local or network printer.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	4.1 Letter(s) of DHSP approval and reports will be kept on file. 4.2 Run any report on any given time based on the data collected from Casewatch. 4.3 Print reports via local or network printer at any given time.
4A.0 Standard Reports	4A.1 Prepare and provide DHSP with access to Standard Casewatch Reports on such dates or at such time intervals and in such format as indicated by DHSP. 4A.2 Remain current at all times on reporting expectations for HRSA, CDC, State-OA, and DHSP. 4A.3 Provide aggregate, comparable, demographic and geographic reports and make accessible and available at any given time.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	4A.1 Run Standard reports at any given time. 4A.2 Run HRSA, CDC, and State-OA reports. 4A.3 Run any given aggregate, comparable, demographic, and

	4A.4 Provide very detailed Clients and services level reports and make accessible and available at any given time.	Begin 3/1/26 and ongoing through 8/31/26	geographic report at any given time. 4A.4 Run any given aggregate, comparable, demographic, and geographic report at any given time.
4B.0 Ad Hoc Reports	4B.1 Provide Ad Hoc reporting capability through a user-friendly graphical interface.	Begin 3/1/26 and ongoing through 8/31/26	4B.1 Run Ad Hoc reports through the user-friendly graphical interface on a daily, weekly, or monthly basis.
	4B.2 Provide canned reports and make available from a menu. - Provide the ability to filter the data on each report.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	4B.2 Run canned reports from the given menu with the applicable filtering on a daily, weekly, or monthly basis.
4C.0 Implement and maintain a Centralized Reporting Graphical User Interface	4C.1 Implement a centralized user-friendly graphical interface that gives the user the full flexibility of the system and the capability to run all reports under one screen, form or menu. - Make available any section specific and/or related field for query. - Provide the ability to sort data by multiple fields. - Provide the ability to get full print control functions such as, print preview, pagination and layout controls.	Begin 3/1/26 and ongoing through 8/31/26	4C.1 Review and test the centralized user-friendly graphical interface in the server. All GUI reporting features documentation will be kept on file and available for DHSP review upon request.
4D.0 Implement Filtering Parameters to the Centralized Reporting GUI	4D.1 Maintain field parameters up-to-date on to the centralized reporting GUI for the following data fields, but not limited to: - Date, Month, Year parameters selection. - Provider and Site parameter selection - SPA parameter selection - Services Category, Sub Category, and Service, - Ethnicity, Age, and Gender parameter selection - Contract Number	Begin 3/1/26 and ongoing through 8/31/26	4D.1 Review and test the parameter selection on user-friendly graphical interface in the report server. All GUI reporting features documentation will be kept on file and available for DHSP review upon request.
4E.0 Shadow Server	4E.1 Provide shadow server maintenance. - Shadow server is to be the exact replica and serve as the full back-up of the Casewatch Millennium®.	Begin 3/1/26 and ongoing through 8/31/26	4E.1 Test shadow server by running various reports and viewing information.

	- Keep server's data up-to-date by replicating Casewatch's data onto the shadow server on a daily basis. - Provide the ability for the shadow server to accommodate all future growth in capacity and capability as new additional requirements are identified. - Shadow server is to be the exact replica of the Casewatch Millennium®.		
5.0 Data Extraction Requirements	5.1 Data extraction requirements for DHSP, State-OA, CDC, and HRSA. 5.2 Provide in a predefine format all the data, including historical and archive data, collected in the Casewatch Millennium® and preceding application systems to DHSP electronically via a method indicated by DHSP. - All data must be exported as requested by DHSP.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	5.1 Data set log will be kept on file and available for DHSP to review upon request. 5.2 Data set log will be kept on file and available for DHSP to review upon request.
7.0 Provide Application System Modification and Programming Services	6.1 Provide system application modification as needed or as requested by DHSP not to exceed 1,600 programming hours for the term (programming hour cap applies to 6.0, 6.1 and 6.2 together). - Provision for Casewatch changes requested by DHSP, to collect data more efficiently. 6.2 Provide programming support. - Perform Bug fixes and enhancements. 6.3 Provide programs modification for the Casewatch's Electronic Data Interface (EDI) module for new agencies as requested by DHSP.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	6.1 DHSP monthly status report. 6.2 DHSP monthly status report. 6.3 EDI modification documentation will be kept on file and available for DHSP review upon request.
7.0 Provide on-going Electronic Data Interchange (EDI) services to Care System providers.	7.1 Support the use of Electronic Data Interchange (EDI) to Care Services providers as indicated by DHSP. - Support all inbound/outbound EDI transactions, data standards, code sets and industry	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	7.1 DHSP monthly status report.

	standards and extension such as, but not limited to CPT4.		
	7.2 Perform data validation and apply methods and rules to ensure data quality in the EDI module.		7.2 System documentation and logs will be kept on file and available for DHSP review upon request.
	7.3 Make available all data imported by the EDI module in all Casewatch modules and functions, including, but not limited to:	Begin 3/1/26 and ongoing through 8/31/26	7.3 Monthly Electronic generated Casewatch report.
	- Add, Delete, Modify/Editing and reporting	Begin 3/1/26 and ongoing through 8/31/26	
	7.4 Provide the feature to perform interface data maintenances for all Casewatch EDI transmitted data:		7.4 Maintenance logs will be kept on file and available for DHSP review upon request.
	- Adding, Deleting, Modifying and View/Print.	Begin 3/1/26 and ongoing through 8/31/26	
	7.5 Installation of new Electronic Data Interchange (EDI) module must be approved by DHSP prior to initiating work.		7.5 Letter(s) of DHSP approval and materials will be kept on file.
8.0 Quality Assurance & Utilization Review of Care Services	8.1 Collaborate with DHSP to maintain a quality assurance system to monitor the quality of Care Services.	Begin 3/1/26 and ongoing through 8/31/26	8.1 Letter(s) of DHSP approval and materials will be kept on file.
	- Compile data using sampling techniques, statistical analysis and computer resources.	Begin 3/1/26 and ongoing through 8/31/26	
	- Assist DHSP to analyze and interpret data to determine quality of patient care and to identify problems, patterns, and high-risk activities.		
	- Assist DHSP to disseminates data and results of studies; develop and maintain clinical and administrative records and reporting systems.		
8A.0 Casewatch Data Quality Assurance	8A.1 Collaborate with DHSP Data Management to maintain and support Data Quality Assurance tasks.		8A.1 Letter(s) of DHSP approval and materials will be kept on file.
	- Collaborate with DHSP in identifying and developing data standards, validation rules, database constraints, and business rules.	Begin 3/1/26 and ongoing through 8/31/26	

	- Maintain system, module, function, and form level data entry validation rules, database constraints, business rules, and data standards. - The implementation of database and application system validations, database constraints, and business rules must enable rejection of all types of data that don't conform to these rules. - Additionally utilize Data Entry/Maintenance Reports "Error Report" to print data with discrepancies, errors, and problems from a temporary file.		
9.0 Provide Regular System Updates	9.1 Provide application system software updates as needed to all HIV Care Services providers and DHSP.		9.1 DHSP monthly status report.
	9.2 Install and configure the server software updates and the client software updates to all Providers. ACMS will then train the IT personnel assigned to the project for ongoing client software installations.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	9.2 DHSP monthly status report.
10.0 Provide Application System Support	10.1 Provide system configuration, installation, and set up support for Casewatch users.		10.1 DHSP monthly status report.
	10.2 Provide maintenance for all the Casewatch modules including the following functions: - Adding, Deleting, Modifying, and Programming	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	10.2 System documentation, diagrams, and logs will be kept on file and available for DHSP review upon request
10A.0 Provide Application Systems Administration	10A.1 Provide application development support to keep the application operating in a changing business & technical environment. - Create/modify Casewatch Application System user accounts. - Record all Application System/Modules modifications and events in log.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	10A.1 DHSP monthly status report. System maintenance and modification, user, and event logs will be kept on file and available for DHSP review upon request.

	- Restart the Application System within one hour after panics, crashes, or power failures. - Upgrade Casewatch Application System regularly and as required.		
11.0 Provide End-User Support	11.1 Casewatch end user support includes, but not limited to: - Provide on-going telephone customer support and help desk coverage. - Return phone calls within thirty minutes. - Provide help desk support and coordinate resolution when a problem arises with the system. - Employ a help-desk system as a tool for managing duties, communicating issues and to generate daily, weekly and monthly log reports. - Implement a triage system for all Casewatch technology needs and inquiries from providers and DHSP. - Provide services from 8:00 A.M. and 5:00 P.M., Monday through Friday, Pacific Time, excluding Los Angeles County legal holidays.	Begin 3/1/26 and ongoing through 8/31/26	11.1 DHSP monthly status report.
	11.1 Resolve Casewatch user problems for all related modules.		11.1 Support log will be kept on file and available for DHSP review upon request.
	11.2 Provide Software Support - Install, configure, and setup the Casewatch application, including the installation and updating of drivers and other files necessary to allow the application to work properly on all users' computers. These activities apply to all providers and DHSP on an ongoing basis.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	11.2 DHSP monthly status report.
12.0 Provide Implementation Services	12.1 Migrate new providers to Casewatch.		12.1 DHSP monthly status report.

	12.2 Submit Implementation Plan Submit a written implementation plan showing: - List of tasks - Task duration - Milestones - Resource levels and allocation - Resource levels and allocation ACMS must submit a written plan explaining any possible constraints or deviations to the submitted plan.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	12.2 Implementation Plan will be submitted to DHSP for approval.
	12.3 Install and configure the server software and the client software to all Providers and train the IT personnel assigned to the project for ongoing client software installations.		12.3 Implementation Plan will be submitted to DHSP.
13.0 System Documentation	13.1 Provide Casewatch Millennium® Manuals.	Begin 3/1/26 and ongoing through 8/31/26	13.1 Manuals will be submitted to DHSP.
	13.2 Provide User Manual - User Manual must be updated annually or as requested by DHSP. - Determine the effectiveness of the user manual by documenting feedback from users.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	13.2 User Manual will be annually submitted to DHSP.
	13.3 Provide Administration and Operations Manual - Manuals must be updated annually or as requested by DHSP.	Begin 3/1/26 and ongoing through 8/31/26	13.3 Administration and Operations Manuals will be annually submitted to DHSP.
	13.4 Maintain an up-to-date Casewatch's dictionary's data element documentation for all service modules as follows: - Data Element Name - Description - Screen location including a screenshot - Physical Attributes - Validation Rules and Business Rules associated with the data element - Default Values	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	13.4 Data element documentation will be kept on file kept and available for DHSP review upon request.

	13.5 Maintain an up-to-date documentation on how the Casewatch's Electronic Data Interface (EDI) module software provides data validation.	Begin 3/1/26 and ongoing through 8/31/26	13.5 EDI's data validation documents will be kept on file and available for DHSP review upon request.
	13.6 Maintain an up-to-date documentation on the methodologies, algorithms, and business rules utilized by the Casewatch's Electronic Data Interface (EDI) module.	Begin 3/1/26 and ongoing through 8/31/26	13.6 Methodologies, algorithms, and business rules documentation will be kept on file and available for DHSP review upon request.
14.0 Data Dictionary Maintenance	14.1 Create, update and maintain system dictionaries and tables, including service provider specific fee schedules.	Begin 3/1/26 and ongoing through 8/31/26	14.1 Logs will be kept on file and available for DHSP review upon request.
	14.2 Provide maintenance of all Casewatch dictionaries including, but not limited to: - Adding, Deleting, Modifying, & Programming	Begin 3/1/26 and ongoing through 8/31/26	14.2 System documentation, diagrams, and logs will be kept on file and available for DHSP review upon request.
16.0 Provide Training Services	15.1 Provide hands-on technical software training to DHSP personnel as needed or as requested by DHSP.	Begin 3/1/26 and ongoing through 8/31/26	15.1 DHSP monthly status report.
	15.2 Provide classroom and hands-on Casewatch application training to provider's end-users and DHSP staff.	Begin 3/1/26 and ongoing through 8/31/26	15.2 Classroom location and capacity report will be submitted to DHSP.
	15.3 Provide up to date training materials to all attendees. - Material must be updated annually or as requested by DHSP	Begin 3/1/26 and ongoing through 8/31/26	15.3 Training materials will be submitted to DHSP.
	15.4 Provide a "Train the Trainer" curriculum with training materials.	Begin 3/1/26 and ongoing through 8/31/26	15.4 Curriculum will be submitted to DHSP.
	15.5 Provide a training curriculum to be approved by DHSP in writing fifteen (15) days prior to training.	Begin 3/1/26 and ongoing through 8/31/26	15.5 Training curriculum will be submitted to DHSP for approval.
	15.6 Submit a list of available training sessions with content overview.	Begin 3/1/26 and ongoing through 8/31/26	15.6 Training schedule will be submitted to DHSP.

	15.7 Submit a training plan for both providers and DHSP personnel.	Begin 3/1/26 and ongoing through 8/31/26	15.7 Training plan will be submitted to DHSP.
	15.8 Submit examples of the existing training material.	Begin 3/1/26 and ongoing through 8/31/26	15.8 Existing material will be submitted to DHSP.
	15.9 Create monthly training schedule. (Classes will be offered weekly for each service category.)	Begin 3/1/26 and ongoing through 8/31/26	15.9 Monthly schedule will be submitted to DHSP.
	15.10 Distribute class schedule to all providers and DHSP staff at least one month prior to the training.	Begin 3/1/26 and ongoing through 8/31/26	15.10 Monthly schedule will be submitted to DHSP one month prior to the training.
	15.11 Conduct enrollment activities.	Begin 3/1/26 and ongoing through 8/31/26	15.11 Enrollment logs will be kept on file and available for DHSP review upon request.
	15.12 Develop a post exam for the end-user trainee on the course content to determine if additional training is needed. - If needed, re-scheduling of training must be provided. - Provide a certification of completion for trainees who pass the post exam and include a letter recommending a follow-up training every six months.	Begin 3/1/26 and ongoing through 8/31/26 Begin 3/1/26 and ongoing through 8/31/26	15.12 Incorporate post exam to determine effectiveness of training. Effectiveness documentation, post exams and certifications will be kept on file and available for DHSP review upon request.
	15.13 Distribute DHSP's class evaluation, which should be completed by the end-user that attends the class.	Begin 3/1/26 and ongoing through 8/31/26	15.13 Class evaluations will be submitted to DHSP.

ATTACHMENT A

SOLE SOURCE CHECKLIST

Department Name: Department of Public Health

☐ New Sole Source Contract Automated Case Management Systems, Inc.

☑ Sole Source Amendment to Existing Contract
Date Existing Contract First Approved: January 3, 1995

Check (✓)	JUSTIFICATION FOR SOLE SOURCE CONTRACTS AND AMENDMENTS **Identify applicable justification and provide documentation for each checked item.**
	➢ Only one bona fide source (monopoly) for the service exists; performance and price competition are not available. A monopoly is an "*Exclusive control of the supply of any service in a given market. If more than one source in a given market exists, a monopoly does not exist* ."
	➢ Compliance with applicable statutory and/or regulatory provisions.
	➢ Compliance with State and/or federal programmatic requirements.
	➢ Services provided by other public or County-related entities.
	➢ Services are needed to address an emergent or related time-sensitive need.
	➢ The service provider(s) is required under the provisions of a grant or regulatory requirement.
	➢ Services are needed during the time period required to complete a solicitation for replacement services; provided services are needed for no more than 12 months from the expiration of an existing contract which has no available option periods.
✔	➢ Maintenance and support services are needed for an existing solution/system during the time to complete a solicitation for a new replacement solution/system; provided the services are needed for no more than 24 months from the expiration of an existing maintenance and support contract which has no available option periods.
	➢ Maintenance service agreements exist on equipment which must be serviced by the original equipment manufacturer or an authorized service representative.
	➢ It is more cost-effective to obtain services by exercising an option under an existing contract.
	➢ It is in the best economic interest of the County (e.g., significant costs and time to replace an existing system or infrastructure, administrative cost and time savings and excessive learning curve for a new service provider, etc.). In such cases, departments must demonstrate due diligence in qualifying the cost-savings or cost-avoidance associated with the best economic interest of the County.

Erika Bonilla
Chief Executive Office

12/24/24
Date

BOARD LETTER/MEMO
CLUSTER FACT SHEET

☐ Board Letter ☒ Board Memo ☐ Other

CLUSTER AGENDA REVIEW DATE	1/15/2025
BOARD MEETING DATE	
SUPERVISORIAL DISTRICT AFFECTED	☒ All ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th
DEPARTMENT(S)	Sheriff
SUBJECT	Sole Source Amendment to Contract with MLQ & LO LLC for MAPAS Maintenance and Support Services
PROGRAM	As-Needed Maintenance and Support Services for Court Services Division's Modified Automated Process and Accounting System (MAPAS)
AUTHORIZES DELEGATED AUTHORITY TO DEPT	☐ Yes ☒ No
SOLE SOURCE CONTRACT	☒ Yes ☐ No If Yes, please explain why: Extension of current contract needed to finalize successor system.
SB 1439 SUPPLEMENTAL DECLARATION FORM REVIEW COMPLETED BY EXEC OFFICE	☐ Yes ☒ No – Not Applicable **If unsure whether a matter is subject to the Levine Act, email your packet to EOLevineAct@bos.lacounty.gov to avoid delays in scheduling your Board Letter.**
DEADLINES/ TIME CONSTRAINTS	The current Contract with MLQ & LO LLC is set to expire on April 6, 2025. Amendment to extend is needed to provide uninterrupted Services until replacement system reaches Final Acceptance.
COST & FUNDING	Total cost: $ TBD Funding source: Automation Fund (Civil-enforcement service fees mandated and earmarked by state law, California Gov't Code §26731) TERMS (if applicable): One year extension. Explanation: Time & Material contract for as-needed services.
PURPOSE OF REQUEST	Extension of current Contract for MAPAS Maintenance and Support Services with MLQ & LO LLC for an additional one-year period.
BACKGROUND (include internal/external issues that may exist including any related motions)	No issues or concerns
EQUITY INDEX OR LENS WAS UTILIZED	☐ Yes ☒ No If Yes, please explain how:
SUPPORTS ONE OF THE NINE BOARD PRIORITIES	☐ Yes ☒ No If Yes, please state which one(s) and explain how:
DEPARTMENTAL CONTACTS	Name, Title, Phone # & Email: Gerald Wacker, Principal Information Systems Analyst, (213) 229-1709. gwacker@lasd.org Georgina Mojardin, Information Technology Specialist I, (213) 229-1708. gmojard@lasd.org Alex Madera, Administrative Services Manager III, (213) 229-3276. amadera@lasd.org

January 15, 2025

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Dear Supervisors:

ADVANCE NOTIFICATION OF INTENT TO ENTER INTO NEGOTIATIONS FOR A SOLE SOURCE AMENDMENT TO EXTEND CONTRACT NUMBER 79065 WITH MLQ & LO CONSULTING LLC TO PROVIDE CONTINUED AS-NEEDED MAINTENANCE AND SUPPORT SERVICES

SUBJECT

This letter provides advance notification to the Board, in accordance with Board Policy 5.100, that the Los Angeles County (County) Sheriff's Department (Department) intends to enter into negotiations for a Sole Source Amendment (Amendment) to Contract Number 79065 (Contract) with MLQ & LO Consulting LLC (MLQ & LO) for continued as-needed maintenance and support services (Services) for the Department's Modified Automated Process and Accounting System (MAPAS), a 30-year-old custom-built system used to support the Department's civil-enforcement functions.

PURPOSE

The current Contract expires on April 6, 2025. The proposed Amendment will extend the term of the Contract for one year. The continuation of Services will allow the Department to complete the implementation of the replacement system known as the Automated Civil Enforcement System (ACES). The Department intends to terminate the Contract for convenience, either in whole or in part, with ten calendar days advance written notice upon successful implementation of ACES.

BACKGROUND

In the late 1980s, MAPAS was developed by Sierra Systems, Inc. (Sierra) to meet the automated civil-enforcement needs of the former County Marshall. In 2011, the Department issued a Request for Proposals to replace MAPAS. Sierra was the highest scoring proposer and was awarded Agreement Number 77924. In late 2018, Sierra notified the County that it would no longer maintain MAPAS after March 2019.

In March 2019, the Department issued a competitively bid work order under the County's Information Technology Support Services Master Agreement (ITSSMA). Pyramid Technologies was the winning bidder and provided maintenance services via an ITSSMA work order through April 15, 2020.

On February 6, 2020, the Department issued an Invitation for Bids (IFB) for MAPAS Services. MLQ & LO was the only bidder to respond to the IFB and was subsequently selected.

On April 7, 2020, the Board approved the Contract with MLQ & LO for a term of two years, with three one-year option periods, to provide MAPAS Services.

On March 5, 2023, the County's Internal Services Department (ISD) issued a Request For Bids for the procurement and implementation of ACES. On June 27, 2023, the ISD, on behalf of the Department, awarded purchase order MA-IS-2340315-1 to Teleosoft, Inc.

SOLE SOURCE JUSTIFICATION

MLQ & LO has successfully provided the maintenance services over the last four years. They continue to possess the knowledge and expertise to maintain and support MAPAS. Approval of this action will ensure the most efficient continuation of Services while the Department completes the implementation of ACES. The Department anticipates reaching Final Acceptance in July 2025. Once Final Acceptance is reached we will provide MLQ & LO with a termination for convenience notice, which will end any further maintenance and support for MAPAS.

CONCLUSION

Pursuant to Board Policy, the Department will proceed with Sole Source negotiations in four weeks, unless otherwise instructed by the Board.

Should you have any questions, please contact Contracts Manager
Alex Madera, Fiscal Administration Bureau's Contracts Unit, at (213) 229-3276.

Sincerely,

ROBERT G. LUNA
SHERIFF

RGL:JT:CM:RFM:sl
(Fiscal Administration Bureau - Contracts Unit)

c: Board of Supervisors, Justice Deputies
Edward Yen, Executive Officer, Board of Supervisors
Fesia Davenport, Chief Executive Officer
Rene Phillips, Manager, Chief Executive Office (CEO)
Jocelyn Ventilacion, Principal Analyst, CEO
Anna Petrosyan, Senior Analyst, CEO
Michael Xie, Senior Budget Analyst, CEO
Dawyn R. Harrison, County Counsel
Peter Loo, Chief Information Officer, CIO
Elizabeth D. Miller, Chief Legal Advisor, Legal Advisory Unit
Cammy C. DuPont, Principal Deputy County Counsel, Legal Advisory Unit
April L. Tardy, Undersheriff
Jill Torres, Assistant Sheriff, CFAO
Jason A. Skeen, Chief of Staff, Office of the Sheriff
Conrad Meredith, Division Director, Administrative Services Division (ASD)
Joseph J. Williams, Division Chief, Court Services Division (CSD)
Christopher L. Johnson, Commander, CSD
Crystal M. Miranda, Commander, CSD
Richard F. Martinez, Assistant Division Director, ASD
David E. Culver, Director, Financial Programs Bureau
Yvonne I. O'Brien, Captain, Civil Management Bureau (CMB)
Rene A. Garcia, Lieutenant, ASD
Gerald Wacker, Principal Information Systems Analyst, CSD
Alex Madera, Administrative Services Manager (ASM) III, Fiscal Administration Bureau (FAB), Contracts Unit (CU)
Erica M. Nunes, Sergeant, ASD
Kristine D. Corrales, Deputy, ASD
Tony Liu, ASM II, FAB, CU
Steve Lopez, ASM I, FAB, CU

SOLE SOURCE CHECKLIST

Department Name: Department of Public Health

☐ New Sole Source Contract

☑ Existing Sole Source Contract Date Sole Source Contract Approved: 04/07/2020

Check (✓)	JUSTIFICATION FOR SOLE SOURCE CONTRACTS **Identify applicable justification and provide documentation for each checked item.**
	➢ Only one bona fide source (monopoly) for the service exists; performance and price competition are not available. A monopoly is an "*Exclusive control of the supply of any service in a given market. If more than one source in a given market exists, a monopoly does not exist*."
✔	➢ Compliance with applicable statutory and/or regulatory provisions.
✔	➢ Compliance with State and/or federal programmatic requirements.
	➢ Services provided by other public or County-related entities.
✔	➢ Services are needed to address an emergent or related time-sensitive need.
	➢ The service provider(s) is required under the provisions of a grant or regulatory requirement.
	➢ Additional services are needed to complete an ongoing task and it would be prohibitively costly in time and money to seek a new service provider.
	➢ Services are needed during the time period required to complete a solicitation for replacement services; provided services are needed for no more than 12 months from the expiration of an existing contract which has no available option periods.
	➢ Maintenance and support services are needed for an existing solution/system during the time to complete a solicitation for a new replacement solution/ system; provided the services are needed for no more than 12 months from the expiration of an existing maintenance and support contract which has no available option periods.
	➢ Maintenance service agreements exist on equipment which must be serviced by the original equipment manufacturer or an authorized service representative.
	➢ It is more cost-effective to obtain services by exercising an option under an existing contract.
	➢ It is in the best economic interest of the County (e.g., significant costs to replace an existing system or infrastructure, administrative cost savings and excessive learning curve for a new service provider, etc.) In such cases, departments must demonstrate due diligence in qualifying the cost-savings or cost-avoidance associated with the best economic interest of the County.

Chief Executive Office

12/24/24
Date

QUESTIONNAIRE FOR SOLE SOURCE AMENDMENT FOR MAINTENANCE AND SUPPORT SERVICES FOR THE DEPARTMENT'S MODIFIED AUTOMATED PROCESS AND ACCOUNTING SYSTEM (MAPAS) WITH MLQ & LO CONSULTING LLC

It is the policy of the County, to solicit the maximum number of bids/proposals for a commodity or service from the largest relevant market and to select vendors on a competitive basis.

There are certain acquisitions which when in the best interest of the County, can only be obtained from a sole source. Sole source acquisitions must be justified in sufficient detail to explain the basis for suspending the usual competitive procurement process.

NOTE: Please refer to Procedure P-3700 of the ISD Purchasing Policies on Procedures Manual.

DOCUMENTATION FOR SOLE SOURCE JUSTIFICATION MUST INCLUDE RESPONSES TO THE FOLLOWING QUESTIONS:

1. **What is being requested?**
   Extension of Contract Number 79065 (Contract) with MLQ & LO Consulting LLC for maintenance and support services for the Department's Modified Automated Process and Accounting System (MAPAS) until its replacement system, called ACES (Automated Civil Enforcement System), has been implemented. (ACES has been procured from a separate vendor through a purchase order issued by the Internal Services Department).

2. **Why is the product needed – how will it be used?**
   The Services are required by the Department to provide maintenance and support services for the ongoing operation of MAPAS, and to assist the Department in migrating data from MAPAS to ACES.

3. **Is this "brand" of product the only one that meets the user's requirements? If yes, what is unique about the product?**
   Yes. MLQ & LO Consulting LLC is the only vendor capable of maintaining MAPAS; MLQ & LO's principal staff members have been engaged under various vendor contracts continuously since 1989 to maintain MAPAS.

4. **Have other products/vendors been considered? If yes, which products/vendors have been considered and how did they fail to meet the user's requirements?**
   No, only the principal staff members in MLQ & LO possess the knowledge to maintain and support MAPAS.

5. **Will purchase of this product avoid other costs, e.g. data conversion, etc? Or will it incur additional cost, e.g. training, conversion, etc?**
   N/A

6. **Is the product proprietary or is it available from various dealers? Have you verified this?**
   No—see question # 3 above.

7. **Reasonableness of Price. Does the County obtain a percentage discount or special discount not available to the private sector?**
   N/A

8. **What is the dollar value of existing equipment and the Purchase Order No. for the existing equipment?**
   Not applicable.

BOARD LETTER/MEMO
CLUSTER FACT SHEET

X Board Letter ☐ Board Memo ☐ Other

CLUSTER AGENDA REVIEW DATE	**January 15, 2025**
BOARD MEETING DATE	**February 4, 2025**
SUPERVISORIAL DISTRICT AFFECTED	X All ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th
DEPARTMENT(S)	**Natural History Museum**
SUBJECT	**La Brea Tar Pits Master Plan, Recommended Project – Certify the Environmental Impact Report, Adopt Related Environmental Findings, and Approve the Recommended Project**
PROGRAM	
AUTHORIZES DELEGATED AUTHORITY TO DEPT	☐ Yes X No
SOLE SOURCE CONTRACT	☐ Yes X No If Yes, please explain why:
SB 1439 SUPPLEMENTAL DECLARATION FORM REVIEW COMPLETED BY EXEC OFFICE	☐ Yes X No – Not Applicable If unsure whether a matter is subject to the Levine Act, email your packet to EOLevineAct@bos.lacounty.gov to avoid delays in scheduling your Board Letter.
DEADLINES/ TIME CONSTRAINTS	
COST & FUNDING	Total cost: **$435M** Funding source: **County of Los Angeles, Los Angeles County Museum of Natural History Foundation, grants, and future donors** TERMS (if applicable): **Not Applicable** Explanation: **Not requesting budget allocation at this time; asking BOS to certify the Environmental Impact Report, Adopt Related Environmental Findings, and Approve the Recommended Project.** **These actions are needed by the Museum to embark on a public fundraising campaign reaching out to the State, Federal and other grant agencies as well as individual donors.**
PURPOSE OF REQUEST	**LOS ANGELES COUNTY MUSEUM OF NATURAL HISTORY FOR THE LA BREA TAR PITS MASTER PLAN PROJECT CERTIFY THE FINAL ENVIRONMENTAL IMPACT REPORT, ADOPT THE MITIGATION MONITORING AND REPORTING PROGRAM AND ENVIRONMENTAL FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS, AND APPROVE THE PROJECT**
BACKGROUND (include internal/external issues that may exist including any related motions)	**Not Applicable**

EQUITY INDEX OR LENS WAS UTILIZED	☐ Yes **X** No If Yes, please explain how:
SUPPORTS ONE OF THE NINE BOARD PRIORITIES	**X** Yes ☐ No If Yes, please state which one(s) and explain how: **North Star 2 and 3 - see board letter for details. The Project also fulfills the Board Priority of Sustainability through renovation, by addressing a current County asset management deferred management building code deficiencies, ADA accessibility issues, and new construction to include current building sustainability and stormwater features.**
DEPARTMENTAL CONTACTS	**Leslie Negritto** **Chief Financial and Operating Officer** **Natural History Museums of Los Angeles County Foundation** **(w) 213.763.3442** **lnegritto@nhm.org** **Chebon Marshall** **Chief of Staff** **Natural History Museums of Los Angeles County Foundation** **213-763-3480 office** **405-820-3259 mobile** **cmarshall@nhm.org**

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.3301
fax 213.746.7538
www.nhm.org

Dr. Lori Bettison-Varga
President and Director

February 4, 2025

The Honorable Board of Supervisors County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street Los
Angeles, California 90012

Dear Supervisors:

LOS ANGELES COUNTY MUSEUM OF NATURAL HISTORY
LA BREA TAR PITS MASTER PLAN PROJECT
CERTIFY THE FINAL ENVIRONMENTAL IMPACT REPORT, ADOPT THE MITIGATION MONITORING AND REPORTING PROGRAM AND ENVIRONMENTAL FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS, AND APPROVE THE PROJECT

(SECOND DISTRICT) (3 VOTES)

SUBJECT

This letter recommends approval of the Los Angeles County Museum of Natural History - La Brea Tar Pits Master Plan Refined Alternative 3 Project; certification of the Final Environmental Impact Report for the Los Angeles County Museum of Natural History for the La Brea Tar Pits Master Plan Project; and adoption of the Mitigation Monitoring and Reporting Program and Environmental Findings of Fact and Statement of Overriding Considerations.

IT IS RECOMMENDED THAT THE BOARD:

1. Certify that the Final Environmental Impact Report for the proposed Los Angeles County Museum of Natural History La Brea Tar Pits Master Plan Project has been

completed in compliance with the California Environmental Quality Act and reflects the independent judgment and analysis of the County; find that the Board has reviewed and considered the information in the Final Environmental Impact Report prior to approving the Project, adopt the Mitigation Monitoring and Reporting Program, finding that the Mitigation Monitoring and Reporting Program is adequately designed to ensure compliance with the mitigation measures during project implementation, including for the Refined Alternative 3 Project; and determine that the significant adverse effects of the Los Angeles County Museum of Natural History La Brea Tar Pits Master Plan Project, including the Recommended Project, have either have been reduced to an acceptable level, or are outweighed by the specific overriding considerations of the Project, as outlined in the Environmental Findings of Fact and Statement of Overriding Considerations, which Findings and Statement are adopted and incorporated herein by reference.

2. Approve the proposed Los Angeles County Museum of Natural History La Brea Tar Pits Master Plan Refined Alternative 3 Project.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

Approval of the recommended actions will certify the Final Environmental Impact Report (Final EIR) and approve the proposed Los Angeles County Museum of Natural History La Brea Tar Pits Master Plan Refined Alternative 3 Project (Recommended Project) which includes constructing a new building, renovating the George C. Page Museum, and renovating related landscaping of the 13-acre site of the Los Angeles County Museum of Natural History – La Brea Tar Pits located in Hancock Park; certification of the Final Environmental Impact Report for the Los Angeles County Museum of Natural History for the La Brea Tar Pits Master Plan Project; and adoption of the Mitigation Monitoring and Reporting Program and Environmental Findings of Fact and Statement of Overriding Considerations.

The Los Angeles County Museum of Natural History (Museum) is committed to principles of accessibility and engagement and to being a hub for discoveries and dialogue around critical issues of global significance and local impact. The Museum's three strategic goals guide how, through research and unparalleled collections, it interacts with internal and external communities to: 1) expand its role as museums of, for, and with Los Angeles; 2) create an interdisciplinary model for understanding and connecting to urban nature; and 3) strengthen and activate its research and collections to create and communicate new knowledge about our world.

In March 2019, as provided for under the Operating Agreement between the Los Angeles County (County) and the Los Angeles County Museum of Natural History Foundation (Museum Foundation), the Museum Foundation initiated a public selection process for an international architecture firm to reimagine La Brea Tar Pits 13-acre campus for the next era of research and public service. A transformed La Brea Tar Pits campus, a once-in-a-century project, would be one of the most consequential cultural and

scientific sites in the world, enhancing this beloved destination to become an unmatched resource and call to action for Angelenos and international visitors.
The Board of Supervisors' approval of the Recommended Project would significantly expand scientific, educational and inspirational collaborations. Science discovery would grow exponentially at the world's most important Ice Age fossil excavation site. The Recommended Project will double the research lab facilities, strengthening the Museum's capacity to conduct world-class research on our changing planet. It would also expand its role as a preeminent research hub, attracting leading scientists and fostering global collaborations.

The Recommended Project would double public access to the world's only active urban fossil excavation site, which through expanded educational programs, would accommodate 800,000 visitors annually to witness and participate in scientific discoveries in real time. The plan would significantly expand immersive, hands-on educational opportunities, doubling the number of school children to 75,000 annually and would increase exhibition space by 20%.

Located in the Miracle Mile neighborhood of Los Angeles on the famed Wilshire Boulevard, and as the world's only continuously active paleontological excavation site and research facility in a major urban area, La Brea Tar Pits and the George C. Page Museum (Page Museum) together—and as part of Hancock Park—comprise one of the County's and City's most beloved and best-known cultural and natural resources.

The Recommended Project would result in a reimagined site design, expansion, and upgrades for the Tar Pits complex and the 13-acre portion of Hancock Park, including renovations to the Page Museum.

The Recommended Project elements include:

- Renovating the Page Museum within the existing building footprint of approximately 63,200 square feet, including deferred maintenance of the building and systems and to meet modern seismic, electrical, and building code standards. The renovation would also allow much of the collection space to be reorganized and enlarged to provide better housing and display of the collections to the public. The enlarged storage for the collections and renovated labs would accommodate additional storage, state-of-the-art research facilities, and space for visiting researchers.

- Retaining the central open-air courtyard as an indoor-outdoor integration of the museum and as a primary character-defining feature and the space frame that supports the frieze.

- Retaining the structural space frame that supports the frieze, including the openair, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature that would not be altered or capped.

- Constructing a new museum building of approximately 40,000 square feet, including a new cafe, farther to the north and west of the Page Museum, allowing for more separation of the new museum from the existing Page Museum, while also allowing for an increase in square footage to the Central Green community space.

- Revising the programming for interior spaces of the Page Museum and the new museum building, resulting in changes and improvements to the location of the theater, classrooms, the retail store, and other interior elements.

- Reconfiguring on-site surface parking to complement the adjusted new building footprint, extending north of the new museum building and maintaining the number of parking spaces that currently exist on-site, with the inclusion of required electric vehicle charging stations, with entrances from 6th Street and Curson Avenue.

- Reconfiguring the existing main entrance of the Page Museum to become a new outdoor classroom and education entrance, which would include the planting of trees to shade the proposed stepped seating.

- Connecting the Page Museum and the new museum building with a covered, open-air breezeway. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway, thereby retaining more of the original character-defining features and materials of the historical resource.

- Removing a portion of the berm at the northwest corner to accommodate a new entrance to the Page Museum. Modification of the west and north sides of the berm would still be necessary and would allow for an Americans with Disabilities Act (ADA) ramp up to the terrace level on the west. The berms on the east and south side would be maintained, along with new berms on the west side of the new building.

- Renovating the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with a shaded canopy and new welcome pavilion.

- Renovating the existing entrance at the northwest corner of West 6th Street and the entrance to the Los Angeles County Museum of Art service drive with a shaded canopy and new welcome pavilion.

- Reconfiguring the existing pedestrian pathways on-site into a continuous and ADA accessible paved path linking the existing features of the project site; improvements to the Central Green community space, and establishment of a children's play area, picnic areas, and a possible future small dog park.

- Renovating the excavation compound including Pit 91 and Project 23 to better serve both research and educational programs.

- Renovating the existing facilities at all the tar pits in the northwestern portion of the project site, including removal and replacement of some vegetation. Establishment of three distinct landscaping zones encircled by a looping pedestrian path. The landscaping currently includes more than 330 trees on the project site. The Recommended Project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the planting (introduction or relocation) of a similar number of trees as would be removed. It is estimated that some percentage of the 150 to 200 trees to be removed may be eligible to be successfully relocated rather than replaced. The Recommended Project would also create three biofiltration areas for stormwater management.

BACKGROUND

Hancock Park is a 23-acre parcel, bounded by Wilshire Boulevard to the south, Sixth Street to the north, Fairfax Avenue to the west, and Curson Avenue to the east. Created in 1923, when oil tycoon George Allan Hancock donated it to the County in an effort to preserve the land and guarantee that the fossils discovered in its tar pits would be properly archived and exhibited, Hancock Park today is home to La Brea Tar Pits and the Page Museum, the Los Angeles County Museum of Art (LACMA), and the Academy Museum of Motion Pictures (Academy Museum). Together, Hancock Park and its resident institutions comprise one of the County's and City's most prized cultural assets, hosting millions of local and out-of-town visitors annually.

La Brea Tar Pits, their attendant research stations, and the Page Museum reside on approximately 13 acres of Hancock Park. This part of the park campus is also a recreation area highly valued by its neighbors for its walking paths, picnic tables, and grassy open areas—in addition to the tar pits themselves. Thanks to a family of fullscale mammoth models at the edge of the Lake Pit, at the corner of Wilshire Boulevard and Curson Avenue, La Brea Tar Pits are also a well-known visual symbol of the County's cultural and natural history.

In addition to the tar pits and the Page Museum, the campus comprises several active research sites, called "digs," the modest Observation Pit building from the 1950s (refurbished in 2014), a concession building, public restrooms, and a parking lot. The site also hosts simulated Pleistocene landscapes and contemporary gardens. Among the most popular features of the campus are the broad, sloping grass hills that encase the Page Museum, which was built as a largely subterranean structure to preserve as much of the park as possible.

La Brea Tar Pits is an enormously popular and important cultural asset for the County and City, attracting neighbors, school children from across the metropolitan area, and

visitors/tourists from around the world. The Page Museum welcomes nearly 425,000 visitors annually. Hancock Park is visited by an estimated 2 million people each year. As an active research site, the Tar Pits also host scientists and researchers on an ongoing basis.

La Brea Tar Pits and the Page Museum define the eastern third of Hancock Park. Wayfinding and signage in the park were installed in the early 2000s, and modest park improvements have been studied and implemented by architects, landscape architects, and designers periodically for years. But the basic shape and form of the Tar Pits has not changed significantly since 1977, when the Page Museum opened. The Page Museum, designed by Los Angeles architects Frank Thornton and Willis Fagan, is a pyramidal Brutalist construction, burrowed into the earth and surmounted with an extraordinary 10-foot-high, four-sided fiberglass frieze of Ice Age landscapes, plants, and mammals, created by the sculptor Manuel Paz. Thornton and Fagan buried their building to preserve as much of Hancock Park as possible and to create a viewing environment that suggested an excavation to visitors. Because most of the building is subterranean, the mural is its most visible architectural attraction from the street. It surrounds a 9,000-square-foot, 50-foot- high central atrium about which rotate 28,000 square feet of exhibition and conservation spaces, and an additional 20,000 square feet of climate-controlled storage.

Though generally well maintained, the Page Museum has not been significantly renovated or updated since it opened, and its collections and research activities long ago outgrew the building as designed. Further, its mechanical, electrical, and plumbing systems are outmoded and overtaxed, and water penetration into the building remains a challenge. Storage is neither easy to maintain climatologically nor easy to access (one must traverse the entire perimeter to reach certain sections). Due to the building's shape and underground location, it is difficult to modify or expand. Its exhibition galleries and storage areas are largely inflexible, challenging the institution's ability to adapt to changing notions of exhibition, education, research, and storage. Though sound, the Page Museum's structural systems predate and complicate seismic retrofitting. Finally, the Page Museum is impacted by climate events and climate resilience for the structure and the collections is critical.

The grass-covered sloping walls of the Page Museum, as noted above, are an important and beloved feature of Hancock Park's landscape: at nearly every moment of the day, children, and even adults, can be seen sunbathing on—or even more popular, rolling down—its sides. The rest of the park grounds are crisscrossed by pathways that lead visitors around the hill of the Page Museum and between the various tar pits. There are clusters of trees, particularly closer to LACMA, as well as human-made interventions like benches and seats scattered about the site. Though pleasant enough, the existing park grounds landscape design is modest and dominated by non-native trees.

The Museum Foundation selected three final architectural firms to participate in a 2day gathering in June 2021 (called the "Incubator") of leading thinkers from a variety of fields to consider the question of how La Brea Tar Pits and the Page Museum can become new models for museums and education centers about Earth history, climate change, and all living things on this planet. With an overwhelming support from both internal and external received comments, Weiss/Manfredi Architects was selected to begin the design phase of the Reimagined La Brea Tar Pits Project.

The requested approval would allow the Museum Foundation to initiate a more robust private and public fundraising/funding campaign, and the Museum would return to the Board of Supervisors to recommend a County and Museum Foundation funding/financing plan for the Board's approval.

IMPLEMENTATION OF STRATEGIC PLAN GOALS

This requested approval of the Recommended Project would support the County Strategic Plan:

* North Star 2, Foster Vibrant and Resilient Communities through Focus Area D, Sustainability Strategies i and iii by mitigating climate change, building resilient communities, and supporting thriving ecosystems, habitats, and biodiversity, and through Focus Area Goal F, Community Connections by investing in our communities and creating public spaces and programs that are welcoming, accessible, where all residents can easily build relationships, create social networks, feel connected and can access opportunities; and

* North Star 3, Realize Tomorrow's Government Today, through Focus Area Goal C, Equity-Centered Policies and Practices, Strategy i by implementing projects that are equity-based and seek racial, social, and economic equity in County parks and Focus Area Goal G, Internal Controls and Processes, Strategy ii by effectively managing a County park asset in ways that are fiscally responsible and align with the County's highest-priority needs.

FISCAL IMPACT/FINANCING

In Fiscal Years 2018-2022, the Board of Supervisors approved a total of $22,000,000 towards the proposed project which was partially used to fund the conceptual and schematic design services, the preparation of the environmental documentation, and other consultant services related to building infrastructure and the unique site location. During this same period, the Museum Foundation was and continues to fundraise through donor contributions and grants to fund the remaining balance needed for design development and construction plans services, as well as the construction phase for the project.

The project is not yet fully funded. The Museum Foundation is in the process of establishing fundraising goals for the project to secure private financing for a substantial portion of the project development costs. According to the Museum Foundation, your Board's approval of the recommendations above will allow the Museum Foundation to initiate more robust private and public fundraising efforts, including applying for public and private grants. We anticipate that the Museum Foundation will request additional County contribution to the Project in Fiscal Year 2027-28, subject to your Board's consideration then and in the context of the County's budgetary constraints at the time.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

The County and Museum Foundation entered into an Operating Agreement dated July 1994, with subsequent amendments, providing for the Museum Foundation to provide financial, in-kind, or in-time support and assistance for several services including design and development of exhibitions and capital projects.

As previously stated, the Museum Foundation Board Architect Selection Committee issued a Request for Information from five or six firms for interviews in early May 2019 in Los Angeles. Selected members of the Museum staff and the Museum Foundation Board Selection Committee visited the final three architectural firms' offices and/or their previous work as part of their deliberations.

The Museum Foundation Board Architect Selection Committee, after site visits, deliberations and community support, selected Weiss/Manfredi Architects to begin the conceptual plan and design phases for the proposed Project.

ENVIRONMENTAL DOCUMENTATION

Early in the environmental review process and based on a preliminary review of the proposed project and consistent with section 15060(d) of the State CEQA Guidelines, the County determined that a comprehensive Environmental Impact Report (EIR) would be prepared for the proposed Project. Consistent with CEQA Guidelines section 15063(a), the County determined that an Initial Study was not necessary. Pursuant to CEQA, the potential environmental effects of the proposed Project have been analyzed in a Draft EIR and circulated for public review and comment. All the topics identified in Appendix G of the State CEQA Guidelines (the Initial Study checklist) are addressed in the EIR. A Final EIR subsequently has been prepared in compliance with the requirements of CEQA and is on file with the Clerk of the Board and the documents filed with the Board include the comments received; responses to comments; and revisions, clarifications, and corrections to the Draft EIR. Findings of Fact and Statement of Overriding Considerations (Attachment 1), and the Mitigation Monitoring and Reporting Program (Attachment 2) are also provided to the Board.

On February 14, 2022, a Notice of Preparation (NOP) of a Draft EIR for the proposed Project was released by the County as lead agency. The NOP was distributed to interested parties and all landowners, homeowners, and tenants within a 1,000-foot radius of the subject property, circulated to governmental agencies and organizations posted on Natural History Museum's website. The 30-day NOP comment period was extended through March 16, 2022. Two public scoping meetings were held virtually via Zoom on March 2, 2022, to provide a description of the project and solicit input from any interested parties on the scope and content of the EIR in conformance with PRC section 21083.9. Live language interpretation of the presentation and scoping meetings input was provided in Spanish and Korean.
Public Notice of the Draft EIR was published in the Los Angeles Times on September 11, 2023, pursuant to California Public Resources Code section 20192 and posted pursuant to section 21092.3. The public review period ran from September 11, 2023, through October 26, 2023. In addition, a public meeting was held on September 30, 2023, at La Brea Tar Pits to present project information, provide information on the Draft EIR. During the public review period, the County received 35 comment documents from public agencies, organizations, and individuals. Two public agencies submitted comments on the Draft EIR, the Los Angeles County Metropolitan Transportation Authority and the California Department of Transportation, District 7. Responses to all comments received from public agencies were sent pursuant to section 21092.5 of the Public Resources Code.

Areas of controversy raised by commenters primarily included concerns regarding the overall design of the Project as it relates to protecting the passive recreational spaces and pedestrian pathways in and around the Lake Pit; the potential for project renovations to increase light pollution in the area; changes to landscaping and the potential for tree removal and/or replacement within the Project site; and impacts of the project on traffic and circulation in and around the Project site. To the extent these issues and concerns are within the scope of CEQA, they are addressed in the evaluation and identification of potential mitigation measures for each environmental issue area included in the Final EIR. In addition, information to respond to the topics of potential controversy is also included in the response to comments included in Volume I of the Final EIR.

The Final EIR (Volumes I and II) and related documents including the Mitigation Monitoring and Reporting Program, are available at: https://tarpits.org/public-process.

The County considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals. Many comments noted that the full building out of the Master Plan, as reflected in the Draft EIR, would result in both historic resources losing their eligibility, and an overall loss to the broad architectural and cultural heritage of Los Angeles County. Additionally, some comments opined that the footprint of the project was too large and expressed that alternatives should be considered which would result in fewer impacts to the Page Museum. As a result, the County conducted further

feasibility studies of the original Alternative 3 and confirmed that the original Alternative 3 is feasible, and that further exploration of the alternative should occur to determine if additional improvements could be made to the alternative to address the comments received on the Draft EIR. The Final EIR expands the consideration of the original Alternative 3 with a refined version of the alternative. Approval of Revised Alternative 3, the Recommended Project, would not create additional or more intense environmental impacts than those previously disclosed when compared to the original Alternative 3 concept, as addressed in the Final EIR.

In addition, all tribal resources consultation requirements of CEQA have been met and documented in accordance with Public Resources Code sections 21080.3.1 and 21080.3.2 (Assembly Bill 52). Per tribal representative request, the County consulted with four tribal organizations: Fernandeño Tataviam Band of Mission Indians, Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, and Gabrielino Tongva Indians of California Tribal Council. The requested consultation and informational outreach were completed. Based upon the record of the Project, which includes communications with each of the tribal representatives, the County has included mitigation measures to avoid or reduce to less-than-significant levels the Recommended Project's potential impacts on tribal cultural resources. The mitigation measures are included in the Findings of Fact and Statement of Overriding Considerations (Attachment 1) and Mitigation Monitoring and Reporting Program (Attachment 2).

Except for unavoidable significant impacts related to historical resources as a result of project construction, land use and planning (related to consistency with historical resources protection policies and construction of the project), and operational transportation effects, all identified significant environmental effects of the Project can be avoided or reduced to levels that are less than significant through the implementation of the mitigation measures identified in the Final EIR. As stated in the Final EIR and attached Findings of Fact and Statement of Overriding Considerations (Attachment 1), the Recommended Project, Revised Alternative 3, would result in unavoidable significant impacts to historical resources as a result of project construction, land use and planning (related to consistency to historical resources protection policies and construction of the project), and operational transportation effects, but such impacts have been reduced to the extent feasible, and the benefits of the proposed Project include, in part, the elimination of safety and seismic concerns in County buildings; a new code-compliant, energy-efficient, world class cultural facility for the public's use and benefit; a construction that would limit the duration and extent of potential impacts; and a design that would promote the balanced display of La Brea Tar Pits, the world's most important Ice Age fossil site and other benefits included in the Statement of Overriding Considerations, outweigh these unavoidable adverse impacts.

A Mitigation Monitoring and Reporting Program (Attachment 2) will ensure compliance with the mitigation measures during Project implementation.

The documents and other materials constituting the record of the proceedings upon which the Board of Supervisors decision is based in this matter are located at the Los Angeles County Natural History Museum, located at 900 Exposition Boulevard, Los Angeles, CA 90007, and the County Chief Executive Office. The custodian of such documents and record of proceedings is Dr. Lori Bettison-Varga, President and Director, Natural History Museums of Los Angeles County, County of Los Angeles.

The Project is not exempt from payment of a fee to the California Department of Fish and Wildlife (CDFW) pursuant to section 711.4 of the Fish and Game Code to defray the costs of fish and wildlife protection and management incurred by CDFW. Upon the Board's certification of the Final EIR and approval of the Recommended Project, the County Museum of Natural History will file a Notice of Determination with the County Clerk and pay the required fees and with the State Clearinghouse in the Governor's Office of Land Use and Climate Innovation in accordance with California Public Resources Code section 21152 and will post the Notice to the County's website in accordance with section 21092.2.

CONTRACTING PROCESS

As authorized under the Operating Agreement, contracts for design and environmental documentation of the Recommended Project have been negotiated and executed by the Museum Foundation.

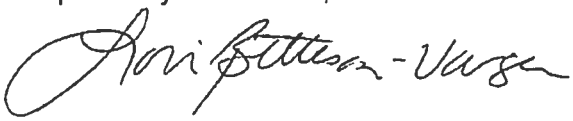
IMPACT ON CURRENT SERVICES (OR PROJECTS)

The approval of the recommended action will not have any impact on current County services or projects.

CONCLUSION

It is requested that the Executive Office, Board of Supervisors, return two certified copies of the Minute Order, and the adopted and stamped Board letter to the Natural History Museum, 900 Exposition Boulevard, Los Angeles, CA 90007 for further processing.

Respectfully submitted,



Dr. Lori Bettison-Varga
Director

LBV:CM:JR

Attachments:
1. Findings of Fact and Statement of Overriding Considerations
2. Mitigation Monitoring and Reporting Program

C: Executive Office, Board of Supervisors
Chief Executive Office
County Counsel
Los Angeles County Museum of Natural History Foundation

ATTACHMENT 1

CALIFORNIA ENVIRONMENTAL QUALITY ACT
FINDINGS OF FACT AND
STATEMENT OF OVERRIDING CONSIDERATIONS
STATE CLEARINGHOUSE NO. 2022020344

PREPARED FOR:
Los Angeles County Museum
of Natural History Foundation
on behalf of the County
of Los Angeles Museum of Natural History
900 Exposition Boulevard,
Los Angeles, CA 90007
Contact: Leslie Negritto, Chief Operating Officer

PREPARED BY:
SWCA Environmental Consultants
320 North Halstead Street, Suite 120, Pasadena, CA 91107
(626) 240-0587 | www.swca.com
Contact: Bobbette Biddulph, SWCA Project No. 63953

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SECTION 1 - INTRODUCTION

1.1 Project Introduction

The County of Los Angeles (County) has made the following Findings of Fact for the Environmental Impact Report (EIR), State Clearinghouse Number 2022020344, prepared for the Los Angeles County La Brea Tar Pits Master Plan. The EIR analyzes the significant and potentially significant environmental impacts, which may occur because of the project. The Draft EIR (Draft EIR) was published on September 11, 2023, and circulated for an initial public review for a period of 45 days. In compliance with the California Environmental Quality Act (CEQA), a Notice of Completion and the Draft EIR were filed with the State Clearinghouse at the time of publishing and are posted on the State Clearinghouse's CEQAnet Web Portal. Notices were subsequently filed with the State Clearinghouse on September 11, 2023. The County, as the CEQA Lead Agency, prepared the Final EIR for the project, which was published on January 21, 2025. The Final EIR includes comments received on the Draft EIR; responses to comments; and revisions, clarifications, and corrections to the Draft EIR. Unless expressly called out independently, the Final EIR and the Draft EIR together constitute the "EIR" referenced throughout this document. Section 8 of this document describes the Findings Regarding Project Alternatives. Section 9 of this document identifies the specific economic, legal, social, technological, and/or other considerations that make infeasible mitigation measures or project alternatives to avoid significant impacts and the County's overriding considerations in its decision to approve the Recommended Project notwithstanding the significant and unavoidable environmental impacts that would result from the Recommended Project.

After completion of the Draft EIR, the County, as Lead Agency, considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals, particularly concerns regarding historical resources. As a result, the County considered how Alternative 3 could be further enhanced to meet the intent of the alternative and further meet the objectives for the project. After this consideration, the County will be recommending approval of Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, which reduces significant historical impacts while attaining the project's basic objectives. The County has elected to recommend approval of Refined Alternative 3 as the Recommended Project.

1.2 Findings Required Under CEQA

The California Public Resources Code Section 21002 provides that:

> *… public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.*

Section 21002 goes on to state that "in the event [that] specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof."

The mandate and principles presented in Public Resources Code Section 21002 are implemented, in part, through the requirement that agencies must adopt findings before approving projects for which EIRs are required (refer to Public Resources Code Section 21081(a); CEQA Guidelines Section 15091(a)). For

each significant environmental effect identified in an EIR for a proposed project, the approving agency must issue a written finding accompanied by a brief explanation of the rationale for each finding.

The possible findings in CEQA Guidelines Section 15091(a) are:

1. Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.
2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the EIR.

CEQA Guidelines Section 15092(b) provides that no public agency shall approve a project for which an EIR was prepared unless either:

1. The project approved will not have a significant effect on the environment, or
2. The public agency has:

   (a) Eliminated or substantially lessened all significant effects where feasible as shown in the findings under Section 15091, and

   (b) Determined that any remaining significant effects on the environment found to be unavoidable under Section 15091 are acceptable due to overriding concerns as described in Section 15093.

For those significant impacts that cannot be mitigated to a less than significant level, the public agency is required to find that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment (CEQA Section 21081(b) and CEQA Guidelines Section 15093). If such findings can be made, the Guidelines state in Section 15093 that "the adverse environmental effects may be considered acceptable." CEQA also requires that findings made pursuant to Section 15091 be supported by substantial evidence in the record (CEQA Guidelines, Section 15091(b)). Under CEQA, substantial evidence means enough relevant information has been provided (reasonable inferences from this information may be made) to support a conclusion, even though other conclusions might also be reached. Substantial evidence includes facts, reasonable assumptions predicated on facts, and expert opinion supported by facts (CEQA Guidelines, Section 15384).

The following sections (Sections 4, 5, 6, and 7) set forth the County's findings from the EIR's determinations regarding significant environmental impacts and the mitigation measures implemented to address the significant impacts associated with the Recommended Project. Although CEQA Guidelines Section 15091 and Public Resources Code Section 21081 only require findings to address significant environmental effects, findings often address impacts that were found to be less than significant and, therefore, these findings will account for all effects identified in the EIR.

These findings provide the written analysis and conclusions of the County regarding the environmental impacts of the Recommended Project (described in the EIR as Refined Alternative 3), the mitigation measures included as part of the EIR and adopted by the County as part of the Recommended Project, and the alternatives that have been either rejected as infeasible (No Project/No Build Alternative and Alternative 1) or rejected because the alternatives would not avoid or reduce the project's significant unavoidable impacts and/or they would be detrimental to other environmental objectives (Alternative 2). The specific findings regarding project alternatives are provided in Section 8. These findings refer to the

analyses contained within the EIR to avoid duplication and redundancy. Because the County agrees with, and hereby adopts, the conclusions in the EIR (see specifically Final EIR, Volume II, Chapter 6, Alternatives Analysis, for more information on Refined Alternative 3 that is now the Recommended Project), these findings will not repeat the analysis and conclusions in the EIR, but instead incorporates them by reference in these Findings and relies upon them as substantial evidence supporting these Findings.

1.3 Organization of CEQA Findings of Fact and Statement of Overriding Considerations

The content and format of these CEQA Findings of Fact are designed to meet the latest CEQA Statutes and Guidelines. The Findings of Fact are organized into the following sections:

Section 1. Introduction identifies and purpose of the Findings of Fact and outlines the organization of this document.

Section 2. Project Overview describes the project description, location, objectives, and the required permits and approvals for the Recommended Project.

Section 3. CEQA Review and Record of Proceedings describes the steps County has undertaken to comply with CEQA as they relate to public input, review, and participation during the preparation of the Draft and Final EIRs and identifies the location and custodian of the record of proceedings.

Section 4 - Environmental Issues Determined Not to be Affected by the Project provides a summary of environmental impacts which were determined to clearly not manifest at levels that were deemed to be significant for consideration in the EIR.

Section 5. Impacts Determined to be Less than Significant provides a summary of those environmental issue areas where no reasonably foreseeable impacts would occur, and those impacts determined to be below the threshold of significance without the incorporation of mitigation measures.

Section 6. Less Than Significant Impacts with Mitigation provides a summary of significant environmental impacts for which implementation of identified feasible mitigation measures would avoid or substantially reduce the environmental impacts to less than significant levels. This section also provides specific written findings regarding each potentially significant impact associated with the Recommended Project.

Section 7. Significant Environmental Impacts provides a summary of significant environmental impacts for which no feasible mitigation measures are identified or for which implementation of identified feasible mitigation measures would not avoid or substantially reduce the environmental effects to less than significant levels. This section also provides specific written findings regarding each significant impact associated with the Recommended Project.

Section 8. Findings Regarding Project Alternatives provides a summary of the alternatives considered and the results of the alternatives analysis analyzed in Final EIR, Volume II, Chapter 6 of the EIR.

Section 9. The Statement of Overriding Considerations provides a summary of all the Recommended Project's significant unavoidable adverse impacts. In addition, this section identifies the Recommended Project's substantial benefits that outweigh and override the Recommended Project's significant unavoidable impacts, such that the impacts are considered acceptable.

Section 10. Findings on Mitigation Monitoring and Reporting Program provides a brief discussion of the Recommended Project's compliance with CEQA regarding the adoption of a program for reporting and monitoring.

Section 11. Certification of EIR provides a statement that the EIR fully complies with CEQA and that the Los Angeles County Board of Supervisors has considered the information in the EIR and that it reflects the County's independent judgment and analysis.

SECTION 2 – PROJECT OVERVIEW

2.1 Project Location

The 13-acre La Brea Tar Pits site is located within the eastern and northwestern portions of the 23-acre Hancock Park (Assessor's Parcel Number [APN] 5508-016-902) at 5801 Wilshire Boulevard in Los Angeles. The project site includes 13 acres of the eastern and northwestern portions of Hancock Park. The project site is adjacent to the Los Angeles County Museum of Art (LACMA). Both LACMA and the Foundation are responsible for managing separate and distinct portions of the 23-acre Hancock Park, with the Foundation responsible for the 13-acre project site and LACMA responsible for the remainder of the site to the south and west of the project boundaries. LACMA's facilities are not included in the Recommended Project.

The project site is located approximately 5.5 miles west of downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and LACMA to the west (an approximately 250-foot-long frontage). The area surrounding the site is known as the Miracle Mile neighborhood of the city of Los Angeles.

2.2 Project Objectives

Section 15124(b) of the State CEQA Guidelines states that a project description shall contain "a statement of the objectives sought by the project," and further states that "the statement of objectives should include the underlying purpose of the project." The Los Angeles County Museum of Natural History, as a departmental unit of the County,[1], and the Foundation has identified the following objectives for the project:

1. Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards,

[1] In accordance with Chapter 2.94 of the Los Angeles County Code and other operating agreements, the County Museum of Natural History is a department of the County and has administrative charge and control over all County matters relating to history and science, and shall also include the administration of Hancock Park (except that area of said park devoted to the Los Angeles County Museum of Art [LACMA]), and the care, safeguarding, and maintenance of all exhibits, equipment, and structural improvements directly relating to exhibits, the administration and maintenance of Los Angeles County Museum, and other property hereafter acquired for or devoted to history and science. For consistency with the Los Angeles County Code, this document refers to this governmental department as the "Museum of Natural History." In addition, when it is important to specify that the document is referring to the physical museum location rather than the governmental department, this document refers to the Natural History Museum of Los Angeles County (Natural History Museum), which is located at 900 Exposition Boulevard, Los Angeles, California, 90007.

and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan.[2, 3]

1. Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.
2. Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.
3. Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.
4. Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.
5. Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.
6. Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.
7. Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.
8. Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.

2.3 Project Description

La Brea Tar Pits is an active paleontological research site located within Hancock Park in the city of Los Angeles. La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County but are managed by the Foundation. The Foundation's role is to carry out all County services including public access and programming, administration, and operation for the County of Los Angeles Museum of Natural History (Museum of Natural History), including La Brea Tar Pits and the Page Museum. The County is the Lead Agency under CEQA; the Museum of Natural History is a County departmental unit.

The project would result in a reimagined site design, expansion, and upgrades for the Tar Pits complex, including renovations to the Page Museum and development of a new museum building. The following table provides a summary of the Recommended Project.

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[2] County of Los Angeles. 2019. *Our County. Los Angeles Countywide Sustainability Plan.* Available at: https://ourcountyla.lacounty.gov/wp-content/uploads/2019/07/OurCounty-Final-Plan_For-Web.pdf. Accessed September 2022.

[3] County of Los Angeles. 2024. 2045 Climate Action Plan. Available at: https://planning.lacounty.gov/wp-content/uploads/2024/07/gp_2045_Climate_Action_Plan_June-2024.pdf. Accessed August 2024.

Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building within the same footprint (approximately 63,200 square feet).
New Museum Building	Construct a new two-story, 40,000-gross-square-foot (gsf) museum building northwest of the Page Museum, including two new theaters. The construction of the new museum building would require the removal of vegetation in the footprint of the new building.
Wilshire Gateway	Renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pits (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site. These renovations would require the removal and replacement of some vegetation, although the exact amount and nature of the vegetation removal and enhancements have not been determined at this time.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous paved path linking existing features on the project site. Provide improvements to the Central Green. Establish a children's play area, picnic areas, and a possible future small dog park.
Circulation and Parking	Relocate the parking lot approximately 50 to 70 feet to the north. The size of the parking lot (63,000 square feet) and the number of parking spaces would not change. The shifting of the parking lot on the northern side of the project site may require removal or relocation of the trees between the existing parking lot and West 6th Street. If these trees need to be removed or relocated, they would be either moved to another location within the 13-acre project site or replaced elsewhere within the project site. Add new landscaping and vehicle access lanes to the parking lot. Establish a new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping Concept Plan	Establish three distinct landscaping zones encircled by a looping pedestrian path. More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. It is estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. Create three biofiltration areas for stormwater management.

After completion of the Draft EIR, the County, acting through the Foundation, considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals, particularly concerns regarding historical resources. As a result, the County considered how the project could be further enhanced to meet the objectives of the County and commenting entities alike.

Final EIR, Volume II, Chapter 6 of the EIR identifies, describes, and evaluates four alternatives. The County conducted further feasibility studies of the original Alternative 3 and confirmed that the original Alternative 3 is feasible and also that further exploration of the alternative should occur to determine if additional improvements could be made to the alternative to address the comments received on the Draft EIR. Through this consideration and exploration, refinements to the original Alternative 3 have been developed, which are presented in Final EIR, Volume II, Chapter 6, Alternatives Analysis.

Refined Alternative 3 includes the renovation of the Page Museum within the existing building footprint, similar to the original project description, but incorporates a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. Specifically, the following

adjustments are included in Refined Alternative 3 when compared to the original project description analyzed in the EIR:

- The central, open courtyard of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would no longer be covered and converted to indoor space; it would remain as an open courtyard. The landscaping and hardscaping features of the courtyard would be renovated to create a more usable public space and include climate-appropriate and native vegetation relevant to interpretive themes of the tar pits.
- The structural space frame that supports the frieze (the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped. Instead, the existing space frame and open-air grid roof would remain intact as it is currently but would be repainted and repaired.
- The Page Museum and the new museum building would be connected only with a covered, open-air breezeway. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway. This means the connection between the two buildings would be scaled down, and demolition at the northwest corner of the Page Museum would be reduced, thereby retaining more of the original character-defining features and materials of the historical Page Museum resource.
- Removal of a portion of the berm would be focused at the northwest corner to accommodate a new entrance to the Page Museum, and modification of the west and north sides of the berm would still be necessary, albeit in a scaled down manner. The modifications would result in a new version of the berm that would allow for an Americans with Disabilities Act (ADA) ramp up to the terrace level on the west, and a change in elevation on the north allowing for access to the new entrance.
- The on-site surface parking would be reconfigured to complement the adjusted building footprint. The original Alternative 3 and the original project description analyzed in the EIR proposed two driveways along 6th Street and one driveway on South Curson Avenue for public vehicular access to the parking lot. However, it has been determined that it would be operationally preferred to eliminate the driveway at the far western end of the parking lot on 6th Street. The result is that Refined Alternative 3 would have one driveway on 6th Street and one driveway on South Curson Avenue.
- The programming for interior spaces of the Page Museum and the new museum building would be revised, resulting in changes to the location of the theater, classrooms, the retail store, the café, and other interior elements. The Page Museum would also feature less staff office space than originally proposed.
- The canopy above the existing main entrance to the Page would not be included in Refined Alternative 3, and would be replaced with trees to shade the proposed stepped seating.
- The reduced footprint of Refined Alternative 3 would require less ground disturbance during construction and would result in less soil import and export.
- Like the original project description in the EIR, Refined Alternative 3 would include renovations to address deferred maintenance of the building and systems and to meet modern seismic, electrical, building code standards, and universal design standards.

The County has elected to identify Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green as the Recommended Project. This refined project reduces historical impacts while attaining the project's basic objectives.

As detailed in the Final EIR, Volume II, Chapter 6, Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar environmental impacts as the project for each issue area analyzed in the EIR. Refined Alternative (the Recommended Project) would not increase any analyzed impact. Further, it would reduce impacts to historic resources and land use and planning. Specifically, Refined Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District thereby reducing the overall severity of the impacts to historic resources. Similarly, the design refinements in this alternative would help to further support the land uses plans and policies applicable to the project as they relate to the protection and alternation of historic resources. However, despite these reductions, impacts to historic resources and land use and planning would remain significant and unavoidable even with the implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5. Refined Alternative 3 (the Recommended Project) would meet all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project.

2.4 Discretionary Actions and Approvals by Other Agencies

The County of Los Angeles is the Lead Agency for the project under CEQA. While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the Recommended Project is not subject to City of Los Angeles regulatory controls. The following table summarizes federal, state, and local approvals and/or permits that may be required for the Recommended Project and the agencies that are expected to use the EIR in their decision-making processes.

Agency Approval Requirements

Agency	Approval Required
County of Los Angeles	Certification of the EIR Approval of project as described in the EIR Approval of Grading and Building Plans
Regional Water Quality Control Board	Construction General Permit Section 401 under the Clean Water Act (potentially)
U.S. Army Corps of Engineers	Section 404 Permit under Clean Water Act (potentially)
California Department of Fish and Wildlife	Authorization under Section 1602, Lake and Streambed Alteration Agreement (potentially)

The California Department of Fish and Wildlife (CDFW) is a potential responsible agency and trustee agency, as defined by Sections 15381 and 15386, respectively, of the State CEQA Guidelines. While CDFW does not have regulatory authority over approval of the broader La Brea Tar Pits Master Plan, CDFW could have regulatory authority over project activities within the riparian habitat and/or aquatic resources in and along Oil Creek and at the Lake Pit. Similarly, the U.S. Army Corps of Engineers (USACE) could also have discretionary authority over activities in these features. These considerations are addressed in the Final EIR, Volume II, Section 5.3, Biological Resources.

SECTION 3 – CEQA REVIEW AND RECORD OF PROCEEDINGS

3.1 Public Input

The County has provided opportunities for public review and comment, including but not limited to the public forums set forth below:

- Draft EIR Notice of Preparation Public Comment Period: February 14, 2022 – March 16, 2022
- Scoping Meetings: March 2, 2022
- Draft EIR Public Review Period: September 11, 2023 – October 26, 2023

Pursuant to Section 15082 of the State CEQA Guidelines, the Lead Agency is required to send a Notice of Preparation (NOP) stating that an EIR would be prepared to the State Office of Planning and Research, responsible and trustee agencies, and federal agencies involved in funding or approving the project. On February 14, 2022, in accordance with Sections 15063 and 15082 of the State CEQA Guidelines, the County published an NOP for the EIR and circulated it to governmental agencies, organizations, and persons who may be interested in the proposed project, including nearby landowners, homeowners, and tenants. The NOP requested comments on the scope of the EIR and asked interested parties for their suggestions regarding ways the project could be revised to reduce or avoid any significant environmental impacts. The NOP provided a general description of the proposed project, a description of the project site, and a preliminary list of potential environmental effects.

The 30-day NOP comment period extended through March 16, 2022. Copies of the NOP were made available for public review on the project's website, available at https://tarpits.org/reimagine. In addition, the NOP was also distributed via the following methods: direct mailings to residents in the 90036 zip code; two rounds of email blasts sent to residents in the 90036 and 90048 zip codes; and a full-page advertisement placed in the *Beverly Press/Park La Brea News* on February 17 and February 24, 2022.

Two public scoping meetings were held virtually via Zoom on March 2, 2022, at 2:30 p.m. and 5:30 p.m. to provide a description of the project and solicit input from any interested parties on the scope and content of the EIR in conformance with Public Resources Code Section 21083.9. Live language interpretation of the presentation and scoping meeting input was provided in Spanish and Korean during both scoping meetings.

The Notice of Availability (NOA) of the Draft EIR was distributed to responsible and trustee agencies, other affected agencies, interested parties, and all parties requesting a copy of the Draft EIR in accordance with Public Resources Code Section 21092(b)(3). The Notice of Completion and NOA of the Draft EIR were distributed and posted as required by CEQA. The public review period was from September 11, 2023 through October 26, 2023. During the review period, the Draft EIR and its appendices were available for review on the Natural History Museum's website: https://tarpits.org/reimagine.

A newspaper advertisement of the NOA and Draft EIR comment period and information regarding the public meeting was also placed in the Los Angeles Times. Printed copies of the documents with attached electronic appendices were also available for review during the public review period at Page Museum, Julian Dixon Library, View Park Bebe Moore Campbell Library, West Hollywood Library, and the Chief Executive Office at the Hall of Administration.

During the Draft EIR public review period, the County of Los Angeles received 35 comment documents on the Draft EIR from agencies, organizations, and individuals through letters, emails, and comment cards. A public meeting was held on September 30, 2023 from 9:00 A.M. to 11:00 A.M. at La Brea Tar Pits to present project information, provide information on the Draft EIR's analysis and findings regarding the project, and provide instructions on how to submit written comments on the Draft EIR. All written comments received during the public review period and responses to these received comments are provided in Chapter 2, Responses to Comments, of Volume I of the Final EIR.

3.2 Record of Proceedings

For purposes of CEQA compliance and these Findings and Statement of Overriding Considerations, the Record of Proceedings consists of the following documents and other evidence at a minimum:

- Notice of Preparation and other public notices issued by the County
- The Draft EIR dated September 11, 2023, including all associated technical appendices and documents that were incorporated by reference.
- Testimony, documentary evidence, and all correspondence submitted in response to the Notice of Preparation or by agencies, interested parties, or members of the public during the public comment period of the Draft EIR.
- Responses to comments received by agencies, interested parties, or members of the public during the public comment period of the Draft EIR (Chapter 2, Responses to Comments, of Volume I of the Final EIR).
- The Final EIR dated January 2025, including all associated technical appendices and documents that were incorporated by reference
- The Mitigation Monitoring and Reporting Program
- Findings of Fact and resolutions adopted by the County in connection with the Recommended Project; and all documents cited or referenced therein
- Final project technical reports, studies, maps, correspondence, and all planning documents prepared by the County or the consultants
- Documents submitted to the County by agencies or members of the public in connection with development of the project and the Recommended Project
- Actions of the County with respect to the project and the Recommended Project
- Other materials required by Public Resources Code Section 21167.6(e) to be in the record of proceedings.

3.3 Custodian of Record

The documents and other materials that constitute the record of proceedings upon which the County project approval is based are located at Los Angeles County Natural History Museum, located at 900 Exposition Boulevard, Los Angeles, CA 90007. The custodian of such documents and records of proceedings is Dr. Lori Bettison-Varga, President and Director, Los Angeles Museum of Natural History, County of Los Angeles. The record of proceedings is provided in compliance with Public Resources Code Section 21081.6(a)(2) and California Code of Regulations Title 14, Section 15091(e).

SECTION 4 – ENVIRONMENTAL ISSUES DETERMINED NOT TO BE AFFECTED BY THE PROJECT

CEQA Guidelines Section 15128 requires that an EIR contain a brief statement disclosing the reasons why various possible significant effects of a project were found not to be significant, and therefore would not be discussed in detail in the EIR.

It has been determined that the Recommended Project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire. In accordance with State CEQA Guidelines Section 15128, Final EIR, Volume II, Chapter 7 includes a brief evaluation and substantiation of why these impacts have been found not to be significant.

SECTION 5 – IMPACTS DETERMINED TO BE LESS THAN SIGNIFICANT

Based on the County's review of the EIR, the County of Los Angeles finds that the Recommended Project would result in less than significant impacts for the following thresholds of significance[4] without the need for mitigation. This section includes consideration of cumulative impacts. If cumulative impacts have been determined to be "less than significant," they are addressed as the last identified impact within each of the topical sections included below.

5.1 Aesthetics

AES Impact 1: The Recommended Project would not have a substantial adverse effect on a scenic vista either during project construction or operation. *(Less than Significant) (Final EIR, Volume II, pages 5.1-10 – 5.1-11 and page 6-47)*

AES Impact 2: The Recommended Project would not substantially damage scenic resources within a State-or City-designated Scenic Highway during either project construction or operation. *(Less than Significant) (Final EIR, Volume II, pages 5.1-11 – 5.1-12 and page 6-47)*

AES Impact 3: The Recommended Project would not conflict with applicable zoning and other regulations governing scenic quality during the project construction or operation. *(Less than Significant) (Final EIR, Volume II, pages 5.1-12 – 5.1-15 and page 6-47)*

The Recommended Project would not result in cumulative contributions to impacts related to scenic vistas, scenic resources, or scenic quality. Impacts would not be cumulatively considerable when viewed in conjunction with related development projects. *(Less than Significant) (Final EIR, Volume II, page 5.1-17 and page 6-47).*[5]

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[4] The term "significance" is used throughout the EIR to characterize the magnitude of the projected impact. For the EIR, a significant impact is a substantial or potentially substantial change to resources in the local project site or the area adjacent to the project site. Less than significant impacts means the effect does not meet or exceed the applicable significance criteria thresholds for a particular resource. No mitigation measures are required for less than significant impacts. Numbering of the thresholds of significance correspond to the numbering used in the EIR.

[5] The Recommended Project has the potential to contribute considerably to cumulative impacts associated with light and glare during both project construction and operation, which is also addressed in the Final EIR Volume II, Section 5.1. See Section 6.1 of this document.

5.2 Air Quality

AQ Impact 1: The Recommended Project would not conflict with or obstruct implementation of the applicable air quality plans during either construction or operation. *(Less than Significant) (Final EIR, Volume II, pages 5.2-20 – 5.2-21 and page 6-48)*

AQ Impact 2: The Recommended Project would not result in a cumulatively considerable net increase of criteria pollutants that would exceed applicable SCAQMD thresholds during either construction or operation. *(Less than Significant) (Final EIR, Volume II, pages 5.2-21 – 5.2-24 and page 6-48)*

AQ Impact 4: The Recommended Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people during either project construction or operation. *(Less than Significant) (Final EIR, Volume II, pages 5.2-27 – 5.2-28 and page 6-48)*

5.3 Biological Resources

BIO Impact 7: Construction and operation of the Recommended Project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. *(No Impact) (Final EIR, Volume II, pages 5.3-28 and page 6-49)*

5.4 Geology and Soils

GEO Impact 1: The Recommended Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving surface fault rupture, seismic ground shaking, or seismic-related ground failure including liquefaction. Impacts associated with these issues would be less than significant during project construction and operation. The Recommended Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides during either project construction or operation. No impact would occur during project construction and operation related to landslides. *(Less than Significant) (Final EIR, Volume II, pages 5.6-17 – 5.6-19 and page 6-52)*

GEO Impact 2: Through compliance with existing regulations, the Recommended Project would not result in substantial soil erosion or the loss of topsoil during project construction or operation. Impacts would be less than significant during project construction and operation. *(Less than Significant) (Final EIR, Volume II, pages 5.6-19 – 5.6-20 and page 6-52)*

GEO Impact 5: The Recommended Project would not include the use of septic tanks or alternative wastewater disposal systems during either project construction or operation. *(No Impact) (Final EIR, Volume II, pages 5.6-23 – 5.6-24 and page 6-52)*

5.5 Hazards and Hazardous Materials

HAZ Impact 4: The project site is not identified on any of the hazardous materials lists compiled pursuant to Government Code Section 65962.5. Construction and operation of the Recommended Project would not create a significant hazard to the public or the environment as it relates to hazardous materials sites compiled pursuant to Government Code Section 65962.5. *(No Impact) (Final EIR, Volume II, pages 5.8-22 – 5.8-23 and page 6-54)*

HAZ Impact 5: The project site is not located within 2 miles of a public airport or public use airport. The Recommended Project would not result in an airport-related safety hazard during either project construction or operation. *(No Impact) (Final EIR, Volume II, pages 5.8-23 and page 6-54)*

HAZ Impact 6: The Recommended Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan during either construction or operation. Construction and operational impacts would be less than significant. *(Less than Significant) (Final EIR, Volume II, pages 5.8-24 and page 6-54)*

5.6 Hydrology and Water Quality

HYD Impact 2: The Recommended Project would not substantially decrease groundwater supplies or interfere with groundwater recharge. Construction and operational impacts would be less than significant. *(Less than Significant) (Final EIR, Volume II, pages 5.9-26 – 5.9-27 and pages 6-54 – 6-55)*

HYD Impact 3: The Recommended Project would not substantially alter the existing drainage pattern of the site or increase surface water runoff in a manner that would result in substantial erosion or siltation, flooding, or an exceedance of stormwater drainage systems. Construction and operational impacts would be less than significant. *(Less than Significant) (Final EIR, Volume II, pages 5.9-27 – 5.9-31 and pages 6-54 – 6-55)*

HYD Impact 4: The project site is not in a flood hazard zone or tsunami zone and the risk of seiche is low. Therefore, there would be no risk of release of pollutants due to project inundation by these hazards. No construction or operational impacts would occur. *(No Impact) (Final EIR, Volume II, pages 5.9-31 – 5.9-32 and pages 6-54 – 6-55)*

HYD Impact 5: The Recommended Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Construction and operational impacts would be less than significant. *(Less than Significant) (Final EIR, Volume II, pages 5.9-32 – 5.9-33 and pages 6-54 – 6-55)*

5.7 Land Use and Planning

LUP Impact 1: The Recommended Project would not include features that would physically divide an established community during construction and operation. *(No Impact) (Final EIR, Volume II, pages 5.10-29 – 5.10-30 and page 6-55)*

5.8 Noise and Vibration

NOI Impact 2: During project operation, the Recommended Project would not generate a substantial increase in ambient noise in excess of applicable standards or thresholds; noise impacts during project operation would be less than significant. *(Less than Significant) (Final EIR, Volume II, pages 5.11-23 – 5.11-27 and page 6-56)*

NOI Impact 3: The Recommended Project would not generate excessive groundborne vibration or groundborne noise levels either during project construction or operation; impacts related to groundborne vibration and noise levels would be less than significant. *(Less than Significant) (Final EIR, Volume II, pages 5.11-27 – 5.11-29 and page 6-56)*

NOI Impact 4: Because the Recommended Project is not located in the vicinity of an airstrip or airport, the project would not expose people residing or working in the project site to excessive noise levels related to aircraft during either project construction or operation. *(No Impact) (Final EIR, Volume II, pages 5.11-30 and page 6-56)*

NOI Impact 5 (Cumulative): The Recommended Project would not contribute considerably to cumulative noise and/or vibration impacts. *(Less than Significant) (Final EIR, Volume II, pages 5.11-30 – 5.11-33 and page 6-56)*

5.9 Recreation

REC Impact 1: The Recommended Project would not result in substantial physical deterioration of existing parks and recreation facilities during either project construction or operation. *(Less than Significant) (Final EIR, Volume II, pages 5.12-7 – 5.12-8 and page 6-57)*

5.10 Transportation

TRA Impact 3: Once developed, the Recommended Project would not substantially increase hazards due to a geometric design feature; impacts would be less than significant. *(Less than Significant) (Final EIR, Volume II, pages 5.13-22 – 5.13-23 and page 6-58)*

5.11 Utilities and Service Systems

UTL Impact 2: LADWP would have sufficient water supply to serve the water demand generated by the Recommended Project and the existing service area during normal, single dry year, and multiple dry years conditions during both construction and operation of the project. *(Less than Significant) (Final EIR, Volume II, pages 5.15-13 – 5.15-14 and pages 6-58 – 6-59)*

UTL Impact 3: It has been determined that the wastewater treatment provider serving the project (LASAN) would have adequate capacity to serve the wastewater flows generated by the project. *(Less than Significant) (Final EIR, Volume II, pages 5.15-14 – 5.15-15 and pages 6-58 – 6-59)*

UTL Impact 4: The Recommended Project would not generate solid waste in excess of the capacity of local infrastructure or otherwise impair state or local solid waste reduction goals during construction and operation of the project. *(Less than Significant) (Final EIR, Volume II, pages 5.15-16 – 5.15-17 and pages 6-58 – 6-59)*

UTL Impact 5: The Recommended Project would comply with federal, state, and local solid waste reduction goals during construction and operation. *(Less than Significant) (Final EIR, Volume II, pages 5.15-18 and pages 6-58 – 6-59)*

SECTION 6 – LESS THAN SIGNIFICANT IMPACTS WITH MITIGATION

Pursuant to Public Resources Code Section 21081.6, a Mitigation Monitoring and Reporting Program has been prepared for the Recommended Project and has been adopted concurrently with these Findings. (See Pub. Res. Code Section 21081.6 (a) (1).) The Mitigation Monitoring and Reporting Program designates responsibility and anticipated timing for the implementation of mitigation measures that are to be

implemented for the Recommended Project. The County will track compliance with project mitigation measures. The County has prepared the Mitigation Monitoring and Reporting Program for the Recommended Project separate from these Findings of Fact and has included the Mitigation Monitoring and Reporting Program as part of the Recommended Project submittal package presented to the Board of Supervisors for approval.

The County, having reviewed and considered the information contained in the EIR, finds pursuant to Public Resources Code Section 21081(a)(1) and CEQA Guidelines Section 15091(a)(1) that changes or alterations have been required in, or incorporated into, the Recommended Project which would mitigate, avoid, or substantially lessen to below a level of significance the following potential significant environmental effects as identified in the EIR. The Findings of Fact summarized below incorporate the facts and discussions from the EIR. For each of the significant impacts, the following sections are provided:

- Impact: A specific description of the potential environmental impact identified in the EIR.
- Finding: One or more of the three specific findings set forth in CEQA Guidelines Section 15091.
- Mitigation Measure(s): Identified feasible mitigation measures or actions that are required as part of the Project and, if mitigation is infeasible, the reasons supporting the finding that the rejected mitigation is infeasible.
- Basis for Finding: A summary of the reasons for the finding(s).

The following identifies the adverse impacts that would cause substantial adverse effects that meet or exceed the applicable significance criteria thresholds for a particular resource but can be reduced to a less-than-significant impact through successfully implementing identified mitigation measures. This section includes consideration of cumulative impacts. If cumulative impacts have been determined to be "less than significant with mitigation," they are addressed as the last identified impact within each of the topical sections included below.

6.1 Aesthetics

AES Impact 4: The Recommended Project could create a new source of substantial light or glare during both construction activities and project operation as part of the final building and project design which could adversely affect daytime or nighttime views in the area. Impacts during construction and operation of the project could be significant. *(Final EIR, Volume II, pages 5.1-15 – 5.1-17 and page 6-47)*

As explained in Final EIR, Volume II, Chapter 5.1.5, existing sources of lighting on and around the project site include street, security, and wayfinding outdoor lighting, vehicle headlights, and interior building illumination. Implementation of the Recommended Project would collectively introduce new and redesigned sources of lighting on-site that would be visible from adjacent off-site locations. Impacts associated with project implementation include both construction and operational impacts.

Construction of the Recommended Project is anticipated to occur over a period of 3 to 4 years and has the potential to generate light and glare spillover to off-site visual receptors in the vicinity of the project site, including visitors to the publicly accessible facilities located throughout Hancock Park and individuals in the surrounding residential buildings and commercial buildings adjacent to the project site, as well as motorists, cyclists, and pedestrians traveling along Wilshire Boulevard, South Curson Avenue, and West 6th Street. Sources of artificial light associated with construction activities could include floodlights, spotlights, and/or headlights. Daytime glare could potentially occur during construction activities if

reflective construction materials were positioned in highly visible locations where the reflection of sunlight could occur.

Operational impacts would include interior and low-level exterior lights adjacent to the buildings and along pathways for security and wayfinding purposes. In addition, low-level lighting for accent signage, parking information, and architectural features would also be incorporated. The new museum building would introduce a new source of light that would include exterior lights adjacent to the building and for the second-floor outdoor amenities when in use. The current design of the Recommended Project does not include electronic signage or signs with flash, mechanical, or strobe lights. However, given the conceptual nature of the Recommended Project at this stage of design and development, the resulting lighting and design features cannot be determined with certainty, and design details that could create light and potential glare may be introduced as the building plans are more fully developed.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts to light and glare during both construction activities and project operation as identified in the EIR. With the implementation of *AES/mm-4.*1 and *AES/mm-4.2*, impacts regarding light and glare during construction and operation of the project would be reduced to less-than-significant levels.

***Mitigation Measure AES/mm-4.1*:** During project construction, the following measures shall be required:

a. The hours of construction activities shall be limited to between 7:00 a.m. and 9:00 p.m. on weekdays and between 8:00 a.m. and 6:00 p.m. on Saturdays and national holidays, with no construction permitted on Sundays.

b. If construction during evening hours is deemed necessary, construction-related illumination shall be used for safety and security purposes only. Additionally, any construction lighting shall be directed toward the area undergoing work, which requires that construction lighting be shielded and/or aimed so that no direct beam illumination would fall outside of the project site boundary.

***Mitigation Measure AES/mm-4.2*:** The project shall implement the following design features:

a. All facades and/or building surfaces including glass windows shall be constructed using non-reflective materials or be treated with non-reflective coating.

b. All light emanating from new uses shall be either low scaled lighting or shielded to focus lighting and prevent lighting from spilling onto adjacent sensitive uses.

c. The project shall not include outdoor lighting that causes residential property to be illuminated by more than two footcandles of lighting intensity or receive direct glare from the light source.

d. All lights used to illuminate parking areas shall be designed, located, and arranged to reflect the light away from any street and any adjacent premises.

e. Signage with a light intensity of greater than three footcandles above ambient lighting, as measured at the property line of the nearest residentially zoned property, shall be prohibited.

Basis for Finding. The County's Zoning Ordinance (Title 22 of the County Code) contains provisions intended to limit adverse light and glare impacts. Application of the requirements of Section 22.44.1270, Exterior Lighting, of the County Code related to lighting and shielding would limit the potential of increased lighting on sensitive uses. Additionally, the California Building Code contains standards for outdoor lighting that are intended to reduce light pollution by regulating light power and brightness, shielding, and sensor controls. Currently, the façade of the new museum building and the renovated Page

Museum would be constructed using nonreflective materials, consistent with the exterior materials of nearby buildings. However, the architectural plans for the new buildings are at a conceptual stage and reflective materials, obtrusive lighting, and other design features could be introduced during the later design stages that may not be consistent with specifications included in Title 22 of the County Code. Further, given the project site is not zoned by the County, enforcement of the application of Title 22 of the County Code cannot be assured without the provision of a mitigation measure requiring application of these requirements. For these reasons, light and glare impacts after construction of the Recommended Project could be *significant*. Mitigation measures *AES/mm-4.1 and AES/mm-4.2* would reduce the impacts to light and glare to less-than-significant levels.

AES Impact 5 (Cumulative Impacts[6]): The Recommended Project has the potential to contribute considerably to cumulative impacts associated with light and glare during both project construction and operation. *(Final EIR, Volume II, pages 5.1-17 – 5.1-18 and page 6-47)*

Identified related projects in the vicinity of the project are at varying stages of approval/entitlement/development and consist of a variety of land uses, including residential, institutional, commercial, office, and mixed use. These related projects occur primarily as urban infill within the existing land use setting of the downtown Los Angeles area and include the following:

- **LACMA Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction. Construction activities are estimated to be completed at the end of 2024.
- **Wilshire Curson Project (Wilshire Courtyard Redevelopment Project):** Located approximately 0.03 mile southeast of the project site at 5700–5780 Wilshire Boulevard, 712–752 South Curson Avenue, 5721–5773 West 8th Street, and 715–761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of new buildings. The project is currently under environmental review and the anticipated construction timeframe was not available at the date of publication for the EIR.

Formally designated scenic viewsheds, vistas, features, or ridgelines (as designated and defined by both the City and County of Los Angeles) are not located within or adjacent to the project site (threshold a). In addition, the Recommended Project would not substantially damage scenic resources within a State- or City-designated Scenic Highway (threshold b), nor would it conflict with applicable zoning and other regulations governing scenic quality (threshold c). Accordingly, the Recommended Project could not contribute to cumulative impacts related to these topics. Furthermore, related developments would be subject to applicable regulations and zoning requirements, such as height limits, density, and setback requirements, and would be reviewed by the City to ensure consistency with adopted guidelines and standards that relate to aesthetics. The design of these projects would also be required to be consistent with the Mobility Plan 2035 Designated Scenic Highways and Guidelines related to the designation of Wilshire Boulevard as a Scenic Highway. As such, the Recommended Project would not result in cumulative contributions to impacts related to these thresholds, and impacts would not be cumulatively considerable when viewed in conjunction with related development projects. However, cumulative impacts related to projects within the project vicinity (threshold d), could occur.

[6] The cumulative impact analysis of aesthetics, scenic views, and lighting was competed for projects the immediate project vicinity which is defined as the area directly adjacent to the project site and roadways directly surrounding the project site.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts to light and glare related to projects within the immediate project vicinity during both construction activities and project operation as identified in the EIR. With the implementation of *AES/mm-4.*1 and *AES/mm-4.2*, cumulative impacts regarding light and glare during construction and operation of the Recommended Project would be reduced to less-than-significant levels.

Implement ***Mitigation Measures AES/mm-4.1*** and ***AES/mm-4.2***.

Basis for Finding. The Recommended Project, in conjunction with the identified related projects, could contribute to the cumulative increase in light and glare in and around the project site during both construction activities and during operation of the project (threshold d) and impacts could be cumulatively considerable. *Mitigation Measures AES/mm-4.1* and *AES/mm-4.2* would be required to reduce project impacts to less than significant. The area surrounding the project site and related projects is urbanized and generates ambient light. Similar to the project, the related projects would be required to minimize excessive light and glare that would be inappropriate for the setting. With implementation of these project mitigation measures, impacts from the Recommended Project would not be cumulatively considerable and cumulative impacts associated with light and glare would be *less than significant*.

6.2 Air Quality

AQ Impact 3: The Recommended Project could expose sensitive residential receptors to substantial pollutant concentrations during construction related to diesel exhaust. Construction impacts could be significant. Operation of the project would not expose sensitive residential receptors to substantial pollutant concentrations. Operation impacts would be less than significant. *(Final EIR, Volume II, pages 5.2-24 – 5.2-27 and page 6-48)*

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and dust-generating activities, which could adversely affect nearby sensitive land uses. The closest sensitive land uses to the project site are off-site residential uses located between 50 to 150 feet from the project site.

A localized significance threshold (LST) analysis was performed to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of project activities. A detailed description of the localized significance threshold analysis is included in Final EIR Appendix C. As shown in Final EIR, Volume II, Table 5.2-6, construction activities for the original project would not generate emissions in excess of LSTs for the Central Los Angeles area. In addition, as shown in Final EIR, Volume II, Table 5.2-7, operations of the original project would not generate emissions in excess of site-specific LSTs; therefore, project construction and operation would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards. As described in Final EIR, Volume II, page 6-48, the air quality effects of the Recommended Project would be similar to the original project.

Toxic Air Contaminants Construction Health Risk Assessment. A construction health risk assessment (HRA) was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors resulting from construction of the original project. Final EIR, Volume II, Table 5.2-8 summarizes the results of the construction HRA.

As shown in Final EIR, Volume II, Table 5.2-8, the HRA results from the unmitigated scenario show that project construction would result in a Residential Chronic Hazard Index of 0.08, which is below the 1.0 significance threshold; however, project construction would result in cancer risks exceeding the 10 in

1 million threshold. As described in Final EIR, Volume II, page 6-48, the air quality effects of the Recommended Project would be similar to the original project.

Toxic Air Contaminants Operational Health Risk Assessment. An operational HRA was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors as a result of operation of the original project, including truck trips and off-road/stationary equipment. Final EIR, Volume II, Table 5.2-9 summarizes the results of the operational HRA. As described in Final EIR, Volume II, page 6-48, the air quality effects of the Recommended Project would be similar to the original project.

As shown in Final EIR, Volume II, Table 5.2-9, project operational activities would result in a Residential Maximum Individual Cancer Risk of 7.81 in 1 million, which would be less than the significance threshold of 10 in 1 million. Project operations would also result in a Residential Chronic Hazard Index of 0.003, which is below the 1.0 significance threshold.

Local Carbon Monoxide Concentrations. At the time that the SCAQMD 1993 Handbook was published, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS as a result of the steady decline in CO concentrations in the Air Basin due to turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities. The SCAQMD conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the Air Basin: 1) Wilshire Boulevard and Veteran Avenue, 2) Sunset Boulevard and Highland Avenue, 3) La Cienega Boulevard and Century Boulevard, and 4) Long Beach Boulevard and Imperial Highway. At the time the 2003 AQMP was prepared, the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. Using CO emission factors for 2002, the peak modeled CO 1-hour concentration was estimated to be 4.6 ppm at the intersection of Wilshire Boulevard and Veteran Avenue. When added to the maximum 1-hour CO concentration from 2018 through 2020 at the North Main Street monitoring station, which was 2 ppm in 2019, the 1-hour CO would be 6.6 ppm, while the CAAQS is 20 ppm.

The 2003 AQMP also projected 8-hour CO concentrations at these four intersections for 1997 and from 2002 through 2005. From years 2002 through 2005, the maximum 8-hour CO concentration was 3.8 ppm at the Sunset Boulevard and Highland Avenue intersection in 2002; the maximum 8-hour CO concentration was 3.4 ppm at the Wilshire Boulevard and Veteran Avenue in 2002. Adding the 3.8 ppm to the maximum 8-hour CO concentration from 2018through 2020 at the North Main Street monitoring station, which was 1.7 ppm in 2018, the 8-hour CO would be 5.5 ppm, while the CAAQS is 9.0 ppm. Accordingly, CO concentrations at congested intersections would not exceed the 1-hour or 8-hour CO CAAQS unless projected daily traffic would be at least over 100,000 vehicles per day. Because the project would not increase daily traffic volumes at any study intersection to more than 100,000 vehicles per day as shown in the La Brea Tar Pits Master Plan Final Transportation Assessment (Final EIR, Appendix J), a CO hot spot is not anticipated to occur during either construction or operation. The Recommended Project would generate similar daily traffic as compared to the original project.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to exposure of pollutant concentrations to sensitive residential receptors during construction as identified in the EIR. With implementation of Mitigation Measure *AQ/mm-3.1*, diesel particulate matter would be reduced during the construction period and substantial pollutant concentrations would be less than significant, as demonstrated by the analysis conducted to calculate the effectiveness of the mitigation measures, shown in Final EIR, Volume II, Table 5.2-10.

***Mitigation Measure AQ/mm-3.1*:** To reduce the potential for health risks as a result of construction of the project, the following measures shall be implemented:

a. Prior to the start of construction activities, it shall be ensured that all 75 horsepower or greater diesel-powered equipment are powered with CARB-certified Tier 4 Interim engines, except where the County establishes that Tier 4 Interim equipment is not available.

There are several other SCAQMD rules and regulations that serve as mitigation measures for the project construction. These rules are:

a. SCAQMD Rule 403, which requires projects to incorporate fugitive dust control measures;
b. SCAQMD Rule 1113, which limits the volatile organic compound content of architectural coating; and
c. SCAQMD Regulation XIII, New Source Review, which requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available technology control technology for new combustion sources such as boilers and water heaters).

Basis for Finding. Construction and operational activities would not generate emissions in excess of LSTs for the Central Los Angeles area; therefore, project construction and operation would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards, and impacts related to localized emissions concentrations would be *less than significant*.

Additionally, the HRA results from the unmitigated scenario show that project construction would result in cancer risks exceeding the 10 in 1 million threshold. For these reasons, without mitigation, project construction could result in toxic air contaminants exposure that could be *significant*. Project operational activities, however, would result in a Residential Maximum Individual Cancer Risk of 7.81 in 1 million, which would be less than the significance threshold of 10 in 1 million. Project operations would also result in a Residential Chronic Hazard Index of 0.003, which is below the 1.0 significance threshold. Thus, operational impacts associated with potential cancer risk would be *less than significant*.

Further, mitigation measure AQ/mm-3.1 has been identified to reduce project construction-generated DPM emissions to the extent feasible through requiring all 75 horsepower or greater diesel-powered equipment to be powered with CARB-certified Tier 4 Interim engines. The HRA results following implementation of *Mitigation Measure AQ/mm-3.1* are presented in Final EIR, Volume II, Table 5.2-10. With the implementation of *Mitigation Measure AQ/mm-3.1*, the estimated cancer risk during project construction would be reduced below the SCAQMD threshold of 10 in 1 million (see Final EIR, Volume II, Table 5.2-10) and associated impacts would be *less than significant*.

AQ Impact 5 (Cumulative Impacts[7]): The Recommended Project's air pollutant emissions related to diesel exhaust during construction could result in a cumulative contribution to air pollution in the region. Operation of the project would not result in a significant contribution to air pollution in the region. *(Final EIR, Volume II, pages 5.2-28 – 5.2-29 and page 6-48)*

Based on SCAQMD guidance, individual construction projects that exceed SCAQMD's recommended daily thresholds for project-specific impacts would cause a cumulatively considerable increase in emissions for those pollutants for which the Air Basin is in non-attainment, as discussed in Final EIR, Volume II, Section 5.2. Therefore, consistent with the accepted and established SCAQMD cumulative

[7] The geographic area affected by the project and its potential to contribute to cumulative impacts varies based on the environmental resource under consideration. For air quality, the geographic scope for the project's cumulative impact analysis encompasses the Air Basin.

impact evaluation methodologies, the project's construction or operation emissions would be considered cumulatively considerable if project-specific emissions exceed an applicable SCAQMD-recommended significance threshold.

As analyzed in Final EIR, Volume II, Section 5.2.5, the original project would be consistent with the SCAQMD's AQMP during both project construction and operation (threshold a), and the project would not result in a cumulatively considerable net increase of criteria pollutants that would exceed applicable SCAQMD thresholds during either construction or operation (threshold b). In addition, the original project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people during either project construction or operation (threshold d). As described in Final EIR, Volume II, page 6-48, the air quality effects of the Recommended Project would be similar to the original project. As such, and consistent with SCAQMD guidance, the Recommended Project would not contribute significantly to cumulative impacts associated with these issues.

However, the project's toxic air contamination HRA determined the project could expose sensitive residential receptors to substantial pollutant concentrations during construction related to diesel exhaust emissions (threshold c). The Recommended Project's effects would be similar (Final EIR, Volume II, page 6-48). Given the construction and diesel exhaust emissions that could occur in the vicinity of the project concurrent with project construction, prior to mitigation, this impact could be considered both a direct impact and a contribution to cumulative impacts related to diesel emissions.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts to the project's contribution to diesel emissions as identified in the EIR. Implementation of mitigation measure *AQ/mm-3.1* would reduce project construction emissions below the SCAQMD threshold, as shown in Final EIR, Volume II, Table 5.2-10. As such, and consistent with SCAQMD guidance, after implementation of the mitigation measure, the project's contribution to diesel emissions would be less than significant both individually and cumulatively.

Implement ***Mitigation Measure AQ/mm-3.1***.

Basis for Finding. For the topic of air quality, the Recommended Project would not contribute significantly to cumulative impacts. However, regarding toxic air contamination, the HRA determined that the Recommended Project could contribute significantly to pollutant concentrations during construction (threshold c). Prior to mitigation, this contribution would be both a significant direct impact of the project as well as a potentially significant contribution to cumulative toxic air contamination in the vicinity of the project. The Recommended Project's air pollutant emissions related to diesel exhaust during construction could result in a cumulative contribution to air pollution in the region, which would be *significant*. Operation of the Recommended Project would not result in a significant contribution to air pollution in the region.

6.3 Biological Resources

BIO Impact 1: The Recommended Project could result in in significant effects during the construction process on one species, the federal candidate monarch butterfly, either directly or through habitat modifications. Impacts during project construction could be significant. During project operation, the Recommended Project would not result in significant effects, either directly or through habitat modifications, on any identified candidate, sensitive, or special-status species. Impacts during project operation would be less than significant. *(Final EIR, Volume II, pages 5.3-17 – 5.3-19 and pages 6-48 – 6-49)*

One candidate species for listing under the federal Endangered Species Act—monarch butterfly—has been recorded on the project site in iNaturalist between 2014 and 2019, including results as part of the 2017 La Brea Wildlife Survey.[8] No other candidate, sensitive, or special-status species of flora or fauna are expected to occur at the project site. As such, direct and indirect impacts to other sensitive wildlife species during construction (from temporary noise, dust, construction personnel, and equipment) and project operation are not anticipated because no other special-status species are present or expected to occur at the project site.

Monarch butterflies are present in Southern California year-round and may be seen in a variety of habitats where nectar plants are present, in both urban and rural areas. The project site does not offer the required elements for overwintering of migratory western monarchs, such as preferred roost trees, wind protection, or proximity to the ocean (the site is approximately 9 miles from the ocean) and as such, the project site does not support overwintering aggregations of monarch butterflies. Therefore, no direct adverse impacts to overwintering monarch butterflies during project construction or operation are anticipated.

While not recorded during field surveys in March and November 2022, presence of non-native tropical milkweed (*A. curassavica*), a known nectar source and host plant and potentially harmful ecological trap for both resident and migratory monarchs, is documented as likely to occur on-site.

The monarch butterfly is a federal candidate species and is not listed or proposed for listing at this time. Consultation with USFWS is not required for candidate species such as the monarch, but implementation of conservation efforts for these species is encouraged. If monarch butterfly eggs and larvae are present on existing milkweed and the milkweed is removed during construction, direct impacts to those individual eggs and larvae of the species could occur. Removal of milkweed would also remove habitat for the species.

Given the project site does not support overwintering aggregations of monarch butterflies and no other candidate, sensitive, or special-status species of flora or fauna are expected to occur at the project site, operation of the project would not result in impacts, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to habitat modifications of the federal candidate monarch butterfly either directly or indirectly as described in the EIR. Implementation of mitigation measure BIO/mm-1.1 would reduce potential impacts would reduce these impacts during the construction phase to less than significant.

> ***Mitigation Measure BIO/mm-1.1*:** To protect the federal candidate monarch butterfly, which is a candidate species for listing under the federal Endangered Species Act, the following measures (*BIO/mm-1.1a* or *BIO/mm-1.1b*) shall be implemented:
>
> a. Full avoidance of impacting any milkweed populations on-site with observable monarch eggs and larvae. After obtaining permits and prior to construction, all individual milkweed plants will be surveyed. All individual plants found with eggs or larvae will be flagged for re-survey and avoidance. Individual plants without eggs and larvae will be removed. Flagged plants will be re-surveyed and removed when no eggs or larvae are present. All tropical milkweed

[8] iNaturalist. 2017. La Brea Tar Pits Wildlife Survey. Available at: www.inaturalist.org/projects/la-brea-tar-pits-wildlife-survey. Accessed March 2022.

will be replaced with native narrowleaf milkweed (Asclepias fascicularis) following construction.

OR

b. If monarch eggs and larvae are not present, any tropical milkweed populations in the project area should be replanted with native narrowleaf milkweed and other nectar-providing plants following construction activities. All tropical milkweed on the property will be assessed for the absence of monarch eggs and larvae and replaced with narrowleaf milkweed after construction.

Basis for Finding. If monarch butterfly eggs and larvae are present on existing milkweed and the milkweed is removed during construction, direct impacts to those individual eggs and larvae of the species could occur. Removal of milkweed would also remove habitat for the species. Project construction could result in adverse effects, either directly or through habitat modifications, on the federal candidate monarch butterfly. Impacts during Recommended Project construction could be *significant.*

BIO Impact 2: The Recommended Project could directly and indirectly impact the riparian wetland habitat associated with Oil Creek during both construction and operation as a reconnaissance survey suggests there may be approximately 0.3 acre of regulated aquatic resources associated with Oil Creek. Impacts during construction and operation could be significant. *(Final EIR, Volume II, pages 5.3-19 – 5.3-22 and pages 6-48 – 6-49)*

Riparian habitat that may be considered under the jurisdiction of the CDFW is present in and along Oil Creek and the Lake Pit. Riparian vegetation supported by Oil Creek can be described as California sycamore-coast live oak riparian woodlands (S3), and riparian vegetation supported by the Lake Pit can be characterized as hardstem and California bulrush marshes (S3/S4). As previously described, historical imagery shows a well-defined channel supporting possible riparian vegetation based on distribution patterns suggesting an intermittent or wetter hydrologic regime at the Oil Creek location. In its current state, Oil Creek appears to receive its primary hydrologic input source from groundwater. Oil Creek also receives hydrologic inputs from precipitation and irrigation system runoff. Dense vegetation and heavy leaf litter exist in the northeastern portion of the creek; Oil Creek supports a robust community of hydrophytic vegetation. The density of hydrophytic vegetation, and hydrology indicators such as water-stained leaves, suggest that Oil Creek may support wetlands. A determination of hydric soils would need to be made to confirm wetlands. With the information available and gathered during the site visits, it is anticipated that Oil Creek and the Lake Pit may be subject to the jurisdiction of the California Regional Water Quality Control Board and CDFW. Oil Creek may also be regulated by the USACE under the CWA. The Lake Pit supports riparian vegetation along its margins. Based on Google Earth aerial imagery (2023), these stands of riparian vegetation seem to fluctuate in size. Google Earth street view suggests that some of this vegetation around the Lake Pit may be subject to routine mowing. Fluctuation in stand size may also be subject to variation of water levels at the Lake Pit.

No other sensitive natural communities were found on the project site during the field survey or have been reported in readily available literature.

Project construction activities have the potential to disturb the riparian habitat present in and along Oil Creek and the Lake Pit through ground-disturbing activities associated with construction and renovation of the pathways in and around these areas and through the implementation the bioswales, and other project features.

During operation of the Recommended Project, indirect impacts to riparian habitat may result from increased visitation and necessary maintenance to sustain the bioswales. Increased visitation may require additional changes to the project's infrastructure. Future implementation of these changes may result in

impacts to riparian habitat. Maintenance of the bioswale and the associated riparian habitat may change over time depending on groundwater availability. It is assumed that the primary hydrologic input supporting the riparian habitat is groundwater, with supplemental precipitation and landscape irrigation. A decrease in groundwater availability may result in a decline of the existing riparian habitat if no additional external sources of input are incorporated. External sources of hydrologic input such as irrigation systems may be necessary and have a potential to alter the quality of the water supporting the riparian habitat.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen impacts to the riparian wetland habitat associated with Oil Creek as indicated in the EIR. Implementation of mitigation measure *BIO/mm-2.1* would reduce impacts both during construction and operation to less than significant.

***Mitigation Measure BIO/mm-2.1*:** Impacts to Oil Creek may be avoidable but are subject to final project design. To protect sensitive and regulated aquatic resources associated with Oil Creek, one of the following measures (*BIO/mm-2.1a* or *BIO/mm-2.1b*) shall be implemented:

a. Full avoidance of Oil Creek, including riparian habitats. To attain full avoidance of Oil Creek, construction and ground disturbance shall not occur within 125 feet of the centerline of Oil Creek. The limits of riparian habitat shall be flagged and construction fencing erected to clearly denote the limits of construction. No overnight staging of equipment or materials shall occur within the protected "no work" zone as delineated by the fencing. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area.

OR

b. If full avoidance of Oil Creek and a designated "no work" buffer is not possible after determination of final design, the following measures shall be required:

    i. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Oil Creek feature. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the "protected zone"). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site.

    ii. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to removed diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event.

iii. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing Oil Creek riparian corridor, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following:

- Native tree replacement requirements consistent with the requirements of the Plant Pest and Disease Management Plan (BIO/mm-6.2).
- A detailed planting scheme identifying the location and sizes of all container stock.
- Details on planned irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years.
- Annual monitoring, maintenance, and adaptive management measures and annual reporting requirements.

iv. The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area.

v. Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.

Basis for Finding. The Recommended Project could result in direct and indirect impacts during project construction and operation associated with the riparian wetland habitat present in and along Oil Creek and in or along the Lake Pit. Feasibility of aquatic resources avoidance will be subject to final design, including exact facility locations and construction efforts to be determined in the future. Impacts could be *significant*.

BIO Impact 3: The Recommended Project could directly and indirectly impact the Lake Pit lakebed and its associated riparian habitat during both construction and operation as a reconnaissance survey suggests there may be approximately 1.2 acres of regulated aquatic resources associated with the Lake Pit. Impacts during construction and operation could be significant. *(Final EIR, Volume II, pages 5.3-22 – 5.3-23 and pages 6-48 – 6-49)*

As indicated in BIO Impact 2 above, riparian habitat that may be considered under the jurisdiction of the CDFW is present in and along Oil Creek and the Lake Pit. Riparian vegetation supported by Oil Creek can be described as California sycamore-coast live oak riparian woodlands (S3), and riparian vegetation supported by the Lake Pit can be characterized as hardstem and California bulrush marshes (S3/S4).

Project construction activities have the potential to disturb the riparian habitat present in and along Oil Creek and the Lake Pit through ground-disturbing activities associated with construction and renovation of the pathways in and around these areas and through the implementation the bioswales, and other project features.

During project operation, indirect impacts to riparian habitat may result from increased visitation and necessary maintenance to sustain the proposed bioswale. Increased visitation may require additional changes to the project's proposed infrastructure. Future implementation of these changes may result in impacts to riparian habitat. Maintenance of the bioswale and the associated riparian habitat may change over time depending on groundwater availability. It is assumed that the primary hydrologic input supporting the riparian habitat is groundwater, with supplemental precipitation and landscape irrigation. A decrease in groundwater availability may result in a decline of the existing riparian habitat if no additional external sources of input are incorporated. External sources of hydrologic input such as irrigation systems may be necessary and have a potential to alter the quality of the water supporting the riparian habitat.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen impacts to the riparian wetland habitat associated with Oil Creek as indicated in the EIR. Implementation of mitigation measure BIO/mm-3.1 would reduce impacts both during construction and operation to less than significant.

***Mitigation Measure BIO/mm-3.1*:** This mitigation measure only applies to project features implemented in and around the Lake Pit, including the pedestrian path and bridge. The following measures shall be implemented prior to the implementation of these features:

a. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Lake Pit features. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the "protected zone"). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site.

b. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to remove diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event.

c. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing riparian vegetation within and along the margins of the Lake Pit, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following:

    - A detailed planting scheme identifying the location and sizes of all container stock.

- Details on planned Irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years.
- Five years of annual monitoring, maintenance, and adaptive management measures and annual reporting requirements.

d. The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter the Lake Pit and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area.

e. Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.

Basis for Finding. The Recommended Project could result in direct and indirect impacts during project construction and operation associated with the riparian wetland habitat present in and along Oil Creek and in or along the Lake Pit. Feasibility of aquatic resources avoidance would be subject to final design, including exact facility locations and construction efforts to be determined in the future. Impacts could be *significant*.

BIO Impact 4: The project site may contain potential jurisdictional wetland/aquatic resources in and along Oil Creek and the Lake Pit. Recommended Project construction and operation may result in impacts to wetland habitat. Impacts during construction and operation of the project could be significant. *(Final EIR, Volume II, pages 5.3-23 – 5.3-24 and pages 6-48 – 6-49)*

As noted in Final EIR, Volume II, Section 5.3, potential jurisdictional wetland/aquatic resources may be present in and along Oil Creek and the Lake Pit. A determination of hydric soils would need to be made to confirm wetlands. Indirect impacts could result from increased visitation to the park and required maintenance to the proposed bioswale. Increased visitation may require additional changes to the project's proposed infrastructure. Project construction and operation may result in impacts to wetland habitat.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to jurisdictional wetland/aquatic resources in and along Oil Creek and the Lake Pit. Implementation of mitigation measures *BIO/mm-2.1* and *BIO/mm-3.1* would reduce potential impacts to wetland habitat as described in the EIR. As such, implementation of the mitigation measures is required to reduce impacts to less than significant.

Implement ***Mitigation Measures BIO/mm-2.1*** and ***BIO/mm-3.1***.

Basis for Finding. With the information available and gathered during the site visits, it is anticipated that Oil Creek and the Lake Pit may be subject to the jurisdiction of the California Regional Water Quality Control Board and CDFW. Oil Creek may also be regulated by the USACE under the CWA. Indirect impacts could result from increased visitation to the park and required maintenance to the bioswales. Increased visitation may require additional changes to the Recommended Project's infrastructure. Project

construction and operation may result in impacts to wetland habitat. Therefore, impacts could be *significant*.

<u>BIO Impact 5</u>: The Recommended Project could directly impact nesting birds during project construction and temporally impact nesting bird habitat during project operation. Impacts during construction and operation of the project could be significant. *(Final EIR, Volume II, pages 5.3-24 – 5.3-27 and pages 6-48 – 6-49)*

Wildlife corridors serve as essential links between separate patches of suitable habitat, bridging the gaps created by harsh landscapes, shifts in plant life, or human disruptions. As urban expansion fractures open spaces, it transforms them into isolated habitat "islands" for wildlife. Without these crucial connections facilitating access to adjacent open areas, research indicates that certain wildlife species, particularly larger and more mobile mammals, may not survive over the long term. Wildlife movements typically categorize into three types: (1) dispersal, such as young animals leaving their birthplaces or individuals expanding their territories; (2) seasonal migrations; and (3) routine activities within their home territory, including searching for food or water, territory defense, mate finding, breeding, or seeking shelter. While these movement behaviors vary by species, expansive open areas tend to support a wide range of wildlife, encompassing all movement types. Furthermore, these movements can occur on different scales, from localized non-migratory travels to the extensive regional journeys of large mammals.

The project site is not within an identified regional or wildlife corridor habitat linkage[9]; and, like most of urban Los Angeles, is identified as a Limited Connectivity Opportunity area in the CDFW Areas of Conservation Emphasis Terrestrial Connectivity Factsheet (CDFW 2024). The project area is located 8.5 miles west of Large Natural Habitat and 12 miles east of Irreplaceable and Essential Corridors in the Santa Monica Mountains. Since the project site is not identified as a linkage by the South Coast Wildlands and does not support habitat that connects two or more habitat patches that would otherwise be fragmented or isolated from one another, the project site is not considered a wildlife corridor. The project site supports limited potential live-in habitat and provides an ecological oasis or stop over site for local resident and migrating birds, within a heavily developed urban center.

The potential for terrestrial wildlife to move locally is constrained by the limited availability of resources, as well as physical barriers such as roads, buildings, and other human activity. The project site is bounded on all sides by urban development; 6th Street to the north, Curson Avenue to the east, Wilshire Boulevard to the south, and the Los Angeles County Museum of Art to the west. Wilshire Boulevard is particularly likely to limit wildlife movement as it is 76-feet wide and supports four lanes of traffic (City of Los Angeles 2016). Beyond the boundary, the project site is surrounded almost entirely by residential and commercial developments. However, the neighborhood directly to the north (Park La Brea), nearby parks and golf courses, and many of the surrounding streets have a relatively large density of landscape and street trees that can and would continue to support foraging and nesting birds.

The project site does not support the movement of wildlife on a regional level, nor is it recognized as a vital corridor for dispersal or seasonal migration. However, the site may provide refuge for transitory and migrating bird species, and the large network of street trees in the nearby area may enhance migration to open space areas in the surrounding regional hills and mountains. The site does not contain on-site drainage courses that would provide migratory fish movement since Oil Creek is not connected to other surface drainages. No impact would result to such resources during project construction or operation.

[9] South Coast Wildlands. 2008. South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion. Available at: http://www.scwildlands.org/reports/scmlregionalreport.pdf. Accessed March 2022.

Movement across the site occurs on a local scale for species that have adapted to urban settings, such as bats, birds, and rodents. Species that fly, including bats and birds, possess the capability to navigate over or bypass potential barriers to movement. In and around the project site, a variety of trees, shrubs, and vegetation offer suitable environments for these aerial species to roost, nest, and forage.

The site does not contain on-site drainage courses that would provide migratory fish movement since Oil Creek is not connected to other surface drainages. There is potentially suitable nesting bird habitat present on-site and within 500 feet of the project site boundaries in street trees and landscape vegetation. The nesting season is generally defined as January 1 to September 15. Construction conducted during this period could result in adverse impacts to nesting birds. Temporary impacts to nesting birds would result from the removal of existing mature trees and shrubs during project construction. Although more trees would be added than would be removed, it would take many years for newly installed trees to reach the size and structural complexity of existing trees.

During project operation, indirect impacts could result from increased visitation use to the park and required maintenance of updated park facilities during nesting bird breeding season. Indirect impacts may also include beneficial impacts from an overall increase in native trees and associated improvement of native habitat for local bird species. Additional and higher-quality habitat for wildlife would be incorporated into site design.

While project construction may initially decrease the number of birds on-site due to the proposed tree removals, bird occurrence is expected to increase over the long-term due to the proposed increase in native plant species on-site, which generally provide better quality resources (i.e., food, nesting sites, roosting sites, cover from predators) for native birds.

The birds present on-site are susceptible to collisions with the existing buildings within the project site and surrounding area. The proposed project would pose similar risks, as the exterior of the new museum building could largely consist of glass windows. Birds do not necessarily perceive glass as an obstacle due to its transparency and thus, are subject to collide with windows or other structures that reflect the sky, trees, or other habitat. Migratory birds are particularly susceptible to glass collisions because they are less familiar with their surroundings and are less likely to be aware of risks while being fatigued from migration. The extent of glazing on a building and the presence of vegetation opposite the glazing are two of the strongest factors in bird collision risk. The greatest risk of avian collisions with glazed facades is within 60 feet of the ground because this is the area in which most bird activity occurs (San Francisco Planning Department, 2011). As the maximum building height of the new museum is 60 feet, the entirety of the building is assumed to pose some risk for avian collisions. This risk would be greater along the building's west façade and the westernmost portions of the north and south facades as these areas are closest to Oil Creek and the proposed Pleistocene bioswale. This area currently supports a community of hydrophytic and riparian vegetation with native plant species most likely to support native birds.

To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing. Additionally, the façade of the new museum building and the renovated Page Museum would be constructed using nonreflective materials, consistent with the exterior materials of nearby buildings, as required by AES/mm-4.2. With adoption, these measures would reduce the potential for bird collisions with the new museum building and the renovated Page Museum.

With these considerations in mind, while some bird collisions may still occur, bird collisions are an unfortunate reality for virtually all buildings, the project design features described above would reduce the potential for bird collisions to the extent feasible. While this impact would be less than significant

without mitigation, the County is incorporating a mitigation measure to ensure that the above design feature would be adopted through the project's Mitigation Monitoring and Reporting Program.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to nesting birds and nesting bird habitat during both construction and operation. Implementation of mitigation measures *BIO/mm-5.1* and *BIO/mm-5.2* would reduce potential impacts to nesting birds as described in the EIR. As such, implementation of the mitigation measures is required to reduce potential impacts to less than significant. While the Recommended Project would not create a significant impact related to bird collisions, *BIO/mm-5.3* would provide for assurances that appropriate features would be integrated into new construction to reduce bird collision incidents.

***Mitigation Measure BIO/mm-5.1*:** To avoid impacts to nesting birds, one of the following measures (*BIO/mm-5.1a* or *BIO/mm-5.1b*) shall be implemented:

a. If possible, no vegetation trimming, pruning, removal, construction, or grading shall occur during the nesting and breeding season (January 1 through September 15).

OR

b. If activities associated with vegetation trimming, pruning, removal, construction, or grading are necessary during the bird nesting and breeding season (January 1 through September 15), the following measures shall be implemented:

- A qualified biologist shall conduct surveys for active nests weekly, beginning 14 days prior to initiation of any new construction activities, with the last survey conducted no more than 3 days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional pre-construction surveys should be conducted so that no more than 3 days have elapsed between the survey and ground-disturbing activities.
- Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. The size of the buffer zone shall be at the discretion of the qualified biologist and shall be no less than 25 feet. Raptors may require a larger buffer zone, up to 300 feet. Installation of the exclusionary material shall be completed by construction personnel under the supervision of a qualified biologist prior to initiation of construction activities. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by a qualified biologist. The barrier shall be removed by construction personnel only at the direction of the biologist.

***Mitigation Measure BIO/mm-5.2*:** New and replacement trees shall be 24-inch box specimen trees or larger to reduce temporary impacts to nesting birds.

Mitigation Measure BIO/mm-5.3: To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.

Basis for Finding. In conclusion, due to the presence of potentially suitable nesting bird habitat, the Recommended Project could directly impact nesting birds during project construction and temporally impact nesting bird habitat during project operation. Impacts could be *significant*.

BIO Impact 6: Removal, relocation, trimming, or replacement of the 13 protected oak trees on the project site during project construction and operation could potentially conflict with the County of Los Angeles Oak Tree Ordinance. Impacts during construction and operation of the Recommended Project could be significant. *(Finalt EIR, Volume II, pages 5.3-27 – 5.3-28 and pages 6-48 – 6-49)*

The County of Los Angeles Oak Tree Ordinance protects all oak trees, whether native (indigenous) or not (Title 22 Division 8 Chapter 22.174). There are 13 native oak trees on-site, and all meet the size criteria for protection under the ordinance (i.e., all 13 oak trees on-site are 8-inch dbh or larger). During both project construction and operation, it is possible that removal, relocation, trimming, or replacement of protected oak trees may be required.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to the removal, relocation, trimming, or replacement of 13 protected oak trees on the project site during construction and operation. Implementation of mitigation measures BIO/mm-6.1 and BIO/mm-6.2 would reduce potential impacts as described in the EIR. As such, implementation of the mitigation measures is required to reduce construction impacts to less than significant.

***Mitigation Measure BIO/mm-6.1*:** For oak trees within the project site that are to be retained in their current location, prior to construction, chain-link fencing shall be installed around the protected zone of the trees (5 feet beyond the dripline, the outermost extent of the tree's branches, or 15 feet from the trunk, whichever is greater). The fencing shall remain in place throughout the entire period of construction. Any excavation or grading allowed within the protected zone shall be limited to hand tools or small hand-powered equipment. This measure shall only apply to existing trees where the limits of construction work are within 20 feet of the protected zone.

In addition, one of the following measures (*BIO/mm-6.1a* or *BIO/mm-6.1b*) shall be implemented:

a. If possible, removal, relocation, trimming, or replacement of the oak trees at the Tar Pits site shall be avoided.

b. If modification (removal, relocation, trimming, or replacement) of protected oaks is required, coordination with the County of Los Angeles Department of Regional Planning shall occur prior to commencement of any work on-site. Any encroachment or removal requests must be reviewed by the County of Los Angeles Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Although an oak tree permit is not required, measures to mitigate for impacts to oak trees shall include the following:

    - Removed oak trees shall be mitigated by planting coast live oaks at a 2:1 ratio on the project site. Each replacement tree shall be at least a 15-gallon specimen.
    - The replacement oaks shall be monitored for a period of 5 years, with any failures resulting in a new oak being planted and initiation of a new 5-year monitoring period for the replanted tree.

***Mitigation Measure BIO/mm-6.2*:** A Plant Pest and Disease Management Plan shall be prepared prior to initiation of landscape planting and developed in consultation with an International Society of Arboriculture Certified Arborist. The Plant Pest and Disease Management Plan shall define methods to ensure new plant materials (container stock) are free of insect pests and diseases prior to delivery to the project site. Implementation of the Plant Pest and Disease Management Plan shall occur through

the life of the project; modification and adaptation may occur to ensure applicability and viability of the plan.

Basis for Finding. During both Recommended Project construction and operation, it is possible that removal, relocation, trimming, or replacement of protected oak trees may be required. However, because the Recommended Project is a County-led project, it is exempt from obtaining a permit under the ordinance. If oak tree removal is required during construction or operation of the Recommended Project, coordination with the County's Department of Regional Planning would be required prior to commencement of any work on-site. Any encroachment or removal requests shall be reviewed by the County's Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Impacts related to potential conflicts with the County of Los Angeles Oak Tree Ordinance during project construction and operation could be *significant.*

BIO Impact 8 (Cumulative Impacts[10]): During construction and operation, the Recommended Project has the potential to contribute considerably to cumulative impacts to biological resources. *(Final EIR, Volume II, pages 5.3-29 – 5.3-30 and pages 6-48 – 6-49)*

To consider the cumulative environment, SWCA's biological resources team examined the CEQA environmental analyses for other projects in the vicinity of the project site, including those for the three geographically closest projects:

- **Los Angeles County Museum of Art Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction.
- **Wilshire Curson Project:** Located approximately 0.03 mile southeast of the project site at 5700-5780 Wilshire Boulevard, 712-752 South Curson Avenue, 5721-5773 West 8th Street, and 715-761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of new buildings. The project is currently under environmental review.
- **Fairfax Avenue Apartments and Restaurant:** Located approximately 0.50 mile southeast of the project site at 800-840 South Fairfax Drive. The project includes residential and restaurant uses and is currently under environmental review.

It is noted here that in the independent CEQA analyses for each of these projects, impacts to biological resources were all found to be less than significant.

The project site is not within an identified wildlife corridor, and there are no USFWS-designated critical habitats within a 10-mile radius, no Habitat Conservation Plans, and no CDFW Natural Community Conservation Plans in the project vicinity (threshold f). Therefore, the project would not result in impacts related to conflict with any approved state, regional, or local habitat conservation plans. Accordingly, the project could not contribute to cumulative impacts related to this topic and it would not be cumulatively considerable when viewed in conjunction with related development projects.

The Recommended Project could result in significant construction and operation impacts to biological resource. The project could result in significant effects during the construction process on one species, the

[10] A cumulative impact to biological resources may occur if a project has the potential to collectively degrade the quality of the environment, substantially reduce wildlife species habitat, cause a population to drop below self-sustaining levels, thereby threatening to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal species.

federal candidate monarch butterfly, either directly or indirectly through habitat modifications (threshold a). The project also has the potential to adversely impact riparian habitat and/or aquatic resources in and along Oil Creek and at the Lake Pit and impact potentially designated jurisdictional wetland/aquatic resources during both construction and operation (thresholds b and c). In addition, the project site does support trees which could potentially provide suitable nesting bird habitat (threshold d). The removal and/or disturbance of trees during project construction could directly impact nesting birds during project construction and temporally impact nesting bird habitat through project operation. Lastly, the project may potentially conflict with the County's oak tree removal permit during both construction and operation due to the removal and/or relocation of 13 protected oak trees on-site (threshold e).

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts related to biological resources during both construction and operation as identified in the EIR. Implementation of mitigation measures *BIO/mm-1.1*, *BIO/mm-2.1*, *BIO/mm-3.1*, *BIO/mm-5.1*, *BIO/mm-5.2*, *BIO/mm-6.1*, and *BIO/mm-6.2* would reduce potential impacts to biological resources to less than significant.

> Implement ***Mitigation Measures BIO/mm-1.1***, ***BIO/mm-2.1***, ***BIO/mm-3.1***, ***BIO/mm-5.1***, ***BIO/mm-5.2***, ***BIO/mm-6.1***, and ***BIO/mm-6.2***.

Basis for Finding. For each identified impact, related mitigation measure(s) have been developed to address the project's construction and operation impacts to biological resources (i.e., *BIO/mm-1.1* through *BIO/mm-6.2*). These mitigation measures have been developed to address both impacts from temporary construction and long-term impacts from project operation. Although the CEQA analyses for the other development projects in close proximity to the project site noted above found that biological resource impacts would be less than significant, if the project were to be implemented without mitigation it may still contribute to a broader cumulative impact to the resources that the project could impact. Therefore, without mitigation, the Recommended Project could contribute significantly to cumulative biological resources impacts; these contributions could be considerable and, thus, *significant*.

6.4 Cultural Resources – Archaeological Resources

CR-ARCH Impact 1: During Recommended Project construction, the project could cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to State CEQA Guidelines Section 15064.5. Construction impacts could be significant. Operation of the Recommended Project would not cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur. *(Final EIR, Volume II, pages 5.4-13 – 5.4-19 and page 6-49)*

The project site contains LAN-159/H, which is eligible for the California Register of Historical Resources under Criterion 4 because it possesses sufficient archaeological data with the potential to contribute important information to history and it retains integrity. In addition to previously recorded resources within the project area, Phase 1 and Phase 2 investigations at the site determined that there is potential for previously undocumented cultural resources to be located within the project area (Millington and Dietler 2023).

The site also contains CHL No. 170 and P-19-171007, which is a stie eligible for the National Register of Historic Places and California Register of Historical Resources and is recognized for the historical importance of the fossil discoveries to the practice of paleontology in North America. Substantial aspects of the Recommended Project are aimed at furthering and enhancing what has been recognized in the CHL listing and National Register of Historic Places. This includes the status of La Brea Tar Pits as the locality

for significant Pleistocene fossils that remain preserved, are currently being recovered, curated, analyzed, and presented in professional and public settings. And it includes Hancock Park as the historical location of fossil excavations that had a significant influence on the field of paleontology and our understanding of the Pleistocene Epoch.

The construction of a new museum and outdoor facilities, renovation of the existing Page Museum and exhibits, and other components of the Recommended Project would enhance these very aspects of the park, both through its design and by providing additional facilities to conduct these activities. By maintaining open space for recreational uses in the areas adjacent to those dedicated to fossil excavation and analysis, these elements of the site's significance would continue to be conveyed to the public. Therefore, the Recommended Project would not result in a substantial change in the significance of CHL No. 170 and P-19-171007.

The project would result in renovation and upgrades throughout the Tar Pits complex, including the 13-acre portion of Hancock Park and the Page Museum. At the time of preparation of this report, final engineering, design, and grading plans for the Recommended Project had not been finalized. Because the project design is at a preliminary stage, the level of detail needed to determine the precise depth and extent of ground disturbance is not known. However, the level of design that has occurred to-date allows for a general characterization of the overall ground disturbance and excavation that would be necessary for the project. For impact assessment purposes, the design team for the project, working with the Los Angeles County Museum of Natural History Foundation and the County, estimates that, at most, the project would require excavations 6 to 10 feet below ground, potentially involving 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill.

Operation of the Recommended Project would not result in any ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, there is no potential to encounter, alter, or disturb archaeological resources.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen substantial adverse changes in the significance of an unknown archaeological resource pursuant to State CEQA Guidelines Section 15064.5 as identified in the EIR. Implementation of mitigation measures *CR-ARCH/mm-1.1* through *CR-ARCH/mm-1.4* would reduce potential impacts during the construction phase. As such, implementation of the mitigation measures is required to reduce these impacts to less than significant.

***Mitigation Measure CR-ARCH/mm-1.1*:** Retain a Qualified Archaeologist.

a. Prior to initiating any ground-disturbing activities, a Qualified Archaeologist shall be retained. A Qualified Archaeologist is defined as one who meets the Secretary of the Interior's (SOI) Standards for professional archeology and those defined for a Principal Investigator by the Society for California Archaeology (SCA). The qualifications shall be presented as part of a resume for at least one primary point of contact who will act in capacity as the Qualified Archaeologist but also other key staff who may serve in this role. The resume shall demonstrate their SOI and SCA qualifications and shall be subject to approval by the County.

b. Ground-disturbing activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The Qualified Archaeologist shall carry out and ensure proper implementation of the mitigation measures and regulatory compliance related to archaeological resources and, where appropriate, tribal cultural resources during the project. The Qualified Archaeologist shall be responsible for

establishing a meeting schedule with Page Museum curators and collections managers during implementation of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination.

c. No more than 21 days before ground-disturbing activities for the project commence, the Qualified Archaeologist shall submit a letter confirming that they have been retained consistent with the terms of the CR-ARCH/mm-1.1 and attach the professional resumes for all staff who may be acting in the capacity of the Qualified Archaeologist.

***Mitigation Measure CR-ARCH/mm-1.2*:** Prepare an Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan).

a. Prior to commencing ground-disturbing activities, an AR-TCR Management Plan shall be prepared by the Qualified Archaeologist and submitted to the Page Museum curators and the NHMLAC Curator of Anthropology, who shall review and approve the AR-TCR Management Plan on behalf of the County. The AR-TCR Management Plan shall be prepared in conformance with Public Resources Code Section 5024.1, Title 14 California Code of Regulations, Section 15064.5 of the CEQA Guidelines, and Public Resources Code Sections 21083.2 and 21084.1.

b. The AR-TCR Management Plan[11] shall include but not be limited to the following elements:

   i. Historical context statement, research design, the specific types of archaeological sites likely to be encountered.

   ii. Construction worker training program (described in *CR-ARCH/mm-1.3*).

   iii. Monitoring protocol for ground-disturbing activities that includes a framework for assessing the geoarchaeological setting to determine whether sediments capable of preserving archaeological remains are present in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment and include a protocol for identifying the conditions under which additional or reduced levels of monitoring (e.g., spot-checking) may be appropriate. The duration and timing of the monitoring shall be determined based on the rate of excavation, geoarchaeological assessment, and, if present, the quantity, type, and spatial distribution of archaeological resources identified.

   iv. Limited program of archaeological presence/absence testing within naturally deposited asphaltic or non-asphaltic alluvial sediments before they are mechanically excavated. In particular, the area of the new museum, promenade, and parking lot expansion shall be further investigated. These investigations shall be conducted via a combination of archaeological units, hand tools, and mechanical trenching.
   The methods used to conduct the limited archaeological testing shall be coordinated with contractors to ensure that sufficient time is afforded to evaluate the significance any identified resources, and if they are found to be significant, time to develop and implement a treatment plan appropriate to the type of resource. The timing of any such efforts shall be conducted in localized areas so that delays to project earthwork activities are minimized while allowing archaeological materials to be identified in a manner that retains the scientific integrity of the discovery.

[11] CR-ARCH/mm-1.2b would require preparing an Archaeological Resource-Tribal Cultural Resource Management Plan (AR-TCR Management Plan) that provides a framework and protocol by which additional measures for archaeological and tribal cultural resources would be implemented, as well as a procedure to follow if a resource is determined to satisfy significance criteria. Additional details regarding the AR-TCR Management Plan are provided in Final EIR, Volume II, Section 5.4.

v. An approach to evaluate newly identified site components, if applicable, as contributors to the significance of LAN-159/H as a "historical resource" pursuant to CEQA Guidelines Section 15064.5(a) or a "unique archaeological resource" pursuant to Public Resources Code 21083.2(g). If any archaeological resources are identified and are found not to be significant or do not retain integrity, then they shall be recorded to a level sufficient to document the contents and condition.

vi. Potential treatment plans to be implemented in the event a newly discovered archaeological resource is determined by the Qualified Archaeologist to contribute to the significance of the site as a historical resource based on California Register of Historical Resources criteria or a unique archaeological resource in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. The AR-TCR Management Plan shall require that if the treatment plans outlined therein are found to be infeasible or other alternatives are proposed, the Qualified Archaeologist shall coordinate with the project proponent and the County to amend the AR-TCR Management Plan with a formal treatment plan that would reduce impacts to the resource(s). The treatment plans stated in the AR-TCR Management Plan or prepared after the discovery of a historical resource, shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment and if it is determined avoidance is not feasible, treatment may include but not be limited to any of the following depending on the type of resource and the significance evaluation:

- Native American archaeological site components. Data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant where significance is determined under California Register of Historical Resources Criterion 4 or as a unique archaeological resources and integrity is retained. Additional treatment measures to mitigate potentially significant impacts to the component as a tribal cultural resource, which is to be carried out in consultation with the Tribal Consultants and after considering the status of the discovery as a tribal cultural resource.
- Historical archaeological site components. If a historical archaeological component of the site is present and found to retain integrity, data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant.

vii. Discovery and processing protocol for inadvertent discoveries of archaeological resources that are encountered when an Archaeological Monitor is not present.

viii. A process by which recovered materials will be prepared for curation at the Page Museum or the Research and Collections Department at the Natural History Museum of Los Angeles County, as directed by Page Museum curators and collections managers, and in consultation with Tribal Consultants. The curation shall ensure their long-term preservation and allow access to interested scholars and shall be done at the expense of the County and/or the Foundation. If the materials are Native American in origin or any item of cultural patrimony, the manner of their handling and long-term curation may require additional consultation with the appropriate Native American community that shall be determined as part of a tribal consultation process to be conducted by the County who shall be responsible for the disposition of these materials.

ix. The AR-TCR Management Plan shall summarize the requirements for tribal coordination during in the event of an inadvertent discovery of Native American archaeological resources, including the applicable regulatory compliance measures or conditions of approval for the inadvertent discovery of archaeological resources to be carried out in concert.

***Mitigation Measure CR-ARCH/mm-1.3*:** Conduct an archaeological awareness training.

a. The Qualified Archaeologist or a designee working under their direction shall provide training to on-site project personnel who are responsible for overseeing ground-disturbing activities (i.e., a foreman or site supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The training shall brief the crews on the regulatory compliance requirements and applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of archaeological resources. As an element of the worker training, the Qualified Archaeologist or their designee shall advise the construction crews on proper procedures to follow if an unanticipated archaeological resource is discovered during construction, including the authority of Archaeological Monitor(s) to temporarily halt or redirect work away from such a discovery. Workers shall be shown examples of the types of archaeological resources that would require notification of the archaeologist, if encountered. The workers shall be provided with contact information for the Qualified Archaeologist and their designee(s) as part of a brief handout summarizing the critical components of the training. Once the ground-disturbing activities have commenced, the need for additional or supplemental worker trainings shall be determined by the Qualified Archaeologist based upon consultation with project personnel.

b. Within five days of completing each training, a list of those in attendance shall be provided by the Qualified Archaeologist to a point of contact designated by the Museum of Natural History.

***Mitigation Measure CR-ARCH/mm-1.4*:** Monitoring for Archaeological Resources.

a. At least one Archaeological Monitor working under the direction of the Qualified Archaeologist shall be present during ground-disturbing activities to implement the AR-TCR Management Plan. The Archaeological Monitor shall have the authority to temporarily halt or redirect construction activities when an archaeological resource, suspected resource, or archaeologically sensitive sediments are encountered, as determined by the Qualified Archaeologist in consultation with the Page Museum curators. The presence/absence testing protocol shall be implemented within the asphaltic alluvial sediments that have elevated archaeological sensitivity as stipulated in the AR-TCR Management Plan and conducted in concert with Tribal Monitors and applicable tribal cultural measure measures. The Qualified Archaeologist and Archaeological Monitor shall document the results of the presence/absence testing and allow ground-disturbing activities to proceed in the sediments with archaeological sensitivity once the archaeological and tribal monitors have confirmed the absence of resources. The Archaeological Monitor shall continue to monitor the ground-disturbing activities with the depths assessed by the presence/absence testing. Once the Archaeological Monitor identifies sediments or depths of excavation that are not capable of containing or are unlikely to contain archaeological resources, a corresponding reduction of monitoring coverage would be appropriate, and may be recommended by the Qualified Archaeologist. The Archaeological Monitor shall complete a daily written log documenting construction activities and observations, which shall be included in the final report. The number of Archaeological Monitors shall be determined by the County, based on the scale of ground-

disturbing activities and a reasonable degree of effort required to implement the mitigation measures.

b. In the event that potentially significant archaeological resources are exposed during construction, work in the immediate vicinity of the find (within 8 meters [25 feet]) shall stop until the Qualified Archaeologist can evaluate the significance of the find, with input from the tribal monitor if the discovery is affiliated with Native Americans and is also being assessed as tribal cultural resources. Construction activities may continue in other areas in coordination with the Qualified Archaeologist and, if applicable, tribal monitors.

c. At the conclusion of all ground-disturbing activities the Qualified Archaeologist shall prepare a technical report documenting the methods and results of all work completed under the AR-TCR Management Plan, including, if any, treatment of archaeological materials, results of artifact processing, analysis, and research, and evaluation of the resource(s) for the California Register of Historical Resources. The format and content of the report shall follow the California Office of Historic Preservation's Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. Any archaeological resources identified shall be documented on appropriate California Department of Parks and Recreation 523-Series Forms. The report shall be prepared under the supervision of a Qualified Archaeologist and submitted to curators of the Page Museum for initial review (on behalf of the Museum of Natural History, as the County departmental unit), and final copies shall be submitted to the County. The report shall be completed with 12 months of completion of the monitoring, unless other arrangements are required, as documented in writing and approved by the County, given the nature of the discovery, in which case a revised date can be determined through consultation with the Museum of Natural History. The final draft of the report shall be submitted to the South Central Coastal Information Center and the Tribal Consultants.

Basis for Finding. Ground-disturbing activities would have the potential to disturb LAN-159/H as well as unknown associated archaeological components of the site that may be present within the area of disturbance. Based on the above analysis, the Recommended Project's construction impacts could be *significant*.

CR-ARCH Impact 2: Construction of the Recommended Project could disturb previously unidentified human remains if present within the project site. Construction impacts could be significant. Operation of the Recommended Project would not disturb any human remains, including those interred outside of formal cemeteries. No operational impacts would occur. *(Final EIR, Volume II, pages 5.4-19 and page 6-49)*

The project site contains LAN-159/H, which includes but is not limited to the partial skeletal remains of a female Native American dated to approximately 10,000 before present (B.P.) As previously described, the Recommended Project is anticipated to require ground disturbance over the 13-acre site, including approximately 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill with excavations 6 to 10 feet below ground.

Operation of the Recommended Project would not result in ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, there is no potential to disturb any human remains, including those interred outside of formal cemeteries.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to construction of the project disturbing previously unidentified human remains present within the project site as identified in the EIR. Implementation of mitigation measures *CR-ARCH/mm-1.1*

through *CR-ARCH/mm-1.4* would reduce potential disturbance impacts during construction activities. As such, implementation of the mitigation measures is required to reduce these impacts to less than significant.

Implement ***Mitigation Measures CR-ARCH/mm-1.1*** through ***CR-ARCH/mm-1.4***.

Basis for Finding. The project site contains LAN-159/H, which includes but is not limited to the partial skeletal remains of a female Native American dated to approximately 10,000 B.P. The Recommended Project is anticipated to require ground disturbance over the 13-acre site. While discovery of human remains is only known to occur with the one incident of skeletal remains of the female woman noted, proposed ground-disturbing activities would have the potential to disturb additional human remains, if present. Therefore, impacts could be *significant*.

CR-ARCH Impact 3 (Cumulative Impacts[12]): Construction of the Recommended Project could result in significant contributions to cumulative impacts related to the disturbance and destruction of archaeological resources pursuant to State CEQA Guidelines Section 15064.5, and human remains. Cumulative construction impacts could be significant. No operational impacts would occur. *(Final EIR, Volume II, pages 5.4-19 – 5.4-21 and page 6-49)*

Archaeological resources are nonrenewable, irreplaceable, and inherently important to the public, including Native American descendants, and their destruction prevents further study of past lifeways and history. Projects that could be developed in the northwestern Los Angeles Basin include the development projects listed in Final EIR, Volume II, Chapter 4, Environmental Setting, as well as additional development projects beyond the geographical limit of the cumulative project listing in Chapter 4. The continued development of projects in the northwestern Los Angeles Basin, particularly those for land development and transportation, would have the potential to result in a cumulative impact associated with the loss of archaeological resources. Given the potential for archaeological resources within the northwestern Los Angeles Basin and the number of construction activities that involve disturbance of archaeologically sensitive areas, cumulative impacts to archaeological resources, including the disturbance of human remains, could occur through physical demolition, destruction, relocation, or alteration of a resource such that the significance of the historical resource would be materially impaired.

Operation of the project would not result in any ground-disturbing activities such as grading or excavation outside of existing research sites; therefore, there is no potential to encounter, alter, or disturb archaeological resources. No impact would occur during project operation.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts related to the disturbance and destruction of archaeological resources pursuant to State CEQA Guidelines Section 15064.5, and human remains. Implementation of *mitigation measures CR-ARCH/mm-1.1* through *CR-ARCH/mm-1.4* would reduce potential impacts as described in the EIR. As such, implementation of the mitigation measures is required to reduce construction impacts to less than significant.

Implement ***Mitigation Measures CR-ARCH/mm-1.1*** through ***CR-ARCH/mm-1.4***. These measures put forward a process that ensures any new archaeological resources or new components of existing historic resources would be identified, inventoried, and evaluated as contributors to the historical

[12] For the purposes of the EIR analysis, the geographic context for cumulative impacts to archaeological resources is defined as the northwestern Los Angeles Basin—approximately the area west of the Los Angeles River, south of the Santa Monica Mountains, east of the Pacific coastline, and north of the Palos Verde Peninsula. A more detailed description of the geographic context is provided in Final EIR, Volume II, Section 5.4.

significance of the resource, and treated appropriately if found to be a contributing element, which incorporates input from culturally and geographically affiliated California Native American tribes.

Basis for Finding. Prior to the implementation of the mitigation measures outlined previously in this section, because the Recommended Project has the potential to contribute to the loss of archaeological resources that could combine with impacts from past, present, and reasonably foreseeable projects, the project's contribution toward cumulative effects on archaeological resources could be *significant* if these mitigation measures were not required to address the potential for direct impacts and the potential for project contributions to cumulative impacts.

As provided in the impacts analysis in Final EIR, Volume II, Section 5.4.5, a series of mitigation measures have been developed to address the project's potential for impacts to archaeological resources. These mitigation measures have been developed to not only address direct impacts of project implementation, but also to address the project's contribution to cumulative archaeological resource impacts. Implementation of *Mitigation Measures CR-ARCH/mm-1.1* through *CR-ARCH/mm-1.4* provide for retention of a qualified archaeologist, cultural resources sensitivity training, development of a cultural resources monitoring and mitigation plan, archaeological monitoring, and treatment of unanticipated discoveries, which would ensure that significant archaeological impacts, both direct and contributions to cumulative impacts, would be reduced to less than significant with mitigation. Taken together, implementation of these mitigation measures would ensure that the Recommended Project would have less than significant impacts related to archaeological resources, including the disturbance of human remains, and would address the Recommended Project's potential for significant contributions to potential cumulative archaeological impacts in the northwestern Los Angeles Basin.

6.5 Geology and Soils

GEO Impact 3: The Recommended Project could cause geologic instability at the project site related to subsidence as well as compressible and collapsible soils during project construction and operation. Impacts during construction and operation could be significant. *(Final EIR, Volume II, pages 5.6-20 – 5.6-22 and page 6-52)*

As indicated in Final EIR, Volume II, Section 5.6, geologic instability at the project site resulting from project activities as they relate to landslides, liquefaction, and lateral spreading is not anticipated due to both the relatively minimal change in elevation throughout and adjacent to the project site, as well as the stiff and dense nature of the on-site subsurface materials. *No impact* would occur during either project construction or operation related to landslides, liquefaction, and lateral spreading. However, implementation of the project would occur on soils susceptible to subsidence and/or compressible and collapsible soils, as such, an analysis of these potential impacts is detailed in the EIR and summarized below.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to geologic instability at the project site related to subsidence as well as compressible and collapsible soils as identified in the EIR. With implementation of mitigation measures *GEO/mm-3.1 and GEO/mm-3.2*, geologic instability levels would be reduced to less than significant.

***Mitigation Measure GEO/mm-3.1*:** To prevent subsidence of the ground surface within the project site, temporary dewatering shall be required during construction for excavations which extend below the existing groundwater level (i.e., greater than 10 feet below ground surface), anticipated for deepest excavations associated with the proposed Page Museum one-story addition, as excavations

will be required for construction of the proposed mat foundation and associated new utility placement. Dewatering activities shall be conducted as follows:

a. Dewatering shall be performed prior to excavation. Temporary dewatering shall be performed during the construction stage, prior to beginning any excavation which will extend beneath the groundwater. The Construction Contractor shall decide the proper timeline which will permit a dry environment for the excavation work and prevent water seepage into the excavation.

b. The design of a temporary dewatering system shall be performed by an experienced, qualified dewatering contractor. Prior to proceeding with the actual design of the dewatering system, a test installation shall be constructed to verify the design's effectiveness.

c. The dewatering system shall be designed to lower the site groundwater sufficiently to permit a dry environment and to prevent water seepage from the temporary perimeter cut slopes. The design shall balance the soil conditions with well spacing and well depth. Recommendations for well design provided in the project's Geology and Soil Discipline Report shall be incorporated into the final design of the dewatering system, including:

    - Installation of relatively closely spaced wells around the excavation perimeter, referred to as well points
    - Wells shall include perforated casing with annular space filled with suitable filter material
    - Well points shall extend past the depth of proposed excavation
    - Elements of current dewatering system within the Lake Pit shall be incorporated, including collection piping, sump pumps, a sand-oil separator device, and a micro-filter device. In addition, separator and filter devices shall be considered for temporary dewatering pumps to help maintain the system's efficiency and increase the amount of time prior to the pumps being plugged up with tar.

d. Groundwater shall be pumped from the tar sands and is anticipated to contain a relatively high percentage of tar. The tar shall be removed, and the groundwater treated in accordance with all applicable regulatory requirements prior to disposal.

***Mitigation Measure* GEO/mm-3.2:** To ensure proper design and stability of structures to be constructed on existing artificial fill or upper alluvial soils, the excavation and replacement of existing compressible materials within the areas of the proposed improvements shall be required. Excavation and replacement shall consist of complete removal of artificial fill and/or compressible surficial alluvial soil beneath the areas of the proposed improvements and replacement with compacted structural fill, with an anticipated artificial fill depth ranging between 1 and 8 feet below ground surface based on review of existing explorations performed within or adjacent to the project site. This value will be confirmed after completion of subsurface explorations during the final geotechnical design to further characterize the subsurface conditions underlying the improvement areas (i.e., compressibility of the soft layers and the depth to firm material). Due to the anticipated soil contamination, on-site soils are not anticipated to be suitable for reuse as fill material and shall be exported for proper remediation and disposal in accordance with all applicable regulatory requirements. The final engineering design of the structures included in the project shall be reviewed and approved by the Los Angeles County Department of Public Works, Building and Safety Division.

Basis for Finding. Subsidence. Subsidence of the ground surface within the project site could be caused by the removal of groundwater and/or petroleum from subsurface sources. As previously discussed, the project site is located in the southern part of the Salt Lake Oil Field and is subject to naturally occurring

tar (petroleum) seeps. Based on research conducted in support of the Geology and Soil Discipline Report, there is no existing documentation indicating subsidence has occurred due to removal of petroleum at the project site. Similarly, no evidence of subsidence from groundwater pumping at the project site has been documented. Therefore, potentially damaging subsidence from extraction of groundwater and/or petroleum during construction or operation of the structures is unlikely. However, due to the possibility of tar seeps occurring throughout the project site, impacts related to subsidence during construction and operation of the Recommended Project could be *significant*.

Compressible and Collapsible Soils. Compressible soils are soils which undergo consolidation when subject to a new load, such as a structure load or fill placement. Collapsible soils are soils which significantly decrease in volume when they are wetted and experience an increase in moisture content, regardless of whether a new load is placed on them. Compressible or collapsible soils can lead to excessive settlement distress for structural improvements.

Artificial fill that was not engineered and the near-surface alluvial deposits may be weak and compressible and/or collapsible, particularly with the addition of water. The existing artificial fill present within the project site may not be suitable to support foundations, slabs on grade, paving, or new compacted fills. Furthermore, the surficial alluvial deposits may not be suitable for supporting building loads. Using the existing artificial fill or upper alluvial soils for load support during project construction could result in potential significant impact for the structures once built, as it could lead to structural distress due to total or differential settlement during operation of the project. Impacts related to compressible and collapsible soils during construction and operation of the Recommended Project could be *significant*.

<u>GEO Impact 4</u>: The project site is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating a potentially significant risk to life and/or property during construction and operation of the Recommended Project. Impacts could be significant. *(Final EIR, Volume II, pages 5.6-22 – 5.6-23 and page 6-52)*

Expansive soil occurs when clay particles of certain mineralogy interact with water, causing a volume change. Clay soil may swell with increasing moisture content and contract when dried. This phenomenon generally decreases in magnitude with increasing confining pressure at depth. These volume changes may damage spread footings, grade beams, floor slabs, pavement, and other shallow improvements.

<u>Finding: Less than significant with mitigation</u>. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to risk of life and/or property during project construction and operation as identified in the EIR. With implementation of mitigation measure *GEO/mm-4.1*, geologic instability resulting from development on expansive soils would be reduced to less than significant.

> ***Mitigation Measure GEO/mm-4.1*:** To address impacts related to expansive soils within the project site, additional expansion testing shall be required as part of the final geotechnical design for the project. Based on the outcome of the additional expansion testing, one or more of the following options shall be implemented to address expansive soils:
>
> a. Over-excavation: Over-excavation and replacement of the expansive material with a soil having low or non-expansive potential, with the upper 2 feet of expansive soil (where encountered at the site) being removed and replaced with non-expansive fill.
>
> OR
>
> b. Soil Treatment: Chemical treatment, such as lime treatment. This generally involves mixing a certain percentage of the chemical into the subgrade soil, compacting the mixed soil-chemical

material, and then allowing the material curing time prior to continuing construction. The percentage of the chemical addition and the associated engineering properties of the improved soil will need to be determined through geotechnical laboratory testing. If chosen, the final geotechnical design shall provide design and construction recommendations related for this option.

OR

c. Structural Design: The structural design option would involve increasing the bearing pressure on the soil and/or extending the foundation or flatwork depth. However, while increasing the bearing pressure reduces the potential impact from expansive soil, it does increase the potential impact associated with excessive settlement. If this option is elected, settlement evaluation shall be performed as part of the final geotechnical design and based on the proposed loading conditions. Loading conditions shall be limited to a maximum differential of 1 inch over a 20-foot span within the structure.

The final design solution will be determined by the project engineer consistent with the above measures. The final engineering design of the structures included in the project shall be reviewed and approved by the Los Angeles County Department of Public Works, Building and Safety Division.

Basis for Finding. As stated in the Geology and Soil Discipline Report, the upper clay soils within the existing artificial fill and alluvium are subject to expansion and shrinkage resulting from changes in the moisture content. Review of existing data available for the project site confirmed the presence of moderately to highly expansive soil on-site, posing a potential significant impact to lightly loaded foundation elements and flatwork (e.g., sidewalks, driveways). Therefore, impacts related to expansive soils during construction and operation of the Recommended Project could be *significant*.

GEO Impact 6: Given the high paleontological sensitivity of the project site, ground-disturbing activities associated with construction of the Recommended Project could damage paleontological resources that may be present below the surface. Construction impacts could be significant. Operation of the Recommended Project would not directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature. No operational impacts would occur. *(Final EIR, Volume II, pages 5.6-24 – 5.6-27 and page 6-52)*

The analysis provided in the Paleontological Resources Technical Report (Final EIR, Appendix F) indicates the project site has historically yielded millions of significant fossils and the entirety of Hancock Park, including the project site, contains a veneer of artificial fill overlying older alluvium that is subsequently underlain by the San Pedro Sand and Fernando Formation at greater depths, each having high paleontological sensitivity and high potential for producing significant paleontological resources (SWCA 2023). Specifically, recent artificial fill and reworked sediments originating from within the project site have a high potential to produce significant paleontological resources. Additionally, asphalt deposits seeping from the underlying geologic units to the surface through the artificial fill may contain fossils, albeit to lesser degrees than the underlying older alluvium. The thickness of fill and disturbed sediments likely varies across the site but may extend as deep as 8 feet bgs in some areas, or as shallow as 3 feet bgs in others. Generally, older alluvium, San Pedro Sand, and Fernando Formation have high paleontological potential throughout their extents within the Los Angeles Basin, and within the project site. Artificial fill or previously disturbed sediments also have a high paleontological potential. Regardless of the site's stratigraphy, asphalt pools, seeps, and chimneys have yielded a substantial proportion of the fossils recovered from Hancock Park, particularly in the uppermost 40 feet of sediments.

Given the high paleontological sensitivity of the project site, paleontological resources may be impacted by construction or implementation of the Recommended Project regardless of depth of grading and/or

excavation activities, since all ground-disturbing activities associated with the construction of the Recommended Project have the potential to impact asphalt seeps containing aggregates of fossils.

Operation of the Recommended Project would not result in any ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, project operation would not directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to ground-disturbing activities associated with project construction that could damage paleontological resources that may be present below the surface as identified in the EIR. With implementation of mitigation measures *GEO/mm-6.1* through *GEO/mm6-5*, damage to paleontological resources would be reduced to less than significant.

***Mitigation Measure GEO/mm-6.1*:** Retain a Qualified Professional Paleontologist (Project Paleontologist): Prior to the start of construction and/or ground-disturbing activities, the Los Angeles County Museum of Natural History Foundation, at the direction of the County, shall retain a Qualified Professional Paleontologist (Project Paleontologist) who meets or exceeds the professional standards defined by the SVP (2010), and who has specific experience overseeing mitigation projects in Pleistocene deposits of the Los Angeles Basin. The SVP (2010:10) defines a qualified professional paleontologist as: "a practicing scientist who is recognized in the paleontological community as a professional and can demonstrate familiarity and proficiency with paleontology in a stratigraphic context." The Project Paleontologist shall have a graduate degree in paleontology or geology, and/or a publication record in peer reviewed journals; have demonstrated competence in field techniques, preparation, identification, curation, and reporting; have at least 2 full years of professional experience as assistant to a qualified professional paleontologist with administration and project management experience (supported by a list of projects and referral contacts); have proficiency in recognizing fossils in the field and in determining their significance; have expertise in local geology, stratigraphy, and biostratigraphy; and have experience collecting vertebrate fossils in the field (SVP 2010). The Project Paleontologist and Page Museum curators and collections managers shall meet weekly during scheduled ground-disturbing activities associated with the construction of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination. The Project Paleontologist shall oversee all regulatory compliance measures, shall oversee mitigation protocols related to paleontological resources, and shall be a point of contact for the Page Museum curators and County officials. A professional resume or curriculum vitae of the Project Paleontologist shall be submitted to the County for approval prior to the start of ground-disturbing activities.

***Mitigation Measure GEO/mm-6.2*:** Prepare a Paleontological Resources Management Plan: After finalization of the engineering, design, and grading plans for the project and prior to the start of preconstruction ground-disturbing activities, a Paleontological Resources Management Plan (PRMP) shall be prepared by the Project Paleontologist and submitted to the Page Museum curators, who shall review and approve the final PRMP on behalf of the County. The PRMP shall define the processes and procedures for paleontological monitoring and fossil excavation based on the nature of ground-disturbing activities required for project. The PRMP shall:

a. Incorporate the results of the Paleontological Resources Technical Report (SWCA 2023), the final geotechnical investigation, and the final engineering/grading plans for the project.

b. Require all construction personnel to attend a Worker Environmental Awareness Program (WEAP) training to be presented by the Project Paleontologist, or their designee.

c. Define the processes and procedures for coordinating and communicating with responsible parties and stakeholders (including but not limited to the contractors, consultants, County

officials, and the Page Museum curators and collections managers), when construction activities would be halted due to discovery and subsequent salvage efforts during ground-disturbing activities, and when regularly scheduled meetings between the Project Paleontologist and the Page Museum curators and collections managers would be required.

d. Outline a procedure whereby mechanical excavation is conducted to remove any non-fossil-bearing sediments or soils subject to environmental soil remediation, such that adequate time is afforded to identify fossil localities and to conduct scientific salvage operations to a feasible extent (see Millington and Dietler 2023); the timing of scientific fossil salvage operations during initial grading should be given special considerations in the PRMP such that delays to earthwork activities are minimized while allowing paleontological material to be salvaged at an acceptable level that retains the scientific integrity of the discoveries.

e. Require full-time paleontological monitoring by qualified paleontological monitors who meet the standards of the SVP (2010) and shall be supervised by the Project Paleontologist; qualified paleontological monitors shall have the authority to temporarily halt construction activities to record and salvage fossil discoveries as they are unearthed to allow for potentially significant fossils to be collected with their scientific integrity intact to the extent feasible and practical.

f. Discuss unanticipated fossil discovery and communication protocols if paleontological resources are discovered by non-paleontology staff working on the project in instances where paleontological monitors are documenting or recording paleontological resources discovered elsewhere within the project site.

g. Discuss feasible monitoring procedures for each of the different ground-disturbing activities, including but not limited to active observation or inspection of sediments during active ground disturbances, whether they be trenching, grading, excavating, drilling, or some other activity that disturbs sediments; inspection of sedimentary spoils spiles or cuttings, as well as backfill originating from Hancock Park that may contain asphaltum or fossil material; and/or matrix screening of spoils for small or microfossils as needed.

h. Define fossil salvaging procedures, including but not limited to outlining the treebox method for asphaltum bearing large accumulations of fossils, salvaging of isolated fossils, matrix screening in the field for microfossils, and chain-of-custody procedures for transferring the fossil discoveries to the Page Museum curators or collection managers as they are exhumed from the project site. Because of the unique conditions of La Brea Tar Pits and the chemical considerations of working with asphaltum fossil deposits, any paleontological resource discoveries shall remain on-site with the Page Museum. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities.

i. Require the Project Paleontologist to prepare a report of the findings of the monitoring efforts within 90 days after construction is completed.

Mitigation Measure GEO/mm-6.3**:** Conduct Worker Training: The Project Paleontologist shall develop and present a WEAP training to educate the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of an unanticipated fossil discovery. This training program shall be given to the crew before ground-disturbing work commences and shall include handouts to be given to new workers as needed.

Mitigation Measure GEO/mm-6.4**:** Monitor for Paleontological Resources: Full-time monitoring shall be required during all ground-disturbing activities (including artificial fill or previously disturbed sediments), regardless of depth. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations,

including but not limited to the paleontological screening of tar sands prior to disposal or treatment. Procedures and protocols for paleontological monitoring and fossil salvage shall be outlined in the PRMP. Monitoring shall:

a. Be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist, who shall coordinate with the Page Museum curators and collections managers and County officials. The Project Paleontologist may periodically inspect construction activities to recommend adjusting the level of monitoring in response to subsurface conditions; however, modifications, such as increasing, reducing, or ceasing of paleontological monitoring, or any changes of the implementation of the PRMP, should be approved by Page Museum curators and the County.

b. Include inspection of exposed sedimentary units during active excavations, grading, tar sand removal, and any other ground-disturbing activity that has the potential to impact sediments capable of preserving significant fossils. The Page Museum curators (or their representatives) and the paleontological monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, shall the fossils be determined significant or likely significant, professionally and efficiently recover the fossil specimens and collect associated data while minimizing delays. Data collection procedures may require the support of construction contractors to carefully and efficiently collect field data and extract the fossils to allow construction to continue.

c. Require grading and earthwork contractors to follow the guidance of Page Museum staff or the Project Paleontologist regarding the collection and/or extraction of paleontological resources. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be directly retained by the Page Museum for later analysis, laboratory preparation, and eventual curation if deemed significant or important by the Page Museum curators or collection managers.

***Mitigation Measure GEO/mm-6.5*:** Prepare a Paleontological Resources Monitoring Report: Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing the implementation of the PRMP, including paleontological monitoring and fossil salvaging, shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Page Museum and the Research and Collections Department at the Natural History Museum of Los Angeles County within 90 days after construction is completed. If the project is developed in phases, the final report is only necessary at the completion of the last phase to be constructed. At the discretion of the County, if there are unanticipated gaps in the phases of construction or other reasons why the County would prefer phased final reports, multiple final reports could be prepared.

Basis for Finding. Any fossils encountered during ground-disturbing activities could be at risk for damage or destruction from such activities depending on the nature of the fossil encountered. Therefore, impacts related to paleontological resources during construction of the Recommended Project could be *significant*.

<u>GEO Impact 7 (Cumulative Impacts[13])</u>: The Recommended Project would not result in significant contributions to cumulatively considerable impacts related to geotechnical or soils-related hazards; however, the project could result in significant contributions to cumulatively considerable impacts related to paleontological resources during construction. No impacts would occur during project operation. *(Final EIR, Volume II, pages 5.6-27 – 5.6-28 and page 6-52)*

With the adherence to the applicable regulations of 2020 CLABC (and future updates to the building code, when they occur) and any site-specific recommendations set forth in a site-specific final geotechnical design evaluation, and the requirement that projects in the surrounding city of Los Angeles adhere to the City of Los Angeles Building Code, the project and related projects would not result in significant impacts related to geological and soil conditions. As such, the project's contribution to geotechnical or soils-related hazards would not be cumulatively considerable.

However, in specific consideration of paleontological resources, future and nearby development projects with the potential for substantial excavation would be subject to environmental review, but each of these development projects in the area could result in incremental impacts to paleontological resources that, when viewed together, could be considered cumulatively considerable.

Operation of the project would not result in any ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, project operation would not contribute to impacts to paleontological resources.

<u>Finding: Less than significant with mitigation</u>. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts to paleontological resources as identified in the EIR. Implementation of mitigation measures *GEO/mm-6.1* through *GEO/mm-6.5* would reduce potential impacts as described in the EIR. As such, implementation of the mitigation measures is required to reduce these impacts to less than significant.

Implement ***Mitigation Measures GEO/mm-6.1*** through ***GEO/mm-6.5.***

<u>Basis for Finding</u>. As addressed in the direct impact analysis, the Recommended Project has the potential to disturb geological units that are conducive to retaining paleontological resources. If not mitigated, the potential for the loss, alteration, and destruction of the paleontological resources at the project site would be considered significant contributions to cumulative paleontological resource impacts. Therefore, the project could result in *significant* contributions to cumulative paleontological impacts.

Because of the potential for significant impacts on paleontological resources resulting from the project, *Mitigation Measures GEO/mm-6.1* through *GEO/mm 6.5* are required. These measures include retention of a qualified paleontologist, paleontological resources sensitivity training, paleontological resources monitoring, and treatment and curation of discoveries, if encountered. Implementation of these measures would reduce the potential for adverse effects on fossil resources individually and cumulatively and would preserve and maximize the potential of these resources to contribute to the body of scientific knowledge.

[13] Due to the site-specific nature of geological conditions, geological impacts are typically assessed on a project-by-project basis, rather than on a cumulative basis. Nonetheless, cumulative growth in the surrounding area, and other future development projects would be subject to established guidelines and regulations pertaining to building design and seismic safety, including those set forth in the CBC and the City of Los Angeles Building Code, which applies to the properties adjacent to and surrounding the project site, as well as site-specific geotechnical evaluations that would identify potential effects related to the underlying geologic and soil conditions for a particular project site.

6.6 Greenhouse Gas Emissions

<u>GHG Impact 1</u>: During construction of the Recommended Project, the project would not generate greenhouse gas emissions, either directly or indirectly, that would result in a significant impact on the environment. Project construction impacts would be less than significant. During project operation, the project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Project operation impacts could be significant. *(Final EIR, Volume II, pages 5.7-18 – 5.7-20 and page 6-53)*

Construction of the project would result in greenhouse gas (GHG) emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. As recommended by SCAQMD[14], the total construction GHG emissions were amortized over 30 years and added to the total operational emissions.

The California Emission Estimator Model (CalEEMod) was used to calculate the GHG emissions that would occur for the original project during construction activities, which are anticipated to last a total of approximately 4 years. Project construction would consist of different activities undertaken in phases, through to the operation of the project. Typical construction equipment would be used during all phases of project construction, would be stored within the staging area, and would potentially include excavators, bulldozers, backhoes, dump trucks, water trucks, jackhammers, sandblasters, rollers, pavers, generators, scrapers, forklifts, delivery trucks, paving equipment, cranes, and air compressors. There is no blasting anticipated during construction. Table 7 of the Air Quality and Greenhouse Gas Technical Report (Final EIR, Appendix C) shows the project's anticipated construction schedule, presents an estimate of the maximum number of pieces of equipment for each construction phase, and conservatively assumes equipment would be operating 8 hours per day, 6 days per week for the duration of the construction phase. Final EIR, Volume II, Table 5.7-3 shows construction emissions for the project from on-site and off-site emission sources.

Operation of the project would generate GHG emissions through motor vehicle trips to and from the project site, landscape maintenance equipment operation, energy use (natural gas and generation of electricity consumed by the project), natural gas–fueled emergency generator maintenance and testing, solid waste disposal, off-road and stationary equipment, and generation of electricity associated with water supply, treatment, distribution, and wastewater treatment. The estimated motor vehicle trip assumptions were derived from the Transportation Assessment prepared by Kittelson and Associates (see Final EIR, Appendix J). Other inputs for modeling the original project used a combination of feedback from County staff and modeling defaults. CalEEMod was used to calculate the annual operational GHG emissions, and the results are shown in Final EIR, Volume II, Table 5.7-4.

The Recommended Project would result in similar types of construction activities, duration, and equipment as the original project. Upon project operation, the Recommended Project would also result in similar land uses as the original project. The refinements to the design plan would not change the greenhouse gas calculations conducted for the original project. Given that the Recommended Project would result in similar construction and operational conditions as the original project, it would generate similar GHG emissions (Final EIR, Volume II, Section 6, Alternatives Analysis, page 6-53).

[14] The SCAQMD *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (2008:3-9) recommends that, "construction emissions be amortized over a 30year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies."

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts to the project's contribution to GHG emissions during construction and operation. Implementation of mitigation measure *GHG/mm-1.1* would reduce GHG emissions as described. As such, implementation of the mitigation measure is required to reduce GHG emission impacts to less than significant.

> ***Mitigation Measure GHG/mm-1.1*:** The modifications to the George C. Page Museum and the development of the new museum shall not include the installation of natural gas infrastructure. Future operation of the new facilities shall not use natural gas–fired appliances. In addition, the project shall provide more electric vehicle charging stations than the mandatory requirements in the Los Angeles County Code, Title 31, Green Building Standards, electric vehicle charging space and charging station calculations (Code Section 5.106.5.3.3).

Basis for Finding. As shown in Final EIR, Volume II, Table 5.7-3, the estimated total GHG emissions during construction would be approximately 3,962 $MTCO_2e$ over the construction period for the original project. Estimated project-generated construction emissions amortized over 30 years would be approximately 132 $MTCO_2e$ per year. Given that the Recommended Project would result in similar construction and operational conditions as the original project, it would generate similar GHG emissions. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would only occur when construction is active, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Due to the potential persistence of GHGs in the environment, impacts are based on the estimated annual operational project-generated GHG emissions, as well as the construction GHG emissions which have been amortized over the estimated life of the project. Based on the project's estimated total GHG emissions during construction, impacts associated with project construction would be *less than significant*.

As shown in Final EIR, Volume II, Table 5.7-4, estimated annual project-generated GHG emissions would be approximately 2,351 $MTCO_2e$ per year because of project operations only. After summing the amortized project construction emissions, total GHGs generated by the project would be approximately 2,483 $MTCO_2e$ per year, which is less than the SCAQMD interim screening-level threshold of 3,000 $MTCO_2e$ per year.

Given the project plans have not been fully developed, it is not yet determined whether the project includes the installation of natural gas infrastructure and/or the use of natural gas–fired appliances. Further, while a commitment to electric vehicle charging stations has been made, the number of charging stations that would be installed is not known. For these reasons, impacts related to GHG emissions during operation of the Recommended Project could be *significant*.

GHG Impact 2: The Recommended Project could result in a significant impact related to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, specifically the potential conflict with the SCAG 2020-2045 RTP/SCS in relation to improving mobility and accessibility, transportation productivity, and encouraging active transportation. Impacts could be significant. Impacts related to consistency with an applicable plan related to emissions of greenhouse gases are considered holistically (i.e., the plans and policies generally do not segregate impacts by construction and operation. *(Final EIR, Volume II, pages 5.7-20 – 5.7-28 and page 6-53)*

Relevant plans and policies to reduce GHG emissions include the emissions reduction policies, strategies, and measures discussed within CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, and the County of Los Angeles General Plan. The project's consistency with the identified plans for reducing GHG emissions considers the project holistically. This approach is consistent with these plans

and policies, which also consider the project holistically (i.e., the plans and policies generally do not segregate impacts by construction and operation). The consistency analysis is described in detail for the original project in Final EIR, Volume II, Section 5.7 of the EIR. Given that the Recommended Project would result in similar construction and operational conditions as the original project, it would generate similar GHG emissions and have the same plan and policy consistency analysis (Final EIR, Volume II, Section 6, Alternatives Analysis, page 6-53).

The project's consistency with the identified plans for reducing GHG emissions considers the project holistically. This approach is consistent with these plans and policies, which also consider the project holistically (i.e., the plans and policies generally do not segregate impacts by construction and operation).

CARB's Climate Change Scoping Plan. The Climate Change Scoping Plan outlines a framework that relies on a broad array of GHG reduction actions, including direct regulations, alternative compliance mechanisms, incentives, voluntary actions, and market-based mechanisms, such as the cap-and-trade program. The Climate Change Scoping Plan builds off an array of regulatory requirements that have been promulgated to reduce statewide GHG emissions, particularly from energy demand and mobile sources. While these regulatory requirements are not targeted at specific land use development projects, they would indirectly reduce a development project's GHG emissions. A discussion of these regulatory requirements that would reduce the project's GHG emissions is provided in Final EIR, Volume II, Section 5.7 and includes an analysis of the following:

- California Renewable Portfolio Standard Program and SB 100 and SB 350;
- Senate Bill 1368/Assembly Bill 398, CCR Title 20, Cap-and-Trade Program;
- Title 24 Building Energy Efficiency Standards, and the CALGreen Code;
- Assembly Bill 1493 (Pavley Regulations);
- Advanced Clean Truck Regulation;
- Low Carbon Fuel Standard (EO S-01-07);
- Senate Bill 375;
- California Integrated Waste Management Act of 1989 and Assembly Bill 341; and
- Post-2030 Analysis.

SCAG'S 2020-2045 RTP/SCS. The 2020-2045 RTP/SCS provides socioeconomic forecast projections of regional population growth. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the specific area. While the project does not propose residential uses, new employees would be introduced by the project. According to the 2020-2045 RTP/SCS, the employment forecast for the City of Los Angeles Subregion in 2021 is approximately 1,897,883 employees. In 2028, the projected first operation year of the project, the City of Los Angeles Subregion is anticipated to have 1,937,552 employees. As such, the project's estimated 42 employees would constitute a very small percentage of the city's employment growth forecasted between 2021 and 2028. Accordingly, the project's generation of employees would not conflict with employment generation projections contained in the 2020-2045 RTP/SCS.

The Metro 20 and 720 bus lines on Wilshire Boulevard and the Metro 217, 218, and 780 bus lines on Fairfax Avenue all stop within half a block of the project site. In addition, Metro is currently constructing an extension of the Metro system D Line (Purple), which would include construction of three new heavy-rail subway stations along Wilshire Boulevard, which would serve the project site. By locating the project's land uses within an area that has existing high-quality public transit (with access to existing

regional bus and rail service) and employment opportunities within walking distance, and by including features that support and encourage pedestrian activity and other non-vehicular transportation in the Los Angeles area, the project would support the reduction of vehicle trips and vehicle miles travelled (VMT) and resulting air pollution and GHG emissions.

In addition, the project was reviewed to determine potential inconsistencies with GHG reduction targets forecasted in the SCAG RTP/SCS. The project was analyzed using a total VMT threshold (as opposed to an efficiency-based impact threshold). Additional detail on this analysis is included in the Transportation Assessment prepared by Kittelson and Associates (see Final EIR, Appendix J). The project site functions as a regional attraction and the project would result in a net increase in regional VMT. Since the project would result in a net increase in VMT, further evaluation was necessary to determine whether this project would be inconsistent with the VMT and GHG reduction goals of the SCAG RTP/SCS.

It was determined that, without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, ensuring safety, maximizing transportation productivity, encouraging active transportation, and improving air quality. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements.

In conclusion, the project may conflict with the following relevant RTP/SCS goals:

- Improve mobility, accessibility, reliability, and travel safety for people and goods
- Enhance the preservation, security, and resilience of the regional transportation system
- Increase person and goods movement and travel choices within the transportation system
- Reduce greenhouse gas emissions and improve air quality
- Leverage new transportation technologies and data-driven solutions that result in more efficient travel

County of Los Angeles General Plan. The project would meet the County of Los Angeles's General Plan goals to address the impact of GHGs and climate change. The project would implement project design features, including solar photovoltaic panels on the roof of the project building to reduce energy consumption and encourage energy conservation. Additionally, HVAC systems that would be sized and designed in compliance with the CALGreen Code and the County of Los Angeles Green Building Standards Code to maximize energy efficiency caused by heat loss and heat gain; new and existing tree canopies would protect building walls from sun exposure and provide shade for the ground area.
The project would provide sustainability features, such as rainwater collection leading to bioswales; a sloped green roof; and the use of drought-tolerant landscaping to reduce water consumption. All of these features would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation. Therefore, the project would not conflict with the goals of the County of Los Angeles General Plan.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, specifically the potential conflict with the SCAG 2020-2045 RTP/SCS in relation to improving mobility and accessibility, transportation productivity, and encouraging active transportation as identified in the EIR. Implementation of mitigation measure *TRA/mm-1.1* would reduce these impacts to less than significant as described in Final EIR, Volume II, Section 5.7.

Implement ***Mitigation Measure TRA/mm-1.1***.

Basis for Finding. Through the analysis provided in Final EIR, Volume II, Section 5.7, it was determined that the project may be inconsistent with regional plans related to mobility and GHG reductions, specifically in relation to SCAG's 2020-2045 RTP/SCS. It was determined that without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, transportation productivity, and encouraging active transportation. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. However the project does include design features that would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, as well as provide visitors with public transportation incentives, with the ability to access nearby public transit and opportunities for walking and biking, all of which are consistent with the County of Los Angeles General Plan, OurCounty, City of Los Angeles General Plan, City of Los Angeles Green LA Action Plan, and the City's Green New Deal. Thus, the project could result in a *significant impact* related to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. With implementation of TRA/mm-1.1, impacts related to the Recommended Project's consistency with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions would be less than significant.

GHG Impact 3 (Cumulative Impacts[15]): The Recommended Project could result in a significant contribution to the cumulative impact of GHG emissions and global climate change. (*Final EIR, Volume II, pages 5.7-28 – 5.7-29 and page 6-53)*

Consistent with the inherent consideration of GHG emissions as a cumulative contribution to a global environmental condition, the analysis in Final EIR, Volume II, Section 5.7.5 considers the potential for the project to contribute considerably to the cumulative impact of global climate change (Final EIR, Volume II, Section 6, Alternatives Analysis, page 6-53).

The analysis provided demonstrates that the project includes many design features that support the reduction of GHG emissions, including features that would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, as well as provide visitors with public transportation incentives, the ability to access nearby public transit, and opportunities for walking and biking. However, it has also been determined that, without additional measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, transportation productivity, and encouraging active transportation. This is because the project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. Also, since detailed design plans have not been developed for the project at this stage, it is also not known whether natural gas use would be included in the final design.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts to the project's contribution to GHG emissions and global climate change as identified in the EIR. Implementation of mitigation measures *GHG/mm-1.1 and TRA/mm-1.1* would reduce GHG emissions as described in Final EIR, Volume II, Section 5.7. As such, implementation of the mitigation measures is required to reduce GHG emission impacts to less than significant.

Implement ***Mitigation Measures GHG/mm-1.1*** and ***TRA/mm-1.1***.

[15] The geographic scope considered in the cumulative impact analysis for GHG emissions is global. Adverse environmental impacts of cumulative GHG emissions, including sea level rise, increased average temperatures, more drought years, and more large forest fires, are already occurring.

Basis for Finding. Since detailed design plans have not yet been developed for the Recommended Project, it is not known whether natural gas use would be included in the final design. As a fossil fuel, natural gas production and use are significant contributors to GHG emissions. For the building sector to achieve carbon neutrality, natural gas usage will need to be phased out and replaced with electricity usage, and electrical generation will need to shift to 100% carbon-free sources. Thus, without mitigation, the project could cause a *significant* contribution to the cumulative impact of GHG emissions and global climate change.

6.7 Hazards and Hazardous Materials

HAZ Impact 1: During construction of the Recommended Project, a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials could be created. Construction workers, facility employees, and the public could be exposed to hazardous materials associated with the naturally occurring tar seeps present within the project site through the required removal of contaminated soils to an off-site location. Impacts during project construction could be significant. Operation of the Recommended Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Operational impacts would be less than significant. *(Final EIR, Volume II, pages 5.8-15 – 5.8-18 and pages 6-53 – 6-54)*

During demolition, earthwork, grading, and building construction of the Recommended Project, hazardous materials such as fuel and oils associated with construction equipment, as well as coatings, paints, adhesives, and caustic or acidic cleaners, could be routinely used on-site. In addition, the project would require earthwork activities with excavations that could reach up to approximately 10 feet. Due to anticipated soil impacts from the naturally occurring tar seeps present throughout the project site, on-site soils may not be suitable for reuse and would need to be exported for proper remediation and disposal (KPFF 2021). Of this export, it is conservatively assumed that an estimated 53,000 cubic yards may include potentially hazardous substances, which would be exported to an appropriate disposal facility based on waste sampling and characterization, which would be required for any material leaving the site. Each disposal facility would require testing of the disposed material to characterize and determine whether they could accept the material. Facilities that would potentially accept the materials include those characterized as Class I for federal hazardous waste (e.g., U.S. Ecology in Beatty, Nevada), Class II for California hazardous waste (e.g., Kettleman Hills Landfill in Kettleman City, California), or Class III for non-hazardous waste (e.g., Chiquita Canyon Landfill in Castaic, California).

Upon construction completion of the Recommended Project, the use of hazardous materials typically used in museums and for building and grounds maintenance, including cleaning solvents and pesticides for landscaping, would occur. As operations would be similar to those operations occurring presently on-site, substantial increases in the amount or type of operational hazardous wastes would not be expected. Activities involving the handling and disposal of hazardous waste would occur in compliance with all applicable federal, state, and local requirements concerning the handling and disposal of hazardous waste.

The project site is susceptible to naturally occurring tar seeps, including the Central Green and parking lot areas. Implementation of the project would not change the expected attributes or characteristics of this naturally occurring phenomenon currently at the project site. Implementation of these strategies has adequately and safely managed tar seeps at the site to-date and the operational approach to managing the tar seeps at the site is not planned to be modified.

Operation of the project would not create new tar seeps within the project site. Further, operation of the project would not trigger the need to change the existing tar management approach or modify the existing protocol to manage tar accumulation at the project site. Therefore, operational hazards associated with the routine movement and disposal of the tar throughout the project site, including in areas that may interface with the new facilities proposed by the project, would be less than significant.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts during construction. With implementation of mitigation measures HAZ*/mm-1.1 and HAZ/mm-1.2*, contamination levels would be reduced both during the construction period to less than significant.

***Mitigation Measure HAZ/mm-1.1*:** Prior to earthwork activities, the project contractor, in coordination with the LAFD and the County, through the Foundation, shall be required to prepare a Soil Management Plan (SMP) for the removal of contaminated soils and their transportation off-site. The SMP shall be prepared in accordance with all relevant and applicable federal, state, and local laws and regulations that pertain to the transportation and disposal of hazardous materials and waste. The SMP shall:

a. Describe the methodology to identify and manage (reuse or off-site disposal) contaminated soil during soil excavation and/or construction;

b. Provide protocols for confirmation sampling, segregation and stockpiling, profiling, backfilling, disposal, guidelines for imported soil, and backfill approval from the DTSC Information Advisory on Clean Imported Fill Material; and

c. In addition, the LAFD may consult with other agencies (e.g., DTSC and the LARWQCB) if the nature of the contamination warrants the involvement of these agencies.

***Mitigation Measure HAZ/mm-1.2*:** The following requirements and precautionary actions shall be implemented when disturbing soil at the project site:

a. No soil disturbance or excavation activities shall occur without a project site-specific Health and Safety Plan (HASP). Any soil that is disturbed, excavated, or trenched due to on-site construction activities shall be handled in accordance with applicable local, state, and federal regulations, as well as sampled and analyzed by a certified laboratory for constituents in accordance with the accepting landfill's requirements (including testing for the presence of hydrocarbons, volatile organic compounds, semi-volatile organic compounds, heavy metals, and pesticides).

b. The contractor shall prepare a project-specific HASP. It is the responsibility of the contractor to review available information regarding project site conditions, including the SMP, and potential health and safety concerns in the planned area of work. The HASP shall describe the proposed construction activities and hazards associated with each activity. Hazard mitigation shall be presented in the HASP to limit construction-related risks to workers. The HASP shall include emergency contact numbers, maps to the nearest hospital, gas monitoring action levels, gas response actions, allowable worker exposure times, and mandatory personal protective equipment (PPE) requirements. The HASP shall specify Certificate of Competency action levels for construction workers as well as monitoring criteria for increasing the level of PPE. The HASP shall be signed by all workers on-site to demonstrate their understanding of the construction-related risks.

c. The contractor and each subcontractor shall require their employees who may directly come in contact with Suspect Soil (soil that is stained or odorous) to perform all activities in accordance with the contractor's HASP. If Suspect Soil is encountered, to minimize the exposure of other workers to potential contaminants on the project site, the contractor may

erect temporary fencing around excavation areas with appropriate signage as necessary to restrict access and to warn unauthorized on-site personnel not to enter the fenced area.

d. There shall be no reuse of excavated soil deemed inappropriate for reuse as defined in the project-specific SMP.

e. The contractor shall conduct, or have its designated subcontractor conduct, visual screening of soil during activities that include soil disturbance. If the contractor or subcontractor(s) encounter any Suspect Soil, the contractor and subcontractor(s) shall immediately stop work and take measures to not further disturb the soils (e.g., cover suspect soil with plastic sheeting) and inform the Foundation and the environmental monitor. The Foundation shall identify the environmental monitor—an experienced professional trained in the practice of the evaluation and screening of soil for potential impact working under the direction of a licensed Geologist or Engineer—prior to the beginning of work.

f. Prior to excavation activities, the contractor or designated subcontractor shall establish specific areas for stockpiling Suspect Soil, should it be encountered, to control contact by workers and dispersal into the environment, per the provisions provided in the SMP.

Basis for Finding. Health and safety responsibilities are managed at the project site by a Safety and Risk Management professional. The Safety and Risk Management professional is responsible for managing the use of hazardous materials at the project site in compliance with regulatory standards and reporting requirements. Construction contractors would be required to comply with applicable federal, state, and local laws and regulations regarding the transport, use, and storage of hazardous construction-related materials (Final EIR, Volume II, Section 5.8.2, Regulatory Setting), and all potentially hazardous materials used during construction would be required to be handled and disposed of in accordance with manufacturers' specifications and instructions. The presence of the naturally occurring tar seeps throughout the project site and the required removal of contaminated soils to an off-site location have the potential to create a hazard to construction workers at the site during construction activities, the public, and the staff at La Brea Tar Pits. Construction-related impacts could be *significant*.

Operation of the Recommended Project would not create new tar seeps within the project site. Further, operation of the Recommended Project would not trigger the need to change the existing tar management approach or modify the existing protocol to manage tar accumulation at the project site. The existing strategies discussed above address the project site's dynamic conditions and serve to prevent operational hazards associated with the routine movement and disposal of the tar during the operational life of the Recommended Project. In addition, any new facilities or structures constructed on the project site, including the new museum building, would be designed to accommodate this naturally occurring phenomenon through the engineering and design process to provide appropriate foundational materials that would provide barriers for intrusion and ensure structural stability. Therefore, operational hazards associated with the routine movement and disposal of the tar throughout the site, including in areas that may interface with the new facilities included in the Recommended Project, would be *less than significant*.

HAZ Impact 2: Construction of the Recommended Project could result in the release of hazardous materials into the environment related to naturally occurring tar seeps and subsurface methane gas. Impacts during project construction could be significant. During operation of the Recommended Project, hazardous vapors from subsurface methane gas could result in the release of hazardous materials into the environment. Impacts during project operation could be significant. *(Final EIR, Volume II, pages 5.8-18 – 5.8-21 and pages 6-53 – 6-54)*

During construction of the Recommended Project, activities (including earthwork, grading, and building construction) would likely require the use of hazardous materials such as fuel and oils associated with

construction equipment, coatings, paints, adhesives, and caustic or acidic cleaners could be used and would require proper handling, management, and in some cases, waste disposal. The use, handling, storage, and disposal of these materials could result in hazardous materials releases and, subsequently, the exposure of people and the environment to hazardous materials. However, as previously discussed, all potentially hazardous materials used during construction would be handled, used, and disposed of in accordance with manufacturers' specifications and instructions, thereby reducing associated risks. In addition, as described in Final EIR, Volume II, Section 5.8.2, Regulatory Setting, various regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. The project would be required to be in full compliance with all applicable federal, state, and local requirements concerning the use, storage, and management of hazardous materials. General construction and Occupational Safety and Health Administration regulations require the on-site availability of Safety Data Sheets for all potentially hazardous materials. Additionally, spill containment kits would be maintained on-site during construction to respond to the release of potentially hazardous construction-related chemicals.

Regarding impacted soils from naturally occurring tar seeps on-site, project construction activities have the potential to create a hazard to workers at the site as well as the public, as tar could also be characterized as hazardous material due to flammability and the potential for vapor inhalation. Soil removal activities during construction would require appropriate regulatory protocols and management during all soil disturbance activities. Excavated soil with naturally occurring tar impacts would be stored on plastic sheeting to reduce the potential for naturally occurring tar to come in contact with surficial soils. Soil stockpiles would be bermed to contain any potential run-off or seepage and covered when not in use. Soil would be transported in lined and covered trucks properly manifested in accordance with United States Department of Transportation and other regulatory requirements. Excavated soil, including soil with naturally occurring tar in it, would be disposed of in accordance with CalEPA and federal EPA requirements and by contractors licensed to handle and transport these materials.

Regarding surface vapors, the project site is located within a designated methane zone mapped by the City. Extensive areas of Southern California are underlain by areas with high concentrations of methane; the occurrence of methane under the ground surface is typically related to subsurface methane gas produced from naturally occurring petroleum fields. A subsurface investigation was conducted by Leighton Consulting, Inc., on October 18 and October 19, 2022, and the results of this investigation were documented in the Methane Survey Report prepared for the project, dated January 12, 2023 (see Final EIR, Appendix G). The Methane Survey Report identified elevated methane concentrations of up to 50,000 ppmv in the soils at the project site. Based on these findings, the project site is classified as Site Design Level V based on the City of Los Angeles Municipal Code Ordinance No. 175790. The typical trigger concentration in which gas protection systems are required to be installed in Los Angeles County is 5,000 ppmv; therefore, an active methane mitigation is required beneath any new structures and should follow Site Design Level V of the City's Department of Building and Safety Methane Code. Additionally, for existing buildings located within a methane zone, additions, alterations, repairs, changes of use, or changes of occupancy must comply with the methane mitigation requirements of City of Los Angeles Municipal Code Sections 91.7104.1 and 91.7104.2, when required by City of Los Angeles Municipal Code Chapter IX, Article 1, Division 81 or 82. Methane systems should be designed in accordance with the latest regulatory control measures, including the City of Los Angeles Methane Hazard Mitigation Standard Plans, as required by the Department of Building and Safety.

Upon completion of the Recommended Project, operation of the project would be similar to those operations occurring on-site under existing conditions and would continue to support a variety of museum and research-related activities requiring the use and storage of hazardous materials typically associated with museums. As such, the use of hazardous materials typically used in museums and for building and grounds maintenance, including cleaning solvents and pesticides for landscaping, would occur as they do

under existing conditions. However, as previously discussed, all potentially hazardous materials used during project operation would be handled, used, and disposed of in accordance with manufacturers' specifications and instructions, thereby reducing associated risks. In addition, as described in Final EIR, Volume II, Section 5.8.2, Regulatory Setting, various regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. As with existing practice, operation of the Recommended Project would be required to be in full compliance with all applicable federal, state, and local requirements concerning the use, storage, and management of hazardous materials to reduce the risk of release of hazardous materials into the environment.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts during construction related to the release of hazardous materials into the environment which occur naturally as a result of tar seeps and subsurface methane gas as identified in the EIR. Additionally, the County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to the release of hazardous vapors from subsurface methane gas into the environment during project operation as identified in the EIR. With implementation of mitigation measures HAZ*/mm-2.1 and HAZ/mm-2.2 and implementation of mitigation measures HAZ/mm-1.1 and HAZ/mm-1.2*, contamination levels would be reduced both during the construction period and at the operational level to less than significant.

***Mitigation Measure HAZ/mm-2.1*:** During construction activities at the project site, controls shall be in place to address the effects of subsurface gases and impacted soil and groundwater on workers and the public. During construction, the following shall be implemented:

a. Monitoring devices for methane and benzene shall be present to alert workers of elevated gas concentrations when subsurface soil-disturbing work is being performed.

b. Any trench or excavation wider than 18 inches and having a depth greater than 2× its narrowest width shall be monitored with a portable combustible gas detector. The portable detector shall have a resolution capable of reporting to 1% LEL (Lower Explosive Limit), or 0.1% by volume in air, or in parts per million (ppm). If concentrations of combustible gases reach or exceed 20% LEL, or 1.0% by volume in air, or 10,000 ppm, the trench or excavation shall be evacuated until such time as the gas concentrations are determined to be steadily below these levels. All welding and electrical equipment shall be removed from the trench/excavation until the area is deemed to be safe. Portable blowers are the most appropriate means of controlling combustible gas concentrations. The blower motors and appurtenant electrical wiring shall not be placed in the trench or excavation.

c. No welding, cutting, or other hot work shall be performed close to flammable tars which, when subjected to heat, might produce flammable or toxic vapors (per OSHA 1910.252(a)(3)(i)). Smoking should also be avoided when working near tar seeps.

d. Contingency procedures shall be in place if elevated gas concentrations are detected, such as the mandatory use of PPE, evacuating the area, and/or increasing ventilation within the immediate work area where the elevated concentrations are detected.

e. Workers shall be trained to identify exposure symptoms and implement alarm response actions.

f. Soil and groundwater exposure during excavations shall be minimized to reduce the surface area which could off-gas. This shall be achieved by staggering exposed excavation areas.

g. Soil removed as part of construction shall be sampled and tested for off-site disposal in a timely manner. If soil is stockpiled prior to disposal, it shall be managed in accordance with the project's Stormwater Pollution Prevention Plan.

h. Fencing shall be erected to limit public access and allow for gas dilution. The construction contractor can determine the appropriate type of fencing, as long as public access is restricted such that interaction with hazardous construction conditions does not occur.

i. All requirements of the project-specific HASP shall be implemented and followed as described in HAZ/mm-1.2.

***Mitigation Measure HAZ/mm-2.2*:** As part of the final project design, the project engineer shall develop and implement a methane mitigation system. The mitigation system, which would provide a barrier for hazardous vapors, methane, and tar, consists of a subslab venting system that exhausts to the atmosphere, a subslab impermeable gas/tar barrier membrane system, and a monitoring system consisting of probes above and below the gas barrier membrane. The monitoring program consists of routine (quarterly) monitoring and reporting to the County Public Works, Environmental Programs Division. The Environmental Programs Division shall also review the plans to see if the criteria meet the requirements of Los Angeles County Code 110.4 Methane Gas Hazards. Additionally, tar collection systems underneath the gas mitigation systems need to be evaluated by the engineer and by the county engineer to evaluate the performance of the overall system.

A contingency plan should also be prepared to describe how matters shall be handled in the event that high concentrations of methane gas enter a building despite the mitigation measures.

The inspection and periodic observations of membrane and vapor control measures shall be performed by the Vapor Barrier Engineer (i.e., the Engineer or his Designee). At a minimum, inspection/observation shall take place during the installation of the vent piping, after backfilling of the vent piping, during the installation of the vapor barrier, after the installation of the vapor barrier (prior to backfilling), during the placement of the protection course, immediately prior to placement of foundation concrete, during and at the completion of the vent riser installation for the vent piping, and at the completion of construction prior to the issuance of the system certification and certification of occupancy.

Implement ***Mitigation Measures HAZ/mm-1.1* and *HAZ/mm-1.2*.**

Basis for Finding. Impacts related to impacted soils from naturally occurring tar seeps on-site and subsurface methane gas, as well as associated potential impacts to soil and groundwater, could occur during project construction and may exacerbate the risk of spill and/or accident conditions involving the release of hazardous materials into the environment. Such impacts during construction could be *significant*.

Additionally, while operation of the Recommended Project would not exacerbate the risk of upset and accident conditions involving the release of tar-related hazardous materials into the environment, the existing high concentration of subsurface methane gas at the project site would require ongoing control measures to ensure a properly designed methane mitigation system would provide a barrier for hazardous vapors. Due to the high potential for elevated concentrations of methane gas at the project site, operational impacts related to the release of hazardous materials into the environment could be *significant*.

<u>HAZ Impact 3</u>: The Recommended Project could introduce hazardous materials within 0.25 mile of an existing or proposed school[16] during both construction and operation. Impacts during project construction and operation could be significant. *(Final EIR, Volume II, pages 5.8-21 – 5.8-22 and pages 6-53 – 6-54)*

Construction of the project would involve the use of hazardous materials common to urban construction projects and museum operations. All activities involving the handling, use, storage, transport, and disposal of hazardous materials and wastes would occur in compliance with applicable federal, state, and local requirements. However, as discussed in HAZ Impacts 1 and 2, project construction could create a significant hazard to the public or the environment associated with the naturally occurring tar seeps present within the project site through the required removal of contaminated soils to an off-site location. In addition, construction of the Recommended Project could result in the release of hazardous materials into the environment related to subsurface methane gas. As such, project construction could result in potential hazardous emissions or the handling of hazardous materials and wastes within 0.25 mile of an existing school. Impacts could be *significant*.

As stated in HAZ Impacts 1 and 2, while the project operation would not exacerbate the use, handling, and disposal of hazardous materials or increase the risk of spill and accident conditions involving the release of hazardous materials into the environment, the existing, naturally occurring tar seeps and the existing high concentration of subsurface methane gas at the project site would require control measures to ensure proper collection and disposal of accumulated tar near the ground surface as well as a methane mitigation system to provide a barrier for hazardous vapors (see *Mitigation Measure HAZ/mm-2.2*). As such, operational impacts associated with potential hazardous emissions or the handling of hazardous materials and wastes within 0.25 mile of an existing school could be *significant*.

<u>Finding: Less than significant with mitigation</u>. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to the introduction of hazardous materials within 0.25 miles of an existing or proposed school during both construction and operation as identified in the EIR. With implementation of mitigation measures *HAZ/mm-1.1, HAZ/mm-1.2, HAZ/mm-2.1, and HAZ/mm-2.2*, the introduction of hazardous materials would be reduced both during the construction period and at the operational level to less than significant.

Implement ***Mitigation Measures HAZ/mm-1.1***, ***HAZ/mm-1.2***, ***HAZ/mm-2.1***, and ***HAZ/mm-2.2***.

<u>Basis for Finding</u>. Implementation of HAZ/mm-1.1, HAZ/mm-1.2, and HAZ/mm-2.1 during construction of the Recommended Project would reduce impacts associated with the emission of hazardous materials in the vicinity of existing or proposed schools to less than significant. Additionally, implementation of *HAZ/mm-2.2* during project operation would reduce impacts associated the emission of hazardous materials in the vicinity of existing or proposed schools to less than significant.

[16] The nearest schools to the project site include Fusion Academy Miracle Mile, located approximately 0.12 mile directly east of the project site, and Hancock Park Elementary School, located approximately 0.45 mile northwest of the project site. Based on the list of cumulative development projects in the project vicinity (see Final EIR, Volume II, Chapter 4, Environmental Setting), no proposed new school facilities are located within 0.25 mile of the project site.

<u>HAZ Impact 7 (Cumulative Impacts[17])</u>: Prior to the consideration of proposed mitigation measures, construction and operation of the Recommended Project could result in hazardous materials impacts associated with the naturally occurring tar seeps and methane conditions present at the project site, including accidental spills or releases associated with the disposal, transport, and management of hazardous materials. If unaddressed, potential contributions to cumulative hazardous materials impacts could be significant. *(Final EIR, Volume II, pages 5.8-24 – 5.8-26 and pages 6-53 – 6-54)*

As addressed in Final EIR, Volume II, Section 5.8, the project site is not identified hazardous materials site pursuant to Government Code Section 65962.5 (threshold d) nor is the project site situated within 2 miles of a public or private airstrip (threshold e). In addition, the Recommended Project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan during either construction or operation (threshold f). Accordingly, the Recommended Project could not contribute to cumulative impacts related to these topics and they are not discussed further. For this analysis, cumulative impacts related to hazards and hazardous material could occur if the incremental impacts of the project combined with the incremental impacts of other projects, including those identified in Final EIR, Volume II, Chapter 4, Environmental Setting. The following three projects are known projects that are in close proximity to the project site that could contribute to cumulative impacts:

- **Metro D (Purple) Line Extension:** Extension of underground light rail transit service infrastructure to parallel Wilshire Boulevard located directly adjacent to the project site along with seven new transit stations. This project is under construction with the first phase (Wilshire/ La Brea, Wilshire/Fairfax, and Wilshire/ La Cienega Stations) anticipated to be completed and in operation by 2024.
- **Los Angeles County Museum of Art Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction with an anticipated completion date of 2024.
- **Wilshire Curson Project:** Located approximately 0.03 mile southeast of the project site at 5700-5780 Wilshire Boulevard, 712-752 South Curson Avenue, 5721-5773 West 8th Street, and 715-761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of new buildings. The project is currently under environmental review, and a construction timeline was not available at the time of publication for the EIR.

Each of the related projects has or would require evaluation for potential threats to public safety, including those associated with the use, storage, and/or disposal of hazardous materials and the potential for the release of hazardous materials into the environment as a result of construction and operation. In addition to the environmental review conducted for the projects, it is important that all project-related activities for the projects listed above would be required to comply with all applicable local, state, and federal laws, rules, and regulations regulating the use, disposal, transport, and management of hazardous materials. In addition to the projects above, activities would occur within the project area within the construction timeframe that would not require review under CEQA. For instance, the establishment of a new business in the area that uses hazardous materials may not trigger CEQA review. In addition, during

[17] The geographic scope of analysis for cumulative hazardous materials impacts is limited to the project site and its immediately adjacent area (defined as the adjacent Los Angeles County Museum of Art parcel, and all land uses and roadways directly and immediately surrounding the project site, including those along West 6th Street, South Curson Avenue, and Wilshire Boulevard). This is because impacts relative to hazardous materials are most typically site-specific.

the construction phase and operational life of the Recommended Project, there could be proposed development projects in the vicinity that would not require discretionary review. As well, unforeseen accidents could always potentially occur through the routine use of hazardous substances by and at surrounding commercial and residential land uses.

Although existing regulations and review processes would likely address hazardous materials concerns, because of the conditions related to the occurrence of petroleum deposits, tar, and methane at the project site and within this general area of the city, it is possible that cumulatively considerable impacts to hazardous materials would occur in the project area if different hazardous conditions or incidents were to occur at the same time (i.e., two or more accidents occurred at the same time).

As identified in the project analysis above, the Recommended Project could result in:

- Significant construction and operational impacts related to creating a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials associated with the naturally occurring tar seeps present within the project site (threshold a);
- Significant construction and operational impacts associated with the release of hazardous materials into the environment due to naturally occurring tar seeps and subsurface methane gas present within the project site (threshold b); and
- The introduction of hazardous materials within 0.25 mile of an existing or proposed school during both construction and operation (threshold c).

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts related to construction and operation of the project associated with the naturally occurring tar seeps and methane conditions present at the project site, including accidental spills or releases associated with the disposal, transport, and management of hazardous materials as identified in the EIR. Implementation of mitigation measures *HAZ/mm-1.1, HAZ/mm-1.2, HAZ/mm-2.1, and HAZ/mm-2.2* would reduce impacts related to cumulative hazardous materials to less than significant.

Implement ***Mitigation Measures HAZ/mm-1.1***, ***HAZ/mm-1.2***, ***HAZ/mm-2.1***, and ***HAZ/mm-2.2***.

Basis for Finding. Because construction and operation of the Recommended Project could result in the direct impacts listed above, the potential exists for the project to also contribute significantly to cumulative impacts. If mitigation were not to be implemented, it is conceivable that the project would significantly contribute to these impacts. Therefore, the project's contribution could be cumulatively considerable; impacts could be *significant*. However, project mitigation measures have been identified and included to address these impacts. The identified mitigation measures would address the direct impacts associated with the project itself as well as the project's potential contribution to cumulatively considerable and significant hazardous materials impacts.

6.8 Hydrology and Water Quality

<u>HYD Impact 1</u>: During construction of the Recommended Project, the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Construction impacts would be less than significant. Implementation of the project would increase impervious surfaces within the project site, and project operation would have the potential to contribute to the degradation of surface or groundwater quality. Operational impacts could be significant. *(Final EIR, Volume II, pages 5.9-22 – 5.9-26 and pages 6-54 – 6-55)*

The Recommended Project would result in a similar overall area of impervious surfaces when compared to the original project and, like the original project, would be designed to capture, filter, and reduce the volume of any additional runoff from the project's proposed impervious surfaces in a way that mimics, as well as improves, existing drainage patterns. The Recommended Project's effects related to hydrology and water quality would be similar to the original project (Final EIR, Volume II, pages 6-54 – 6-55). During construction of the Recommended Project, particularly during the grading phase, stormwater runoff from precipitation events could cause exposed and stockpiled soils to be subject to erosion and convey sediments into municipal storm drain systems. It is anticipated that project earthwork activities would include an estimated 53,000 cubic yards of cut/export and potentially 37,000 cubic yards of imported fill. In addition, on-site watering activities to reduce airborne dust could contribute to pollutant loading in runoff. Pollutant discharges relating to the storage, handling, use and disposal of chemicals, adhesives, coatings, lubricants, and fuel could also occur. Due to the presence of naturally occurring tar (petroleum) in the subsurface soils, contaminated soils and impacted groundwater may be encountered when performing excavations; therefore, the Recommended Project may have the potential to require dewatering during construction. Discharges from dewatering operations can contain high levels of fine sediments, which, if not properly treated, could lead to exceedance of NPDES requirements. During construction, temporary dewatering pumps and filtration would be used in compliance with the NPDES permit. These temporary systems would comply with all applicable NPDES requirements related to construction and discharges from dewatering operations, as well as the LARWQCB's Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties.

As project construction would disturb more than 1 acre of soil, the Recommended Project would be required to obtain coverage under the NPDES Construction General Permit. In accordance with the requirements of the NPDES Construction General Permit, the Recommended Project would prepare and implement a site-specific SWPPP that specifies BMPs to be used during construction to manage stormwater and non-stormwater discharges. BMPs would include, but would not be limited to, erosion control, sediment control, non-stormwater management, and materials management BMPs. The SWPPP would include a description of potential sources of pollutants, including pollutants originating from off-site, which may flow across or through areas of construction. The SWPPP would specify the location, type, and maintenance requirements for BMPs necessary to prevent stormwater runoff from carrying construction-related pollutants into nearby receiving waters (in this case, Ballona Creek). BMPs would be required to be implemented to address the potential release of fuels, oil, and/or lubricants from construction vehicles and equipment (e.g., drip pans, secondary containment, washing stations), release of sediment from material stockpiles and other construction-related excavations (e.g., sediment barriers, soil binders), and other construction-related activities with the potential to adversely affect water quality. The number, type, location, and maintenance requirements of BMPs to be implemented as part of the SWPPP depend on site-specific risk factors, such as soil erosivity factors, construction season/duration, and receiving water sensitivity.

With regard to operational impacts, the project would decrease the overall permeability of the project site (KPFF 2023b).

Increased impervious surfaces from the expanded parking lot and drop-off area would collect automobile-derived pollutants such as oils, greases, heavy metals, and rubber. During storm events, these pollutants would be transported into the stormwater management system by surface runoff. An increase in point-source and nonpoint-source pollution could result from increases in development intensity that may directly impact water quality specific to site drainage patterns. These increases would have the potential to increase the quantity of pollutants and non-stormwater discharges that could adversely impact water quality.

The project proposes to implement three LID BMPs to manage stormwater runoff, in accordance with the Los Angeles County LID Standards Manual (KPFF 2021, 2023b). The three LID BMPs are biofiltration planters, which are shallow vegetated planters that are designed to receive and detain stormwater runoff from the building and site, filter the runoff, and eventually discharge the filtered runoff to the public storm drain system. Planters are sized to treat 150% of the required 85th percentile storm, mitigated stormwater volume. To protect the amended soil within the planters from tar infiltration as well as prevent high groundwater from flooding the planters, the Recommended Project is proposing closed-bottom planters with an underdrain (KPFF 2023b). The biofiltration planters have been sized based on tributary area and are described in detail in Final EIR, Volume II, Section 5.9.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts to groundwater quality related to construction activities and operational impacts related to degradation of surface and groundwater quality as identified in the EIR. With the implementation of mitigation measures *HYD/mm-1.1 and HYD/mm-1.2*, impacts regarding groundwater quality during construction and operational impacts to surface and groundwater quality would be reduced to less-than-significant levels.

***Mitigation Measure HYD/mm-1.1*:** The Foundation shall implement the following non-structural Best Management Practices (BMPs) for the life of the project:

Open Paved Areas and Biofiltration Planter Areas

- Regular sweeping of all open and planter areas, at a minimum, on a weekly basis in order to prevent dispersal of pollutants that may collect on those surfaces.
- Regular pruning of the trees and shrubs in the planter areas to avoid formation of dried leaves and twigs, which are normally blown by the wind during windy days. These dried leaves are likely to clog the surface inlets of the drainage system when rain comes, which would result in flooding of the surrounding area due to reduced flow capacities of the inlets.
- Trash and recycling containers shall be used such that, if they are to be located outside or apart from the principal structure, are fully enclosed and watertight in order to prevent contact of stormwater with waste matter, which can be a potential source of bacteria and other pollutants in runoff. These containers shall be emptied and the wastes disposed of properly on a regular basis.

Education and Training

- Annual training of employees on property management and proper methods of handling and disposal of waste shall be provided. Employees should understand the on-site BMPs and their maintenance requirements.

Landscape Management

- Landscaping shall be maintained using minimum or no pesticides.

Litter Control

- An adequate number of trash receptacles shall be provided and inspected regularly. Leaky receptacles shall be prepared or replaced. Receptacles shall be covered.
- Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site.

Housekeeping of Loading Docks

- Loaded and unloaded items shall be moved indoors as soon as possible.

Catch Basin Inspection

- Stormwater pollution prevention information shall be provided. Owner shall be made aware that the following is to be followed: "Property owner shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create potential discharge to storm drains."
- Catch basins shall be inspected regularly.

Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction

- Trash and waste will be handled and stored for pickup adjacent to the loading dock. This limits the potential introduction of pollutants into the site. Trash and waste pickup will occur regularly.

Use Efficient Irrigation Systems and Landscaping Design

- Landscape shall be generally designed to provide an efficient and continuous irrigation system.
- Landscape areas shall be designed to include plants that are friendly to the climate of Los Angeles.

Storm Drain Stencil Signage

- Stencil or label all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language to prevent dumping of improper materials into the urban runoff conveyance system.

***Mitigation Measure HYD/mm-1.2*:** The Foundation shall ensure all structural and non-structural Best Management Practices (BMPs) are operated, monitored, and maintained for the life of the project pursuant to the following:

- All structural BMPs shall be inspected, cleaned-out, and where necessary, repaired, at the following minimum frequencies: 1) prior to October 15th each year; 2) during each month between October 15th and April 15th of each year and, 3) at least twice during the dry season (between April 16th and October 14th of each year).
- Debris and other water pollutants removed from structural BMPs during cleanout shall be contained and disposed of in a proper manner.
- The drainage system, the associated structures, and BMPs shall be maintained according to manufacturer's specification to ensure maximum pollutant removal efficiencies.

Basis for Finding. Compliance with the requirements of the LARWQCB (CWA NPDES Program and Porter-Cologne Act waste discharge requirements), Construction General Permit, and County stormwater regulations would be sufficient to address the potential for buildout of the Recommended Project to violate water quality standards or waste discharge requirements during construction activities. Therefore, impacts related to degradation of surface or groundwater quality from construction activities associated with the Recommended Project would be *less than significant*.

While incorporation of the LID BMPs (i.e., the three biofiltration areas) and LARWQCB post-construction stormwater management requirements would improve stormwater runoff water quality, which would benefit the water quality of downstream surface waters as well as underlying groundwater resources, additional non-structural BMPs would also need to be implemented to ensure that the increase in impervious surfaces with project implementation would not contribute to the degradation of surface or groundwater quality. Without implementation of non-structural BMPs, operational impacts related to degradation of surface or groundwater quality associated with the Recommended Project could be *significant*.

HYD Impact 6 (Cumulative Impacts[18]): Prior to consideration of the proposed mitigation measures, operation of the Recommended Project could have the potential to contribute to the degradation of surface or groundwater quality. If unaddressed, potential contributions to cumulative impacts associated with degradation of surface or groundwater quality could be significant. *(Final EIR, Volume II, pages 5.9-33 – 5.9-34 and pages 6-54 – 6-55)*

The Recommended Project would result in a similar overall area of impervious surfaces when compared to the original project and, like the original project, would be designed to capture, filter, and reduce the volume of any additional runoff from the project's proposed impervious surfaces in a way that mimics, as well as improves, existing drainage patterns. The Recommended Project's effects related to hydrology and water quality would be similar to the original project (Final EIR, Volume II, pages 6-54 – 6-55).

Significant cumulative impacts related to hydrology and water quality could occur if the incremental impacts of the Recommended Project combined with the incremental impacts of one or more of the cumulative projects identified in Final EIR, Volume II, Chapter 4 would substantially affect hydrology and water quality. The following cumulative projects would be geographically adjacent to and/or overlap with components of the Recommended Project, and include activities that could affect hydrology and water quality:

- **Metro D (Purple) Line Extension:** Extension of underground light rail transit service infrastructure to parallel Wilshire Boulevard located directly adjacent to the project site along with seven new transit stations. This project is under construction with the first phase (Wilshire/ La Brea, Wilshire/Fairfax, and Wilshire/ La Cienega Stations) anticipated to be completed and in operation by 2024.
- **Los Angeles County Museum of Art Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction with an anticipated completion date of 2024.

[18] The geographic scope of analysis for cumulative hydrology and water quality impacts on surface water hydrology is limited to the project site and its immediately adjacent area that would flow into the same drainage system. This is because impacts relative to hydrology and water quality are generally site-specific when the site is in a highly developed urban area with limited to no potential for flooding, dam failure, or other larger-scale event. Hydrology and water quality impacts could only be cumulative if two or more projects had impacts that spatially overlapped.

The project would have no impact with respect to flood potential and impacts associated with inundation, by seiche or tsunami (threshold d). Therefore, the Recommended Project would not contribute to cumulative impacts related to these topics and they are not discussed further.

Through compliance with existing regulations, the Recommended Project would result in less than significant impacts related to groundwater supplies and groundwater recharge (threshold b), existing drainage patterns (threshold c) and conflicts with applicable water quality control plan or sustainable groundwater management plan (threshold e). Each of the related projects, as well as future development projects within the project vicinity would be subject to compliance with the requirements of the LARWQCB and the City or County, as applicable. In addition, discretionary development projects subject to review under CEQA would be evaluated for potential impacts associated with groundwater recharge, existing drainage patterns, and consistency with applicable water quality and groundwater management plans. Therefore, the project, in conjunction with the related projects, would not contribute to cumulative construction or operational impacts related to these issues.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts resulting from construction activities which could result in increased pollution levels of natural watercourses and underground aquifers. The County further finds that changes or alterations have been required in, or incorporated into, the project that would substantially lessen significant impacts to surface and groundwater quality as identified in the EIR. Implementation of *HYD/mm-1.1 and HYD/mm-1.2* would reduce impacts related to project construction and the increase in impervious surfaces within the project site. As such, with the implementation of the mitigation measures, the project level impacts would be less than significant.

Implement ***Mitigation Measures HYD/mm-1.1*** and ***HYD/mm-1.2***.

Basis for Finding. Due to the existing built-out nature of the project site and the project vicinity, cumulative development would be expected to result in a minimal overall change to urban pollutant discharges to surface water runoff and groundwater percolation rates. However, construction activities could result in increased pollution levels of natural watercourses or underground aquifers. The types of pollutant discharges that could occur as a result of construction include accidental spillage of fuel and lubricants, discharge of excess concrete, and an increase in sediment runoff. Storm runoff concentrations of oil, grease, heavy metals, and debris typically increase as the amount of urban development increases in the watershed. Polluted runoff that may be generated during construction activities of cumulative development and projects considered in this analysis would be regulated by the SWRCB under NPDES Construction General Permits and would be minimized using standard construction BMPs. With adherence to these regulatory standards, the Recommended Project's contribution to cumulative construction impacts would be *less than significant*.

As discussed in Final EIR, Volume II, Section 5.9.5, threshold a), implementation of the project would increase impervious surfaces within the project site and project operation would have the potential to contribute to the degradation of surface or groundwater quality. If project mitigation were not to be implemented, it is conceivable that the project would contribute to cumulative impacts related to degradation of surface or groundwater quality. Therefore, cumulative operational impacts could be *significant*.

6.9 Noise and Vibration

NOI Impact 1: During construction of the Recommended Project, the project could generate a substantial increase (5 dBA Leq) in ambient noise levels in the vicinity of the project, which could affect noise-sensitive land uses. As a result, the project could result in generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of established standards. Therefore, noise impacts resulting from project construction could be significant. *(Final EIR, Volume II, pages 5.11-19 – 5.11-22 and page 6-56)*

This Recommended Project would include similar construction activities and construction equipment as compared to the original project (Final EIR, Volume II, page 6-56). Worker vehicles and haul trucks transporting equipment and materials to and from the project site during construction would increase noise levels on the local roads in the project site. It is expected that construction trucks would typically access the project site from the nearby Interstate (I-) 10, taking the La Brea Avenue exit from the westbound I-10. Trucks would travel northbound to Wilshire Boulevard, continue westbound on Wilshire Boulevard, then northbound on Curson Avenue to the project site. The construction worker vehicles would not be restricted to travel exclusively on this haul route and instead are allowed to access the project site via other routes. However, to perform a conservative traffic noise analysis, all traffic for the project (i.e., worker and truck trips) is assumed to travel on this haul route.

The grading phase would be the peak period of construction with the highest number of construction trucks. There would be a maximum of 127 construction trucks (e.g., vendor, hauling), totaling 254 trips per day. The hourly truck trips were estimated based on 8-hour workdays and assuming a uniform distribution of trips. The hourly worker trips were estimated, assuming half of the workers would arrive in 1 hour, resulting in 38 worker trips per hour. The estimated roadway noise levels resulting from the addition of the original project's construction-related traffic on these roadway segments are shown in Final EIR, Volume II, Table 5.11-11. As shown in Table 5.11-11, the estimated noise levels generated by off-site construction traffic would be below the existing daytime ambient noise level at the noise-sensitive receptors along the haul routes. The Recommended Project would have the same anticipated impacts (Final EIR, Volume II, page 6-56).

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts to noise during construction as identified in the EIR. Implementation of mitigation measure *NOI/mm-1.1* would reduce construction-related noise to less than the significance threshold at the off-site sensitive uses. As such, after implementation of the mitigation measure, the Recommended Project's contribution to noise from construction activities would be less than significant.

***Mitigation Measure NOI/mm-1.1*:** The following measures shall be implemented to reduce construction-related noise impacts:

a. Operation of equipment used in construction, alteration, drilling, or demolition work shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and any time on Sundays or legal holidays.

b. A temporary barrier shall be erected around active construction areas. The placement and height of the barrier shall be adjusted based on the specific location of construction activities within the site, ensuring that the barriers are positioned as close as feasible to the work area and are sufficiently tall to maximize effectiveness in minimizing direct noise transmission to surrounding areas, such that a sound reduction of 10 dBA is achieved measured at the property lines on the east side of Curson Avenue and north side of 6th Street. Prior to the commencement of each construction phase, a phase-specific acoustic analysis shall be

conducted to determine the optimal placement and configuration of noise barriers. In consultation with an acoustical engineer, the barrier configuration may be modified to address the specific conditions of phased construction, provided that the adjustments achieve an equivalent noise reduction outcome.

c. Noise levels from powered equipment or powered hand tools at a distance of 50 feet from the noise source or within 500 feet of a residential zone will be limited to 75 dBA, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment.

d. All construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise-suppression devices.

e. Pneumatic tools used at the site shall be equipped with an exhaust muffler on the compressed air exhaust to minimize noise levels.

f. Stationary noise sources shall be located as far from adjacent sensitive receptors as possible and shall be muffled and enclosed within temporary sheds or insulated barriers when possible.

g. Prior to commencement of construction, a designated project contact person will directly notify the management of any surrounding residential properties located within 100 feet of the project site about the construction schedule and activities and provide a contact number to address any noise-related complaints during construction.

h. A designated point of contact shall be identified to address noise-related complaints during construction. The noise disturbance coordinator will be responsible for responding to any local complaints about construction noise.

Basis for Finding. Construction activities associated with the project were assessed to last approximately 4 years, with completion anticipated in 2027. This is the most conservative analysis from a noise perspective given the most equipment would be on the site at one time if the project was implemented during one phase. During this time, noise from equipment use and activities on-site would vary throughout the project site, depending on various stages of construction. The predicted noise from construction activity is presented as a worst-case (highest noise level) scenario, where it is assumed that all equipment is present and operating simultaneously on-site for each stage of construction. Final EIR, Volume II, Table 5.11-13 shows the highest construction noise levels at each of the analyzed monitoring locations. As shown in Table 5.11-13, the estimated construction noise levels at off-site receptors ST2, ST5, ST8, ST9, and ST10 would be below the significance threshold. However, the estimated noise levels at receptors ST3, ST6, and ST7 would exceed the significance threshold by 2.7 dBA at ST3, 4.6 at ST6, and 3.9 dBA at ST7. As a result, noise impacts resulting from project construction could be *significant*.

6.10 Recreation

REC Impact 2: Construction of the Recommended Project would include enhancements and modifications to existing recreational facilities within the 13-acre project site. These activities could have an adverse physical effect on the environment. Construction impacts could be significant. Operation of the Recommended Project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Operational impacts would be less than significant. *(Final EIR, Volume II, pages 5.12-8 – 5.12-9 and page 6-57)*

The Recommended Project would result in modifications to existing structures and enhancements to the passive recreational areas and outdoor open spaces within the 13-acre project site. While the

Recommended Project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification to the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points.

As described above, construction of the Recommended Project would include improvements to existing passive recreational areas within the project site. These improvements are considered as part of the overall project design and no other recreational facilities besides the improvements included in the project would be implemented. Construction activities associated with improvements to the existing recreational areas within the project site could include grading and other ground-disturbing activities, landscaping modifications, as well as the use of construction equipment throughout the construction duration of the project.

Upon project implementation, operation of the Recommended Project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Operational impacts would be *less than significant*.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts resulting from construction activities which could result in an increase in noise and an increase in air quality construction-related emissions as identified in the EIR. Implementation of *AES/mm-4.1; AQ/mm 3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 and 1.2, HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4* would reduce construction impacts associated with enhancement of on-site passive recreational facilities to less than significant. Operational impacts would be less than significant.

> Implement construction-related ***Mitigation Measures AES/mm-4.1***; ***AQ/mm 3.1***; ***BIO/mm-1.1***, ***BIO/mm-2.1***, ***BIO/mm-3.1***, ***BIO/mm-5.1*** and ***5.2***, ***BIO/mm-6.1***; ***CR-ARCH/mm-1.1*** through ***1.4***; ***GEO/mm-3.1*** and ***3.2***, ***GEO/mm-4.1***, ***GEO/mm-6.1*** through ***6.5***; ***GHG/mm-1.1***; ***HAZ/mm-1.1*** and ***1.2***, ***HAZ/mm-2.1*** and ***2.2***; ***NOI/mm-1.1***; ***TRA/mm-4.1*** through ***4.3***; and ***TCR/mm-1.1*** through ***1.4.***

Basis for Finding. The potential for adverse physical effects on the environment during project construction are evaluated throughout the environmental topic areas presented in Final EIR, Volume II, Chapter 5, Environmental Impact Analysis. These construction activities would result in a temporary increase in noise and an increase in air quality construction-related emissions and could also have impacts on or related to aesthetics, biological resources, archaeological resources, geology and soils, and hazards and hazardous materials. Construction impacts related to the enhancement of on-site passive recreational facilities could be *significant* while operational impacts would be *less than significant*.

REC Impact 3 (Cumulative Impacts[19]): Prior to the application of mitigation measures, the Recommended Project could contribute to cumulative impacts associated with adverse physical effects on the environment. Cumulative construction impacts could be significant. Operation of the Recommended Project would not contribute to cumulative impacts. *(Final EIR, Volume II, pages 5.12-10 – 5.12-11 and page 6-57)*

[19] The geographic context for the cumulative impact analysis of parks and recreational facilities considers facilities within a 2-mile distance of the project site (see Final EIR, Volume II, Table 5.12-1). These include facilities within the City's jurisdictional boundaries as well as the neighboring jurisdiction of the City of Beverly Hills. Final EIR,

The project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Further, the project site would continue to provide passive open space and recreational amenities for public use during project construction and operation in a downtown urban area where access to recreational spaces is limited. The demand and use of the existing parks and recreational facilities within the project vicinity would likely continue to increase with implementation of related development projects, many of which include residential uses which directly drive population growth and subsequently, the use of park and recreational facilities.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts resulting from construction activities related to the expansion of recreational facilities which might have an adverse physical effect on the environment as identified in the EIR. Implementation of *AES/mm-4.1; AQ/mm 3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.3, HAZ/mm-2.1; NOI/mm-1.1; TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4* would reduce construction impacts associated with the expansion of recreational facilities to less than significant.

> Implement construction-related ***Mitigation Measures AES/mm-4.1***; ***AQ/mm 3.1***; ***BIO/mm-1.1***, ***BIO/mm-2.1***, ***BIO/mm-3.1***, ***BIO/mm-5.1*** and ***5.2, BIO/mm-6.1***; ***CR-ARCH/mm-1.1*** through ***1.4***; ***GEO/mm-3.1*** and ***3.2, GEO/mm-4.1***, ***GEO/mm-6.1*** through ***6.5***; ***GHG/mm-1.1***; ***HAZ/mm-1.1*** through ***1.3***, ***HAZ/mm-2.1***; ***NOI/mm-1.1***; ***TRA/mm-4.1*** through ***4.3***; and ***TCR/mm-1.1*** through ***1.4.***

Basis for Finding. As described in REC Impact 2, construction of the Recommended Project includes enhancements and modifications to existing recreational facilities which could have an adverse physical effect on the environment. Because construction of the Recommended Project could result in these direct impacts, the potential exists for the Recommended Project to also contribute significantly to cumulative impacts. If mitigation were not to be implemented, it is conceivable that the project would significantly contribute to these impacts. Therefore, the project's contribution could be cumulatively considerable; impacts could be *significant*. With implementation of the project's construction-related mitigation measures referenced above, the project's contribution to cumulative construction impacts would be *less than significant.*

6.11 Transportation

TRA Impact 1: The Recommended Project could result in a significant impact related to consistency with transportation plans, programs, ordinances, or policies. These impacts are largely due to operational increases in vehicle trips related to anticipated increases in visitation; however, construction-period effects are also considered in the overall project increase. *(Final EIR, Volume II, pages 5.13-18 – 5.13-21 and page 6-57)*

The analysis related to applicable transportation plans, policies, and regulations considers the holistic impacts associated with implementation of the project (i.e., it does not provide separate construction and operation analyses). This is because most policies broadly consider the appropriateness of types of land uses and the inclusion of features in the development plan that are consistent with the agency's long-range vision and goals.

Volume II, Chapter 4, Environmental Setting, provides a list of cumulative development projects in the vicinity of the project site also details nearby related projects.

The Recommended Project would result in an adjusted footprint of the new museum building with the same square footage as proposed by the project. Given the museum square footage was used, in part, to estimate the net increase in project-generated trips along with the average visitor trip length, the Recommended Project would result in similar estimated regional VMT as that estimated for the original project. Similar to the original project, the Recommended Project could result in an impact related to consistency with transportation plans, programs, ordinances, or policies for vehicle parking supply, bicycle parking supply, and transportation demand management.

Mobility Plan 2035 PROW Classification Standards for Dedications and Improvements. While the project includes new construction along Wilshire Boulevard (an Avenue I) and West 6th Street (an Avenue II), the property is not zoned for R3 or less restrictive zoning. Therefore, the project does not conflict with the dedication and improvement requirements that are needed to comply with the Mobility Plan 2035 Street Designations and Standard Roadway Dimensions.

Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes. Given that the project includes physically modifying the curb placement along Curson Avenue, City plans and policies were reviewed in light of the physical changes to determine if the City would be obstructed from carrying out the plans and policies. Curson Avenue along the project frontage is not on the High Injury Network. It is not a part of one of the designated multimodal networks. There are no existing or planned transit lines, transit stops, or bikeways along this segment. With the curb modification, the existing sidewalk would be maintained. The project would modify the curb line to create a bay for a section of curb that is already designated as a bus zone, in place of the existing landscaped area. This moves loading/unloading out of the travel lanes to separate it from the adjacent travel lane.

The project also includes a new driveway on West 6th Street (an Avenue II). However, this does not result in exceeding 1 driveway per every 200 feet along the Avenue II frontage, locating it within 150 feet of the intersecting street, or locating it near a mid-block crosswalk. The project would not conflict with plans or policies that govern the public right-of-way.

Network Access. The project would not vacate or otherwise restrict public access to a street, alley, or public stairway. It does not create a cul-de-sac and is not located adjacent to an existing cul-de-sac. Therefore, the project would not conflict with a plan or policies that ensures access for all modes of travel.

Parking Supply and Transportation Demand Management. The project does not include a supply of on-site parking that exceeds the baseline amount as required in the City of Los Angeles Municipal Code. No increase in the on-site parking supply is anticipated from existing conditions, and the overall museum square footage is increasing. The project would not conflict with parking management policies.

The City of Los Angeles Municipal Code bicycle parking requirements for institutional uses are one short-term parking space per 10,000 of floor area, and one long-term parking space per 5,000 square feet of floor area. Since the project includes a net increase of 42,000 square feet, this means that four short-term spaces and eight long-term spaces are required. At this time, the project site plan is conceptual and therefore does not indicate the amount nor location of bike parking. Therefore, the project may conflict with the City of Los Angeles Municipal Code requirements for bicycle parking.

The Transportation Demand Management (TDM) Ordinance requires projects between 25,000 and 50,000 square feet to provide a transportation information display with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities. At the time of EIR development, the project site plan is conceptual and does not indicate the location of this required TDM measure. Therefore, the project may conflict with the City of Los Angeles Municipal Code requirements for TDM.

Consistency with Regional Plans. The project was reviewed to determine potential inconsistencies with GHG reduction targets forecasted in the SCAG RTP/SCS. The project was analyzed using a total VMT threshold (as opposed to an efficiency-based impact threshold). The project site functions as a regional attraction and the project would result in a net increase in regional VMT. Since the project would result in a net increase in VMT, further evaluation was necessary to determine whether this project would be inconsistent with VMT and GHG reduction goals of the SCAG RTP/SCS.

It was determined that without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, ensuring safety, maximizing transportation productivity, encouraging active transportation, and improving air quality. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. The project may conflict with the following relevant RTP/SCS goals:

- Improve mobility, accessibility, reliability, and travel safety for people and goods
- Enhance the preservation, security, and resilience of the regional transportation system
- Increase person and goods movement and travel choices within the transportation system
- Reduce greenhouse gas emissions and improve air quality
- Leverage new transportation technologies and data-driven solutions that result in more efficient travel

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts to consistency with transportation plans, programs, ordinances, or policies as identified in the EIR. Implementation of *TRA/mm-1.1* would reduce impacts associated with inconsistencies with plans to less than significant.

***Mitigation Measure TRA/mm-1.1*:** In consultation with the LADOT, the Los Angeles County Museum of Natural History Foundation (Foundation) shall prepare and implement a Transportation Demand Management (TDM) Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare.

The Foundation shall designate an existing member of staff as the on-site TDM Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT.

Employee Strategies:

Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures may be applied to reduce employee vehicle trips and VMT:

- Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.
- Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.
- Encourage and support participation in Metro vanpool, including subsidies for participation.
- Implement paid parking for employees.
- Subsidize transit passes.

- Offer flexible work schedules and telecommuting, when feasible.

Visitor Strategies:

Transportation information for visitors shall be displayed on La Brea Tar Pits' website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT:

- Advertise and offer discounted museum tickets for visitors who use public transit or a bicycle to visit the project.
- Provide and maintain secure on-site bicycle parking for visitors and monitor usage to determine if additional bicycle racks are needed.
  - Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.
  - Ensure bicycle parking is well lit and monitored by staff.
- Continue to have paid parking for visitors.
- Coordinate with Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to La Brea Tar Pits, through the following measures:
  - Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits.
  - Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors.
  - Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection.
- Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and West 6th Street.

Basis for Finding. Through the analysis described above, it was determined that the Recommended Project would be inconsistent with regional plans related to mobility and GHG reductions, as well as the City of Los Angeles Municipal Code requirements for bicycle parking and TDM. As such, the project could result in a *significant impact* related to consistency with plans, programs, ordinances, or policies.

TRA Impact 4: The Recommended Project could result in inadequate emergency access during construction and operation. Project impacts would be potentially significant. *(Final EIR, Volume II, pages 5.13-23 – 5.13-25 and page 6-58)*

Construction of the Recommended Project would include renovation and expansion of the existing museum, demolition of the existing museum entrances, grading and excavation, and construction of new structures and related infrastructure. While all construction activities, including construction staging of equipment, would be situated entirely within the project site, it is possible that project construction and needs for unique construction-period access could cause temporary delays to vehicles (including emergency response providers) in the vicinity of the project site.

Once the project is constructed and operational, emergency vehicle access to the project site would be provided from the two site entrances off South Curson Avenue and off West 6th Street. The project may

result in queuing and delays at the two major intersections directly next to (and providing access to) the project site, which could affect emergency access to the project site and other nearby sites.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts related to inadequate emergency access during construction and operation as identified in the EIR. Implementation of *TRA/mm-4.1; TRA/mm-4.2; and TRA/mm-4.3* would reduce impacts associated with the construction operation activities of the project to less than significant.

***Mitigation Measure TRA/mm-4.1*:** A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, and the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions:

- Prohibition of construction worker parking on nearby residential streets.
- Prohibition of construction-related vehicles parking or staging on surrounding public streets.
- Prohibition of construction-related parking or staging on streets with bus service.
- Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways.
- Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate.
- Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible.
- Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible.
- Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible.

***Mitigation Measure TRA/mm-4.2*:** Consultation shall occur with the City of Los Angeles Fire Department (LAFD) to analyze the project's emergency access design, including a review of the proposed vehicle access points. Construction activities and their impact on emergency access shall also be reviewed to ensure that the final design provides adequate access to the project site and neighboring businesses and residences.

***Mitigation Measure TRA/mm-4.3*:** To improve emergency access safety and circulation, coordination shall occur with LADOT to explore the feasibility of implementing one or more of the following improvements:

a. Signal timing at the built-out intersection of Curson Avenue/Wilshire Boulevard shall be regularly updated to optimize traffic signal timing. In addition, the weekday a.m. and p.m. peak period bus-only lanes on Wilshire Boulevard shall be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection.

b. Signal timing at the Curson Avenue/West 6th Street intersection shall be regularly updated to optimize splits. In addition, improve existing lane striping to extend the northbound left-turn lane at the intersection, and/or add an inbound left-turn lane at the project's Curson Avenue driveway.

c. Incorporate safety features to accommodate passenger pick-up and drop-off along West 6th Street when planned separated bike lanes are implemented.

d. Monitor driveway operations at Curson Avenue.

e. The County of Los Angeles does not have the authority to impose these measures because they are within the discretionally authority of the City of Los Angeles. Thus, while they are recommended, the County of Los Angeles is not required to implement them. However, the requirement to coordinate with the City and facilitate possible implementation of the above measures shall be required.

Basis for Finding. The Recommended Project would be required to be designed in accordance with the California Vehicle Code (CVC), which provides requirements for ensuring emergency vehicle access regardless of traffic conditions. In addition, the project's emergency vehicle access would need to comply with Los Angeles Fire Department (LAFD) access requirements as to not impede emergency access within the project vicinity, and all project driveways would be required to be designed according to LADOT standards to ensure adequate access, including emergency access, to the project site. While increased vehicle traffic may increase delays and queues on the network, the drivers of emergency vehicles normally have a variety of options for avoiding traffic, such as using sirens to clear a path of travel, activating emergency vehicle pre-emption phases on traffic signals, or driving in the lanes of opposing traffic. Pertaining to emergency access within the project site, a Preliminary Basis of Design Narrative was prepared for the project to outline the applicable codes related to fire safety and access features required to ensure adequate on-site circulation and access to the buildings and park areas within the project site (Code Consultants, Inc. [CCI] 2021). As outlined by CCI, the project would be designed in accordance with regulations set forth in the County of Los Angeles Building Code as well as the City of Los Angeles Fire Code as they pertain to fire safety and emergency access.

Given the project is undergoing continued development, the specific emergency access design and parameters have not been finalized, either for construction-period or post-construction conditions. For these reasons, emergency access impacts are considered *potentially significant*.

6.12 Tribal Cultural Resources

TCR Impact 1: During construction of the Recommended Project, the project could cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Sections 5020.1(k) and 5024.1. Construction impacts could be significant. Operation of the Recommended Project would not cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Sections 5020.1(k) and 5024.1. No operational impacts would occur. *(Final EIR, Volume II, pages 5.14-9 – 5.14-13 and page 6-58)*

The County, as the CEQA Lead Agency, has provided notification to Native American tribes affiliated with the project site pursuant to AB 52. Responses were received from four of the five tribes: Fernandeño Tataviam Band of Mission Indians, Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/ Tongva San Gabriel Band of Mission Indians, and San Manuel Band of Mission Indians. Of those responses, Fernandeño Tataviam Band of Mission Indians, Gabrieleno Band of Mission Indians – Kizh Nation, and Gabrieleno/Tongva San Gabriel Band of Mission Indians have requested consultation for the project. The project site contains LAN-159/H, which is recommended eligible for the California Register of Historical Resources under Criterion 4 because it possesses sufficient archaeological data with the potential to contribute important information to history and it retains integrity. Based strictly on this scientific assessment, LAN-159/H meets the definition of a historical resource and a unique archaeological resource.

The Recommended Project would result in renovation and upgrades throughout the Tar Pits complex, including the 13-acre portion of Hancock Park and the Page Museum. At the time of preparation of this report, final engineering, design, and grading plans for the project had not been finalized. Because the project design is at a preliminary stage, the level detail needed to determine the precise depth and extent of ground disturbance is not known. However, the level of design that has occurred to-date allows for a general characterization of the overall ground disturbance and excavation that would be necessary for the project. For impact assessment purposes, the design team for the project, working with the Los Angeles County Museum of Natural History Foundation and the County, estimates that, at most, the project would require excavations 6 to 10 feet below ground, potentially involving 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill. These estimates represent the most impactful scenario in terms of depths and horizontal extent of excavation within the project site. Thus, ground-disturbing activities have the potential to directly impact LAN-159/H as a tribal cultural resource.

Operation of the Recommended Project would not result in any ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, there is no potential to encounter, alter, or disturb tribal cultural resources during project operation. No impact would occur during project operation.

Grading plans and construction drawings have not been prepared and the specific phases of the project implementation have not been determined. Preparing the Archaeological Resources-Tribal Cultural Resources (AR-TCR) Management Plan using more advanced project designs and based on an anticipated schedule for the types of construction activities would allow the AR-TCR Management Plan to better account for this information in the document and ensure proper implementation. However, the project plans and the analysis of a known archaeological and tribal cultural resource, supported by substantial evidence, are sufficiently detailed to allow for the specific performance criteria to be identified for the AR-TCR Management Plan, the implementation would occur at a later time.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant impacts in relation to substantial adverse change of a tribal cultural resource during construction as identified in the EIR. Implementation of *TCR/mm-1.1; TCR/mm-1.2; TCR/mm-1.3; and TCR/mm-1.4* would reduce impacts associated with significant changes to tribal cultural resources to less than significant.

***Mitigation Measure TCR/mm-1.1*:** Retain Tribal Consultants.

a. Prior to any ground-disturbing activities on the project site associated with the project, the Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/
Tongva San Gabriel Band of Mission Indians, and Gabrielino Tongva Indians of California shall be retained as Tribal Consultants. Each of the Tribal Consultants shall provide the services of a representative, known as a Tribal Monitor. The Tribal Monitor(s) shall be present on-site and carry out actions described in the Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan) and any actions required to comply with mitigation measures for tribal cultural resources. These actions shall include but not be limited to monitoring ground-disturbing activities. Ground disturbing activities are defined as excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing trees, clearing, driving posts or pilings, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The frequency of the monitoring services shall be provided on a rotational basis as outlined in TCR/mm-1.3.

b. At least 21 days before any ground disturbing activities commence, each of the Tribal Consultants shall submit a letter of retention to the Museum of Natural History confirming that the that they have been retained consistent with the terms of the TCR/mm-1.1.

***Mitigation Measure TCR/mm-1.2*:** Prior to any ground-disturbing activities on the project site associated with the project, the Tribal Consultants or Tribal Monitors shall provide a worker training to on-site project personnel responsible for supervising ground-disturbing activities (i.e., foreman or supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The worker training shall include but not be limited to any topics related to protocols related to tribal cultural resources, regulatory compliance requirements, monitoring procedures and stop-work restrictions, and any other applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of tribal cultural resources. As an element of the worker training, the Tribal Consultants or Tribal Monitors shall advise the construction crews on proper procedures to follow if an unanticipated tribal cultural resource is discovered during construction whether a Tribal Monitor is present or not. The Tribal Consultants or Tribal Monitors shall also provide the construction workers with contact information for the Tribal Consultants and Tribal Monitors. Once the ground disturbances have commenced, the need for additional or supplemental worker training shall be determined through consultation with the Tribal Consultants, and project proponent or their designated project supervisor. Within 5 days of completing a worker training, a list of those in attendance shall be provided to the Museum of Natural History by the Tribal Consultants, the Qualified Archaeologist, or a designee of either parties.

***Mitigation Measure TCR/mm-1.3*:** Monitoring for Tribal Cultural Resources.

a. Prior to any ground-disturbing activities associated with the project, a minimum of one Tribal Monitor shall be present during ground-disturbing activities as stipulated in the AR-TCR Management Plan. The AR-TCR Management Plan shall establish a monitoring schedule in a manner that provides opportunities for each of the three Tribal Consultants to participate in monitoring throughout the project's duration and within specific project phases that involve ground-disturbing activities. The monitoring schedule shall be determined at the sole discretion of the Museum of Natural History. The Museum of Natural History or their designee shall notify each Tribal Consultant in advance of its assigned monitoring period to allow for adequate preparation and planning. The Qualified Archaeologist shall be responsible for coordinating and communicating with the Tribal Consultants to address the need for consistency in reporting of the results during the rotational monitoring process. If one Tribal Monitor is unable to attend on a given day, but another Tribal Monitor is present, ground disturbing work shall commence. The need for additional monitors exceeding the two respective Tribal Monitors shall be assessed if the areas subject to monitoring exceeds what can be reasonably covered. The Tribal Monitors shall work under the direction of their respective Tribal Consultant. The Tribal Monitors shall complete daily monitoring logs that provide descriptions of the relevant ground-disturbing activities (the type of construction activities performed and location of ground-disturbing activities), sediment types, presence or absence of tribal cultural resources or potential tribal cultural resources, and any other facts, conditions, materials, or discoveries of significance to the Tribal Consultants. Monitor logs shall identify and describe any discovered tribal cultural resources or potential tribal cultural resources as defined in Public Resources Code Section 21074(a), which includes but is not limited to Native American artifacts, remains, places of significance, as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs shall be provided to the project Lead Agency and the Qualified Archaeologist for purposes of summarizing in the monitoring report.

b. The Tribal Monitors shall have the authority to temporarily halt or redirect construction activities if a tribal cultural resource or potential tribal cultural resource is exposed during construction. If a tribal cultural resource or potential tribal cultural resource is identified, work in the immediate vicinity (not less than 50 feet) of the find shall stop unless another distance is determined by both the Tribal and Archaeological Monitors, which shall consider

the nature of the find and the potential for additional portions of the resource to remain buried in the unexcavated areas of the project site. Construction activities may continue in other areas in coordination with the qualified archaeologist and tribal consultant.

c. If a potential component of the existing tribal cultural resource (LAN-159/H) is identified, it shall be assessed by the Tribal Consultants as a tribal cultural resource in terms of its cultural value, based on tribal expertise, and supported by substantial evidence. If the discovery is archaeological in nature, then the assessment shall also incorporate the Qualified Archaeologist's evaluation as a potential contributor to the significance of LAN-159/H based on the California Register of Historical Resources criteria or as a unique archaeological resource, as specific in the AR-TCR Management Plan and in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. Any identified tribal cultural resources shall be assessed by both Tribal Consultants and the materials shall be cataloged and stored at the Page Museum for the period in which the ground-disturbing activities are occurring. Further analysis and the disposition of any collected materials shall be determined through consultation with the Tribal Consultant, the County, and informed by the evaluation of the materials as elements that contribute to the significance of the archaeological resource. Any consultation required shall occur on an as-needed basis during the ground-disturbing activities and continue after tribal monitoring has concluded as part of the reporting process described in Part F of TCR/mm-1.4 and CR-ARCH/mm-1.4.

d. If initial monitoring identifies no further sensitivity (i.e., sediments incapable of containing tribal cultural resources) below a certain depth or within a certain portion of the project site, a corresponding reduction of monitoring coverage would be appropriate. The reasoning for and scale of the recommended reduction shall be assessed by the Tribal Consultant in consultation with the Qualified Archaeologist and communicated to the Museum of Natural History in writing prior to reduction. Monitoring for tribal cultural resources shall be required until there is written confirmation from the County or a supervisor responsible for overseeing the ground-disturbing activities that there shall be no further ground-disturbing activities on the project site or in connection with the project site, either for the duration of the project.

e. Within one month of concluding the tribal cultural resources monitoring, the Tribal Consultants shall prepare a memo stating that the monitoring requirements have been fulfilled consistent with the terms of TCR/mm-1.3 and summarize the results of any finds and actions taken by the tribal monitor to implement the final measures related to tribal cultural resources. The memo shall be submitted to the Museum of Natural History and the Qualified Archaeologist to be attached to a final archaeological and tribal monitoring report prepared by the Qualified Archaeologist consistent with CR-ARCH/mm-1.4.

***Mitigation Measure TCR/mm-1.4*:** If human remains are encountered during construction all ground-disturbing work shall be immediately diverted from the discovery as directed by the Tribal Consultant and Qualified Archaeologist and based on consideration of the possibility that additional or multiple Native American human remains may be located in the project site, and after having considered whether the bones are human or faunal. Upon discovery of human remains, whether the archaeological or tribal monitor is present, the Los Angeles County Coroner's Office shall be notified, as prescribed in Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. If the Coroner determines that the remains are of Native American origin, the Coroner shall proceed as directed in Section 15064.5(e) of the State CEQA Guidelines, and as specified in the TCRMMP, which require the coroner to notify the NAHC who will appoint a Most Likely Descendent (MLD). Funerary objects, called associated grave goods in Public Resources Code 5097.98, are also to be treated accordingly. While the coroner determines whether the remains are Native American and the MLD is designated and notified, the discovery is to remain confidential and secure to prevent any further disturbance.

Basis for Finding. Given the input provided by the consulting tribal parties, the contents of LAN-159/H and any additional components that may be buried within the project site have cultural value, which extends beyond the scientific data potential. The consulting tribal parties have stated that they consider the materials previously recorded and any that may be identified to have cultural value, regardless of whether they are recovered from their originally deposited setting or have been moved via artificial means over time. Furthermore, three of the consulting tribal parties and one of the tribes contacted for informational purposes have stated in a more generalized sense that they consider the site to be sensitive, sacred, or otherwise culturally significant. The boundaries of Native American components previously recorded for LAN-159/H have been delineated within the larger site boundary that occupies the full extent of the project site. While not all subsurface settings within the project site boundary have an equal probability of containing additional Native American components, the boundary established for LAN-159/H represents a reasonable approximation of the area in which additional Native American materials could be preserved and provides an adequate basis on which the potential for project impacts can be assessed. Thus, LAN-159/H meets the definition of a tribal cultural resource. Therefore, impacts to tribal cultural resources during project construction could be *significant*.

According to State CEQA Guidelines 15126.4(b)(3), preservation in place (i.e., avoidance) is the preferred manner of treatment of a significant archaeological site. If a previously unrecorded archaeological component of LAN-159/H is identified during ground-disturbing activities for the project and is found to contribute to the significance of the site, it is possible that under some circumstances preservation in place would not be a feasible form of mitigation under any of the examples listed in State CEQA Guidelines, and alternative treatment options would be required to avoid or reduce potentially significant impacts. If avoidance is not feasible, treatment may include archaeological data recovery (i.e., excavation, laboratory processing, and analysis) to obtain important information and thereby reduce potential impacts to *less than significant.*

TCR Impact 2 (Cumulative Impacts[20]): Prior to the consideration of proposed mitigation measures, construction of the Recommended Project could result in significant contributions to cumulative impacts related to the disturbance and destruction of tribal cultural resources. *(Final EIR, Volume II, pages 5.14-13 – 5.14-14 and page 6-58)*

Tribal cultural resources are nonrenewable, irreplaceable, and inherently important to the Native American descendants, and their destruction prevents further study of past lifeways and history. Projects that could be developed in the northwestern Los Angeles Basin include the development projects listed in Final EIR, Volume II, Chapter 4, Environmental Setting, as well as additional development projects beyond the geographical limit of the cumulative project listing contained in Chapter 4. The development of projects in the northwestern Los Angeles Basin could result in the destruction of tribal cultural resources and, particularly those for land development and transportation, would have the potential to result in a cumulative impact associated with the loss of tribal cultural resources. Given the potential for tribal cultural resources in the northwestern Los Angeles Basin and the number of construction activities

[20] The geographic context for the analysis of cumulative impacts to tribal cultural resources is defined as the northwestern Los Angeles Basin—approximately the area west of the Los Angeles River, south of the Santa Monica Mountains, east of the Pacific coastline, and north of the Palos Verde Peninsula. The northwestern Los Angeles Basin area is large enough to contain a representative sample of Native American archaeological sites that could be important to affiliated California Native American tribes, and it is small enough to account for the cumulative impacts from projects on a more local scale. Importantly, the northwestern Los Angeles Basin is fully within the traditional territory of the Gabrielino and to a lesser extent the overlapping portions of the traditional territory of Tataviam-affiliated groups. The full extent of the traditional Gabrielino territory includes adjoining regions to the north, east, and south. Further discussion of the northwestern Los Angeles Basin as the geographic context used to analyze cumulative impacts is provided above in Final EIR, Volume II, Section 5.4.6, which is focused upon archaeological resources but is relevant to the analysis of tribal cultural resources.

that involve disturbance of areas sensitive for tribal cultural resources, cumulative impacts to tribal cultural resources could occur through physical demolition, destruction, relocation, or alteration to a resource such that it would cause an adverse change in the significance of tribal cultural resources—California Register of Historical Resources eligible resources as defined in Public Resources Code Section 2020.1(k) or resources considered by the County to be tribal cultural resources pursuant to Public Resources Code Section 5024.1.

The Recommended Project has the potential to contribute to a loss of tribal cultural resources that could combine with impacts from past, present, and reasonably foreseeable projects prior to implementation of the mitigation measures outlined previously in this section. The project's contribution toward cumulative effects on tribal cultural resources in the region could be significant if mitigation measures were not required and implemented to address the potential for direct impacts and the potential for project contribution to cumulative impacts.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts to the disturbance and destruction of tribal cultural resources as identified in the EIR. Implementation of *TCR/mm-1.1 through TCR/mm-1.4* would reduce impacts associated with the construction of the project to less than significant.

> Implement ***Mitigation Measures TCR/mm-1.1*** through ***TCR/mm-1.4***.
>
> These measures put forward a process that ensures any new tribal cultural resources or new components of an existing tribal cultural resource will be identified, inventoried, evaluated for significance in terms of its value to a California Native American tribe, and treated appropriately if found to be a contributing element.

Basis for Finding. As provided in the environmental impacts analysis in Final EIR, Volume II, Section 5.14.5, a series of mitigation measures have been developed to address the project's potential for impacts to tribal cultural resources, which build upon and enhance the process put forward in *Mitigation Measures CR-ARCH/mm-1.1* through *CR-ARCH/mm-1.4*. These mitigation measures have been developed to not only address direct impacts of project implementation, but also to address the project's contribution to cumulative tribal cultural resource impacts. Implementation of *Mitigation Measures TCR/mm-1.1* through *TCR/mm-1.4*—which provide for retention of a qualified tribal consultant, worker training, monitoring by tribal monitors, and treatment of unanticipated discoveries—would ensure that tribal cultural resources impacts, both direct and contributions to cumulative impacts, are reduced to less than significant with mitigation. Taken together, implementation of these mitigation measures would ensure that the project would have less-than-significant impacts related to tribal cultural resources, as well as address the project's potential for significant contributions to potential cumulative tribal cultural impacts in the northwestern Los Angeles Basin.

6.13 Utilities and Service Systems

<u>UTL Impact 1</u>: During construction of Recommended Project, the construction of new or expanded sewer lines from the project site could be required to an identified point of connection within existing sewer system facilities. LASAN will not be able to give a definitive confirmation of adequate sewer system capacity for the project without further detailed gauging and evaluation associated with more detailed architectural plans, which would be provided during the project's permitting phase. At this juncture, it is not known if new or upgraded sewer lines would be required and conclusion of this analysis would be speculative. Impacts related to construction of new or expanded utility infrastructure could be significant. Operational impacts would be less than significant. *(Final EIR, Volume II, pages 5.15-9 – 5.15-13 and pages 6-58 – 6-59)*

Water. Delivery of potable water to the project site would be provided by LADWP. On-site water delivery infrastructure would include a 3-inch water line and a 3-inch fire line at the northeast corner of the site beneath the adjusted parking lot, which would connect to the existing water meter in the sidewalk on South Curson Avenue (KPFF 2021). From there, the project site is served by three water mains that include two 8-inch asbestos-cement pipelines along Wilshire Boulevard and Curson Avenue, and a cast-iron pipeline along 6th Street (LADWP 2022). New above grade backflow preventer devices would be located just inside the property line adjacent to the meter. Water service to both the Observation Pit, as well as Project 23, is currently provided by LACMA. Due to the relatively remote location of these service points compared to their proximity to LACMA, it is assumed that those demands would continue to be served by and coordinated with LACMA. Based on a response letter provided by LADWP on October 28, 2022, regarding the project's request for water and electric service connection, other than the improvements described above, LADWP confirmed that there are no known issues or deficiencies related to water services or facilities within the project site vicinity (see Final EIR, Appendix K). The estimated water demand anticipated upon project implementation is detailed in the analysis provided for threshold b).

Wastewater. Wastewater discharge from the project site is directed to the east where it connects by gravity to an existing City of Los Angeles public sewer main. The sewage infrastructure in the vicinity of the project site includes an existing 12-inch line on South Curson Avenue. The 12-inch line feeds into an 18-inch line on Wilshire Boulevard then into a 39-inch line on Crescent Heights Boulevard before discharging into a 48-inch sewer line also located on Crescent Heights Boulevard (LASAN 2022). The Observation Pit and Project 23 sewer connections tie into LACMA infrastructure. Wastewater generated from the new project elements would be conveyed from the sewer line at the northeast corner of the site beneath the adjusted parking lot to the existing 12-inch sewer main along South Curson Avenue. On-site sewer lines would connect to the existing sewer main along South Curson Avenue. Ultimately, wastewater flows from the Recommended Project would be conveyed through these sewer lines and treated at the Hyperion Wastewater Reclamation Plant.

Based on a letter provided from LASAN dated November 22, 2022, LASAN analyzed its existing infrastructure capacity to convey and treat project wastewater flows (see Final EIR, Appendix K). Based on LASAN's calculations, the project would result in an increase of approximately 5,823 gallons of wastewater flow per day. With this level of flow, LASAN concluded that while there is sufficient capacity within the existing sewer system to treat wastewater flows generated by the project at the Hyperion Wastewater Reclamation Plant, the capacity to convey wastewater flows via the existing sewer lines serving the project site would require further detailed gauging and evaluation (see Final EIR, Appendix K). In consideration of LASAN requirements, detailed gauging and calculation of available sewer line capacities will be required as part of the permit process, which will occur when building plans are more fully developed and able to be submitted to LASAN. As part of this process, LASAN would identify

specific sewer point connections, verify that capacity still exists in the infrastructure, and determine if new or additional sewer lines would need to be built to the planned point of connection (LASAN 2022).

Stormwater Drainage. As described in Final EIR, Volume II, Section 5.9, Hydrology and Water Quality, implementation of the project would result in a decrease of pervious surfaces from 59.3% to 51.9%.and would modify the existing drainage management areas as shown in Figure 5.9-5 in Final EIR, Volume II, Section 5.9 and Final EIR, Appendix H. The project's drainage pattern would convey all on-site drainage to on-site stormwater management systems (i.e., the three biofiltration areas) prior to discharging stormwater off-site. The drainage plan also includes a drainage area that is entirely within the public right-of-way and consists of runoff that drains directly to the existing Wilshire Boulevard stormwater facilities. In addition, the project's grading and drainage plan for the site has been designed to use the existing topography of the site and maintain historic drainage patterns to the maximum extent feasible, with integration of additional water quality and drainage facilities to meet or exceed applicable Los Angeles Regional Water Quality Control Board (LARWQCB) Post-Construction Stormwater Management Requirements.

The drainage plan for the Recommended Project consists of three new biofiltration systems to manage stormwater runoff, designed in accordance with the Los Angeles County Low Impact Development Standards Manual. Proper design of landscape features and site grading, as well as implementation of the biofiltration systems, would have the potential to improve the quality of stormwater runoff from the project site. The City has designed the existing storm drainage infrastructure serving the project site to carry stormwater flows per the County of Los Angeles Department of Public Works Hydrology Manual (County Public Works 2006) and the City of Los Angeles Department of Public Works Storm Drain Design Manual (City of Los Angeles 1986) and is designed to carry the 50-year storm event per the County's Hydrology Manual. No known deficiencies exist in the vicinity of the project. Furthermore, the project's drainage plan has the potential to increase the water quality of discharged stormwater flows through implementation of the project's biofiltration areas and would result in peak discharge flow rates that are not anticipated to exceed the capacity of the existing storm drain conveyance system (see Final EIR, Appendix H for peak discharge flow rates per drainage area). Therefore, the project is designed to capture, filter, and reduce the volume of any additional runoff from the project's impervious surfaces in a way that mimics, as well as improves, existing drainage patterns (see Final EIR, Volume II, Section 5.9.5 and Final EIR Appendix H for peak discharge flow rates per drainage area).

Electricity and Natural Gas. Upgrades would be required with respect to electric power and natural gas facilities, based on the construction of the new museum building. Point of connection to the project will be submitted to LADWP and SoCalGas prior to construction. Upgrades would be confined to the lateral connections to the project site and not any centralized facilities. Upgrades would likely be completed by either trenchless technology or completion of open trenching, to the depth of the underground utilities. The construction of the laterals would be temporary and would be subject to all applicable regulatory requirements. In addition, there would be solar electric power for the new museum building as well as additional energy-saving measures, including natural light to be harvested for the main spaces using large expanses of glass and skylights; daylighting systems to coordinate the levels of artificial lighting; HVAC systems that would be sized and designed in compliance with the CALGreen Code to maximize energy efficiency caused by heat loss and heat gain; and new and existing tree canopies to be used to protect building walls from sun exposure and provide shade for the ground area. In compliance with Title 24's Energy Efficiency Standards for Residential and Non-Residential Buildings in California, the energy savings would help offset any additional energy demands and consumption resulting from the project (Final EIR, Appendix L). Final EIR, Volume II, Chapter 7, Other CEQA Considerations, provides further analysis related to the project's energy consumption.

Telecommunications. The Recommended Project would continue to rely on the same internet and phone services as existing conditions expanding the services of current providers to the new museum (e.g., AT&T, Centrex, and Crown Castle). Future connections with these service providers are not anticipated to result in the need for construction of new or expanded infrastructure beyond the typical connections required within the project site to the new building.

Construction. Construction and installation of the utility infrastructure improvements described above would be conducted during the initial site preparation activities to allow for renovations within the project site and would require grading and ground-disturbance activities that have been considered throughout Final EIR, Volume II, Chapter 5, Environmental Impact Analysis. *Mitigation Measures AES/mm-4.1*, *AQ/mm-3.1*; *BIO/mm-1.1*, *BIO/mm-2.1*, *BIO/mm-3.1*, *BIO/mm-5.1* and *5.2*, and *BIO/mm-6.1*; *CR-ARCH/mm-1.1* through *1.4*; *CR-HIST/mm-1.1* through *1.5*; *GEO/mm-3.1* and *3.2*, *GEO/mm-4.1*, and *GEO/mm-6.1* through *6.5*; *GHG/mm-1.1*; *HAZ/mm-1.1* through *1.2* and *HAZ/mm-2.1* and *2.2*; *NOI/mm-1.1*; *TRA/mm-1.1* and *TRA/mm-4.1* through *4.3*; and *TCR/mm-1.1* through *1.4* have been identified to reduce potential impacts associated with construction of future uses on-site, including construction and installation of new utility infrastructure within the boundaries of the project site.

Construction and implementation of the infrastructure improvements that may be required beyond the project site would be expected to occur within existing roadway rights-of-way in areas that have been previously disturbed. As well, where applicable, the mitigation measures identified above apply to all project elements, including off-site improvements.

In addition, construction and installation of utility infrastructure would require preparation and implementation of a stormwater pollution prevention plan with construction best management practices for short- and long-term erosion control in accordance with RWQCB requirements. Construction crews would also be required to comply with California Code of Regulations Title 22, which regulates the use, storage, and transport of hazardous materials, and Health and Safety Code Division 20, Chapter 6.95, which requires the preparation and implementation of a hazardous material release response plan and the preparation of a hazardous materials inventory for materials used and stored at the site.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant potential impacts related to the construction of new or expanded utility infrastructure as identified in the EIR. Implementation of *UTL/mm-1.1; AES/mm-4.1; AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 and 1.2, HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1, TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4* would reduce construction impacts associated with the possible expansion of the sewer lines from the project site to an identified point of connection within the existing sewer system facility to less than significant.

> ***Mitigation Measure UTL/mm-1.1*:** To confirm the sewer system serving the project site can accommodate the total wastewater flows generated by the project, the Los Angeles County Museum of Natural History Foundation shall coordinate with Los Angeles Sanitation and Environment (LASAN) during project permitting and prior to construction for confirmation of sewer system capacity. LASAN shall make this determination by conducting detailed gauging and further evaluation to identify a specific sewer connection point and/or to determine if upgrading or additional sewer lines are necessary to accommodate the project.
>
> Implement ***Mitigation Measures AES/mm-4.1***; ***AQ/mm-3.1***; ***BIO/mm-1.1***, ***BIO/mm-2.1***, ***BIO/mm-3.1***, ***BIO/mm-5.1*** and ***5.2***, ***BIO/mm-6.1***; ***CR-ARCH/mm-1.1*** through ***1.4***; ***GEO/mm-3.1*** and ***3.2***, ***GEO/mm-4.1***, ***GEO/mm-6.1*** through ***6.5***; ***GHG/mm-1.1***; ***HAZ/mm-1.1*** and ***1.2***, ***HAZ/mm-2.1*** and ***2.2***; ***NOI/mm-1.1***; ***TRA/mm-1.1***, ***TRA/mm-4.1*** through ***4.3***; and ***TCR/mm-1.1*** through ***1.4***.

Basis for Finding. While adherence to applicable state and local regulations as well as implementation of identified mitigation measures would serve to reduce potential impacts related to construction of new or expanded utility infrastructure during project construction, whether additional or upgraded off-site LASAN infrastructure would be required is not known at this time and, if they were to be required, their location is not known. While there is sufficient capacity to treat wastewater flows from the Recommended Project at the Hyperion Wastewater Reclamation Plant, LASAN will not be able to give a definitive confirmation of adequate sewer line capacity for the Recommended Project without further detailed gauging and evaluation associated with more detailed architectural plans, which would be provided during the project's permitting phase. At this juncture, it is not known if new or upgraded sewer lines would be required and conclusion of this analysis would be speculative. Additional coordination with LASAN and consideration of sewer line capacity would be required to determine if additional sewer line infrastructure upgrades and/or new facilities would be necessary to accommodate the Recommended Project. Therefore, impacts related to construction of new or expanded utility infrastructure could be *significant.*

Following implementation of the Recommended Project, LADWP would maintain the project site's water and electricity infrastructure, LASAN would maintain the sewer and stormwater drainage infrastructure (stormwater drainage in coordination with the Los Angeles County Flood Control District), and natural gas infrastructure would be maintained by SoCalGas. Future maintenance and repair trips associated with maintenance of new utility infrastructure would occur on an as-needed basis and are not anticipated to generate a substantial number of vehicle trips that could result in an adverse quantity or concentration of criteria air pollutants or greenhouse gas emissions. Therefore, operation of utility infrastructure improvements would not result in long-term impacts, and operational impacts would be *less than significant*.

UTL Impact 6 (Cumulative Impacts[21]): The Recommended Project could result in contributions to cumulatively considerable impacts related to off-site upgrades to LASAN's sewage collection system. At this juncture, it is not known whether new or upgraded sewer lines would be required and the conclusion of this analysis would be speculative. However, it is reasonable to assume that some potential for environmental impacts would occur with an infrastructure upgrade that may be required to collect sewage from the La Brea Master Plan project in combination with other development projects that are developed within LASAN's service area. *(Final EIR, Volume II, pages 5.15-18 – 5.15-20 and pages 6-58 – 6-59)*

The Recommended Project would result in a similar project site design as the original project, except for the adjusted footprint for the new museum building. While the footprint would be adjusted in this alternative, it would be the same size as the building proposed by the original project. As such, the Recommended Project would result in similar demand for utilities and service systems as the original project.

In general, the preceding sections consider the overall growth and demands the service providers are anticipating with future development. While not anticipated, potential environmental impacts related to potential utilities and infrastructure improvements beyond the 13-acre La Brea Tar Pits project site would be addressed by implementing the resource-specific mitigation measures identified for the specific resource areas of concern (e.g., cultural resources). Because LASAN has indicated that there is some potential that additional sewer line capacity would be necessary to serve the Recommended Project, it is most conservative to assume that an off-site upgrade of a sewer line could be required to serve the Recommended Project in combination with other projects that may be developed in the area, as project

[21] Background to the cumulative analysis and a description of the geographic area are provided in Final EIR, Volume II, Chapter 4, Environmental Setting, of the EIR.

plans for the La Brea Tar Pits Master Plan are finalized, and construction begins. As such, the Recommended Project has the potential to result in secondary cumulatively considerable impacts related to the potential upgrades of LASAN sewer lines to serve the project and other development in LASAN's service area.

As discussed under UTL Impact 2 in Final EIR, Volume II, Section 5.15, LADWP is projected to have sufficient water supplies to serve the project, its existing commitments, and the project's projected water demand during normal, single dry, and multiple dry year conditions to the year 2045 (LADWP 2020). Other reasonably foreseeable future projects proposed within the project site would be subject to environmental review to determine individual water demand and potential impacts to LADWP's water supply availability. Based on LADWP's current surplus of water supplies and the feedback received from LADWP on the utility's ability to serve the project, the project's potential contribution to cumulative impacts related to water supply are not considered cumulatively considerable.

As discussed under UTL Impact 3 in Final EIR, Volume II, Section 5.15, based on the letter provided by LASAN in May 2022, LASAN has adequate treatment capabilities to serve the project and wastewater flows resulting from the project would be conveyed to the Hyperion Water Reclamation Plant, which LASAN determined has sufficient capacity to serve the project in combination with other growth within its service area (LASAN 2022). Based on the current and projected capacity of the Hyperion Water Reclamation Plant and LASAN's projections that it can serve the project in combination with other reasonably anticipated projects in LASAN's service area, the project's potential contribution to cumulative impacts related to wastewater collection, treatment, and discharge would be less than cumulatively considerable.

As discussed under UTL Impact 4 in Final EIR, Volume II, Section 5.15, based on the County's approved and future solid waste disposal capacity, project solid waste generation rates, and required adherence to applicable state and local waste diversion policies, solid waste generated during project construction and operation would not result in an excess of state or local standards or exceed the capacity of local infrastructure. Other reasonably foreseeable future projects would be subject to applicable state and local solid waste diversion policies and would also be subject to environmental review to determine individual impacts related to solid waste generation and disposal capacity.

Finding: Less than significant with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that would substantially lessen significant cumulative impacts related to off-site upgrades to LASAN's sewage collection system as identified in the EIR. Implementation of *AES/mm-4.1; AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; CR-HIST/mm-1.1 through 1.5; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.2, HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1, TRA/mm-4.1 through 4.3; TCR/mm-1.1 through 1.4; and UTL/mm-1.1* would reduce impacts associated with infrastructure updates to less than significant.

> Implement ***Mitigation Measures AES/mm-4.1***; ***AQ/mm-3.1***; ***BIO/mm-1.1***, ***BIO/mm-2.1***, ***BIO/mm-3.1***, ***BIO/mm-5.1*** and ***5.2***, ***BIO/mm-6.1***; ***CR-ARCH/mm-1.1*** through ***1.4***; ***CR-HIST/mm-1.1*** through ***1.5***; ***GEO/mm-3.1*** and ***3.2***, ***GEO/mm-4.1***, ***GEO/mm-6.1*** through ***6.5***; ***GHG/mm-1.1***; ***HAZ/mm-1.1*** through ***1.2***, ***HAZ/mm-2.1*** and ***2.2***; ***NOI/mm-1.1***; ***TRA/mm-1.1***, ***TRA/mm-4.1*** through ***4.3***; ***TCR/mm-1.1*** through ***1.4***; and ***UTL/mm-1.1***.

Basis for Finding. The project would generally not be anticipated to result in cumulatively considerable environmental impacts related to the provision of utilities and services for the Recommended Project. While LASAN environmental impacts associated with construction and installation of utility infrastructure would range in the geographic scope depending on the resource area, there is some potential for secondary environmental impacts to occur with the development of new infrastructure. As such, the

Recommended Project could result in contributions to cumulatively considerable impacts related to off-site upgrades to LASAN's sewage collection system. At this juncture, it is not known if specific sewer lines would be required and conclusion of this analysis would be speculative. However, it is reasonable to assume that some potential for environmental impacts would occur with an infrastructure upgrade that may be required to collect sewage from the La Brea Master Plan project in combination with other development projects that are developed within LASAN's service area; this impact is considered *potentially significant*.

SECTION 7 –SIGNIFICANT ENVIRONMENTAL IMPACTS

Significant and unavoidable impacts are impacts that cannot be fully and effectively mitigated. No measures could be taken to avoid or reduce these adverse effects to insignificant or negligible levels. The EIR identifies three environmental issue areas where the Recommended Project would result in a significant impact on the environment even after the application of all feasible mitigation measures identified in the EIR: Cultural Resources – Historical Resources, Land Use and Planning, and Transportation. The County finds that the following environmental impacts of the Recommended Project are significant and unavoidable and cannot be reduced below significance through feasible mitigation measures. Like Sections 5 and 6, this section includes consideration of cumulative impacts. Where significant cumulative impacts could occur, they are included in each of the topical sections included below.

7.1 Cultural Resources – Historical Resources

<u>CR-HIST Impact 1</u>: As a result of construction of the Recommended Project, a substantial adverse change in the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines would occur. Specifically, the project would cause a substantial adverse change in the significance of the La Brea Tar Pits Historic District. This impact would be significant. Operation of the Recommended Project would not cause a substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5. *(Final EIR, Volume II, pages 5.5-22 – 5.5-37)*

Under the State CEQA Guidelines 15064.5, a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Substantial adverse change in the significance of a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. The significance of a historical resource is materially impaired when a project demolishes or materially alters those physical characteristics that convey the significance of the resource and justify its inclusion (or eligibility for inclusion) in the National Register of Historic Places, California Register of Historical Resources, or local register. In general, a project that follows the *Secretary's Standards* (Weeks and Grimmer 2001) and associated Guidelines is considered mitigated below the level of significance.

The Page Museum is a historical resource pursuant to CEQA. Related to this resource, the design plans for the original project description contained elements that did not comply with the *Secretary's Standards*. The original project description's proposed remodel of the Page Museum included major alterations to key character-defining features of the Page Museum historic resource.

In addition to the Page Museum, the La Brea Tar Pits Historic District consists of numerous related contributors and character-defining features embodying the district's significance. Based on research and site visits completed for the EIR, the La Brea Tar Pits Historic District is eligible for landmark

designation at the state, county, and city levels. The La Brea Tar Pits Historic District consists of related cultural/paleontological resources, site/landscape features, and institutional facilities reflecting the story of over 100 years of scientific excavation, study, public education, and exhibition of one of the world's most significant concentrations of Pleistocene-age fossils. The Historic District is bounded by Wilshire Boulevard, Curson Avenue, 6th Street, and the adjacent Los Angeles County Museum of Art complex and Japanese Pavilion. Despite alterations to Hancock Park overall, the rarity and significance of the site's paleontological resources and the buildings constructed to facilitate their active study and exhibition reflect a history of institutional and cultural development in Los Angeles (if not the United States) that is unique.

Final EIR, Volume II, Section 5.5 provides an analysis of the potential for the project to result in significant adverse impacts to identified historic resources that would result from construction of the original project. Impacts are discussed in terms of changes to character-defining and contributing features of historic resources that could result during project construction. As noted previously, after completion of the Draft EIR, the County, acting through the Foundation, considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals, particularly concerns regarding historic resources. The County identified a refined version of the original Draft EIR Alternative 3 as a preferred alternative because it could be designed to address and lessen historic impacts to the Page Museum while still meeting the objectives of the project. The full discussion of Refined Alternative 3 is presented in Final EIR, Volume II, Chapter 6, Alternatives Analysis. As previously noted, Refined Alternative 3 is the County's Recommended Project.

The Recommend Project includes the renovation of the Page Museum within the existing building footprint, similar to the original project description, but incorporates a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. The potential historic resources impacts of the Recommended Project are considered in the Final EIR. The analysis and conclusions regarding the impacts that could be caused by the Recommended Project are presented in the Final EIR, Volume II, Section 6, Alternatives (analysis of the Recommended Project begins on page 6-50 of the Final EIR, Volume II). The following is a summary of the analysis provided in the Final EIR, Volume II, including both Section 5.5 and Chapter 6.

The Recommended Project (in the Final EIR, also described as Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green), would refine and decrease some of the changes to character-defining features to both the Page Museum and La Brea Tar Pits Historic District. These design refinements retain the visual primacy of the Page Museum in the context of the La Brea Tar Pits Historic District, which is important when considering potential historic impacts to the Page Museum. There would be a greater separation of the new museum building from the existing Page Museum, in part because the new museum building's footprint would be adjusted to the north and west, and in part because the connection point for the Page Museum and the new museum building would be decreased to a breezeway rather than the broad, sweeping enclosed hyphen that would physically connect the two buildings into a single and cohesive envelope.

Further, by decreasing the connection point between the two buildings to a breezeway as is included in the Recommended Project, less of the character-defining berm, which currently goes around the full extent of the Page Museum, would be removed. Removal of a portion of the berm would be focused at the northwest corner to accommodate a new entrance to the Page Museum from the breezeway. The west and north sides of the berm would be modified adjacent to the new, scaled back northwest corner entrance, which would result in a slightly altered new version of a berm. This would allow for the addition of an ADA ramp up to the terrace level on the west side of the Page Museum, and a change in elevation on the north side to allow for access to the new entrance while also retaining most of the berm in its existing

condition. These design refinements would contribute to lessening the impact to both the Page Museum and the La Brea Tar Pits Historic District.

The design refinements included in the Recommended Project would lessen impacts to character-defining features of the Page Museum when compared to the original project description. One of the primary character-defining features of the Page Museum is its visual primacy on the grounds of the Tar Pits; the design refinements included in the Recommended Project would result in less of an impact to the Page Museum's visual primacy. The Page Museum would be connected to the new museum building only by a covered open-air breezeway. Demolition would be reduced at the northwest corner of the Page Museum where a new entrance would be created. In addition, the building's central open courtyard would remain an open courtyard and the structural space frame that supports the frieze would remain intact as it is currently but would be repainted and repaired on an as-needed basis. Most of the character-defining berm around the Page Museum would remain but would be modified. Removal of a portion of the berm would be focused at the northwest corner where the new entrance to the Page Museum would be created. Modification of the west and north sides of the berm would result in a new version of the berm that would allow for the ADA ramp up to the terrace level on the west and a change in elevation on the north allowing for access to the new entrance.

The Recommended Project would reduce impacts to the Page Museum to the extent that the building would continue to convey its historic significance and retain its eligibility as a historical resource. Considered in combination, the removal of the character-defining berm at the northwest corner, the new Page Museum entrance at the northwest corner, modification of the western and northern portions of the berm, construction of the new museum building, and other site plan changes would continue to result in a significant and unavoidable impact to the La Brea Tar Pits Historic District. However, the overall severity of the significant and unavoidable impacts to the historic district would be reduced because of the increased separation of the new museum building from the Page Museum, and the design refinements that retain more of the Page Museum's character-defining features such as the existing structural space frame, frieze, and courtyard.

The Recommended Project envisions a comprehensive, unified master plan/design for La Brea Tar Pits, which has been a long-term goal for Hancock Park. The master plan is intended to strengthen and encourage continued scientific research at the site; enhance the visitor's experience through a continuous, thematic circulation route, the addition of more shade structures, and expanded, enhanced facilities; and an aesthetic upgrade for facilities, landscaping and hardscaping, and the park. Overall, the master plan would more explicitly integrate and brand Hancock Park and La Brea Tar Pits for pedestrians approaching or passing on Wilshire Boulevard and on 6th Street, with new gateways, signage, and fencing.

In addition to analysis of the direct modification to the 13-acre portion of Hancock Park that is included as the project footprint for the Recommended Project, the Final EIR, Volume II, Section 5.5 addresses the potential for the project to impact the historic integrity and compatibility of adjacent historic resources. As indicated in Final EIR, Volume II, Section 5.5, there would be no direct or indirect impacts to these adjacent historic resources. This conclusion applies to both the originally envisioned project description as well as the Recommended Project; the Recommended Project only decreases impacts to historic resources, as detailed in the Final EIR, Volume II, Chapter 6.

After construction of the project, no alterations to the project site or features within the La Brea Tar Pits Historic District would be associated with the Recommended Project. Thus, the Recommended Project would not result in any operational effects which would compromise the historic integrity of the site, the Page Museum, or the project surroundings.

Finding: Significant and unavoidable with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that lessen the substantial adverse impacts to the two identified historic resources: the La Brea Tar Pits Historic District and the George C. Page Museum. After implementation of mitigation measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5, impacts related to historic resources would still exceed less-than-significant thresholds, and the County finds that specific economic, legal, social, technological, or other considerations make infeasible any additional mitigation measures.

***Mitigation Measure CR-HIST/mm-1.1*:** Impacts to the La Brea Tar Pits Historic District and Page Museum resulting from project implementation shall be reduced through the ongoing input to the Design Team from a qualified Historic Architect, as the project design progresses. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in designing, developing, and reviewing architectural plans for conformance with the *Secretary's Standards*.

The Historic Architect shall work with the Design Team to identify options for new construction, upgrades, stabilization, repairs, and rehabilitation activities that will facilitate compliance with the *Secretary's Standards*. This historic preservation input to the Design Team shall begin in the earliest phases of schematic design phase possible and extend throughout the development of 50% Construction Drawings.

For new construction, the Historic Architect shall work with the Design Team to identify options and opportunities for: (1) ensuring compatibility of scale and character for new construction, site and landscape features, and circulation corridors, (2) ensuring that new construction, in materials, finishes, design, scale, and appearance, is compatible but differentiated from historic contributors and character-defining features; and (3) ensuring that new construction is designed and sited in such a way that it reinforces and strengthens, as much as feasible, character-defining site plan features, landscaping, and circulation corridors.

For modernization and upgrade projects, the Historic Architect shall work with the Design Team to identify project options that facilitate compliance with the *Secretary's Standards*.

The Historic Architect shall review proposed materials, finishes, window treatments/configuration, and other details to ensure compliance with the *Secretary's Standards*. The Historic Architect shall provide specifications for architectural features or materials requiring restoration or removal, maintaining and protecting relevant features in place, or on-site storage. Specifications shall include detailed drawings or instructions where historic features may be impacted.

The Historic Architect shall document the input provided to the Design Team in Memoranda for the Record at the Schematic and 50% Construction Documents phases. A Draft Memorandum for the Record shall be provided to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment.

The Historic Architect shall participate in pre-construction and construction monitoring activities, as appropriate, to facilitate conformance with the *Secretary's Standards* and/or lessening of material impairment to historical resources.

***Mitigation Measure CR-HIST/mm-1.2*:** An Inventory and Treatment Plan shall be prepared by a qualified historic preservation professional and implemented for the La Brea Tar Pits Historic District. Once complete, the Draft Inventory and Treatment Plan shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. The Inventory and Treatment Plan shall be finalized prior to the commencement of construction activities.

Specific requirements for the Inventory and Treatment Plan are provided below:

a. A qualified historic preservation professional shall be retained to prepare the Inventory and Treatment Plan. The historic preservation professional shall satisfy the Secretary of the Interior's Professional Qualifications Standards for History and/or Architectural History as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in CEQA review of historic resources and reviewing architectural plans for conformance with the *Secretary's Standards*.
   A landscape architect or landscape specialist with a minimum of five (5) demonstrated years of experience working with historic landscapes shall contribute to preparation of the Inventory and Treatment Plan to identify historic landscaping and trees that fall within the period of significance for the historic district (up to 1977).

b. The Inventory and Treatment Plan shall adhere to best professional practices promulgated by the National Park Service and State Office of Historic Preservation.

c. The Inventory and Treatment Plan shall supplement the historic resources survey completed and documented in the Historic Resources Technical Report for the La Brea Tar Pits Master Plan by documenting the character-defining features and existing conditions of those "contributing" (i.e., historically significant) components of the historical resource.
   The inventory shall include site plan features, commemorative plaques and statues, artwork and sculptures, and other extant contributors to the historic district.

d. The study shall include recommendations for annual maintenance activities, treatment and repair priorities, and maximum retention of remaining district contributors.
   All recommendations shall be designed to maximize retention of remaining contributors to the historic district and minimize the loss of character-defining features.

The Final Inventory and Treatment Plan shall be used for the ongoing stewardship of the property following construction.

***Mitigation Measure CR-HIST/mm-1.3*:** A historic documentation package shall be prepared to document the contributing features of the La Brea Tar Pits Historic District and Page Museum prior to the authorization of demolition or construction activities. The documentation package shall emulate and include elements of the Historic American Building Survey (HABS) and/or the Historic American Landscape Survey (HALS). The HABS/HALS-like Documentation Package shall adhere to best professional practices promulgated by the National Park Service and shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. Documentation shall be in accordance with the applicable standards described in the Secretary of the Interior's Standards for Architectural and Engineering Documentation.

Prior to the commencement of construction activities, a historian or architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History shall be retained to prepare HABS/HALS -like documentation for the La Brea Tar Pits Historic District and Page Museum.

Required contents for the HABS/HALS-like package include the following:

- <u>Photographs</u>: Photographic documentation will focus on the Page Museum and, within the historic district, those contributing elements (built, landscape, hardscape, paleontological, and natural features) slated for demolition, alterations, or adjacent new construction. Photographs shall include detail shots of contributing features and components slated for demolition, with overview and context photographs for the adjacent setting. Photographs shall be taken using a

professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Digital photographs will be provided in electronic format.

- Descriptive and Historic Narrative: The historian or architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each contributing component, with accompanying photographs, and information on how the resource fits within the broader historic district during its period of significance. The historic narrative shall draw upon previously prepared studies, including the Historical Resources Technical Report prepared for the La Brea Tar Pits Master Plan, as well as the La Brea Tar Pits Inventory and Treatment Plan prepared under Mitigation Measure CR-HIST/mm-1.2. The narrative shall also include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate.

Upon finalization of the HABS/HALS-like Documentation Package, a hard copy and digital copy shall be prepared and offered to the Seaver Center for Western History Research at the Natural History Museum of Los Angeles County, University of Southern California Special Collections, and the Los Angeles Public Library.

***Mitigation Measure CR-HIST/mm-1.4*:** A Retrospective Exhibit and Interpretive Program shall be prepared and implemented. The Retrospective Exhibit and Interpretive Project shall be prepared by a qualified historic preservation professional who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History. The exhibit materials shall be drawn from previous studies including but not limited to the Inventory and Treatment Plan described in Mitigation Measure CR-HIST/mm-1.2 and the HABS/HALS-like documentation package described in Mitigation Measure CR-HIST/mm-1.3, as well as other supplemental research materials as needed.

The retrospective exhibit and interpretive program shall focus on the history of the site, the people involved in the early ownership, development, and scientific discoveries and excavations, and the events leading to its donation to the County of Los Angeles, as well as on the site's development through the end of the period of significance for the La Brea Tar Pits Historic District, 1977.

The retrospective exhibit and interpretive program may include but not be limited to exhibit materials and interpretive panels, both exterior (e.g., as a series of panels in the park), interior (e.g., as a permanent exhibit in the Page Museum or new museum building), and online (on the museum website). The exhibit and interpretive program shall be designed for maximum public accessibility.

The plan for the interpretive and commemorative program shall be detailed in an Interpretive Program Plan Memorandum to be prepared with the guidance of a qualified historic preservation professional. The retrospective exhibit and interpretive program shall be completed within three (3) years of commencement of initial construction activities. The Draft Interpretive Program Plan Memorandum shall be reviewed by interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for comment.

***Mitigation Measure CR-HIST/mm-1.5*:** A pre-construction protection plan for historical resources shall be prepared prior to any major alteration or construction activities that may potentially damage historic resources or contributing features of the La Brea Tar Pits Historic District or Page Museum. A qualified Historic Architect shall be retained to develop a Preservation Protection Plan that identifies potential risks to historical resources within or adjacent to the immediate project footprint. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in reviewing architectural plans for conformance with the *Secretary's Standards*.

The Preservation Protection Plan may include, but not be limited to, the following components:

- Inclusion/mapping of the historical resource/contributing feature on any architectural drawings, site plans, and/or construction documents.
- Site walk with Design Team and construction team representative to review staging areas for construction and construction sequence and activities, to identify areas of concern and to provide input for proactive avoidance of unforeseen impacts.
- Procedures and timing for the placement and removal of temporary protection features, such as fencing and other barriers, around the historical resource/contributing feature.
- Monitoring of the installation and removal of temporary protection features by the Historic Architect, or designee.
- Post-construction survey to document the condition of the historic resource after project completion.
- Preparation of a technical memorandum documenting the pre-construction and post-construction conditions of the historic resource and compliance with protective measures outlined in the Preservation Protection Plan.

The Preservation Protection Plan shall be submitted in draft form to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment.

Basis for Finding: As previously noted, the Page Museum is a historical resource pursuant to CEQA. Related to this resource, the design plans for the original project contained elements that did not comply with the *Secretary's Standards*. Taken together, the original project description's proposed alterations to the Page Museum would compromise its historic integrity to the point that the historical resource would no longer convey the reasons for its significance.

However, the design refinements presented in the Recommended Project would lessen impacts to character-defining features of the Page Museum. One of the primary character-defining features of the Page Museum is its visual primacy on the grounds of the Tar Pits; the design refinements in the Recommended Project would result in less of an impact to the Page Museum's visual primacy. The Page Museum would be connected to the new museum building only by a covered open-air breezeway. Demolition would be reduced at the northwest corner of the Page Museum where a new entrance would be created. In addition, the building's central open courtyard would remain an open courtyard and the structural space frame that supports the frieze would remain intact as it is currently but would be repainted and repaired on an as-needed basis. Most of the character-defining berm around the Page Museum would remain but would be modified. Removal of a portion of the berm would be focused at the northwest corner where the new entrance to the Page Museum would be created. Modification of the west and north sides of the berm would result in a new version of the berm that would allow for the ADA ramp up to the terrace level on the west and a change in elevation on the north allowing for access to the new entrance. The Recommended Project would reduce impacts to the Page Museum to the extent that the building would continue to convey its historic significance and retain its eligibility as a historical resource.

However, the Recommended Project would result in a substantial adverse change in the significance of the La Brea Tar Pits Historic District. Implementation of the Recommended Project would result in a comprehensive redesign of Hancock Park, which would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a California Register of Historical Resources and locally eligible historic district.

Considered in combination, the removal of the character-defining berm at the northwest corner, the new Page Museum entrance at the northwest corner, modification of the western and northern portions of the berm, construction of the new museum building, and other site plan changes would continue to result in a significant and unavoidable impact to the La Brea Tar Pits Historic District. However, the overall severity of the significant and unavoidable impacts to the historic district would be reduced because of the increased separation of the new museum building from the Page Museum, and the design refinements that retain more of the Page Museum's character-defining features such as the existing structural space frame, frieze, and courtyard.

Therefore, the project would result in a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 and impacts would be *significant*. Upon implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 to address the substantial adverse change in the significance of a historical resource, construction impacts would remain *significant and unavoidable.*

<u>CR-HIST Impact 2 (Cumulative Impacts)</u>: Construction of the Recommended Project would result in substantial adverse changes to the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines, which would be considerable impacts contributing to cumulative historical resources impacts. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum. These direct construction impacts would also be significant. No operational impacts to historical resources would occur; therefore, contributions to cumulative impact would similarly not occur during the project's operational period. *(Final EIR, Volume II, pages 5.5-38 – 5.5-39)*

Cumulative impacts to historical resources may occur if the project and related projects cumulatively affect historical resources in the immediate vicinity, contribute to changes within the same historic district, or involve resources that are examples of the same property type or significant within the same context as the one within the project site. Although impacts to historical resources, if any, tend to be site specific, a significant cumulative impact associated with the project and related projects would occur if the combined impact of the project and related projects would materially and adversely alter those physical characteristics that convey the historic significance of a historical resource and that justify its listing, or eligibility for listing, as a historical resource.

Final EIR, Volume II, Chapter 4, Environmental Setting, provides a list past, present, or reasonably foreseeable future development projects that are anticipated to occur in the vicinity of the project site. These projects include a mix of residential, commercial, and mixed-use developments. The cumulative geographic scope considered for historical resources is the same CEQA area of potential effect used in the analysis provided in Final EIR, Volume II, Section 5.5, defined as parcels within and directly adjacent to the project footprint. Two projects included in the cumulative development scenario identified in Final EIR, Volume II, Chapter 4 are within the CEQA area of potential effect, including the following:

- **LACMA Renovation**: Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction. Construction activities are estimated to be completed at the end of 2024.
- **Wilshire Curson Project**: Located approximately 0.03 miles southeast of the project site at 5700 -5780 Wilshire Boulevard; 712-752 South Curson Avenue; 5721-5773 West 8th Street; and 715-761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of

new buildings. The project is currently under environmental review and anticipated construction timeframes are not available as of the publication date for the EIR.

Finding: Significant and unavoidable with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that lessen the cumulative effects related to changes in the significance of two identified historical resources; the La Brea Tar Pits Historic District and the George C. Page Museum. Specifically, mitigation measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce construction-related impacts associated with the identified historical resources as indicated in the EIR. After implementation of the measures, however, construction-related impacts would still exceed less-than-significant thresholds, and the County finds that specific economic, legal, social, technological, or other considerations make infeasible any additional mitigation measures.

Implement ***Mitigation Measures CR-HIST/mm-1.1*** through ***CR-HIST/mm-1.5***.

Basis for Finding. As discussed in CR-HIST Impact 1, the project was evaluated for its potential to result in direct impacts to the historical resources within the project site as well as indirect impacts to adjacent properties with historic resources. While the project would not result in impacts to adjacent properties with historic resources, the project would directly result in significant and unavoidable impacts to the La Brea Tar Pits Historic District and the Page Museum, rendering both resources no longer eligible for significance. When considered in combination with the impacts of these projects in the cumulative scenario, the Recommended Project would contribute incrementally to significant impacts on historical resources. Further, the project's contribution to these cumulative impacts would be considerable and significant.

Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would avoid, minimize, rectify, reduce, or compensate for the significance of the impacts to the degree feasible. However, they would not mitigate impacts below the level of significance. No feasible mitigation exists that would reduce the project's contribution to less than cumulative considerable.

7.2 Land Use and Planning

LUP Impact 2: Implementation of the Recommended Project would result in the alteration of designated historical resources and would be potentially inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's General Plan Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources. Impacts resulting from project construction would be significant. Operation of the Recommended Project would not cause a substantial adverse change in the significance of historic resources. However, the impacts caused by project construction would remain after construction has been concluded. *(Final EIR, Volume II, pages 5.10-30 – 5.10-31)*

The consistency analysis of the applicable land use plans, policies, and regulations considers the holistic impacts associated with implementation of the project and does not provide separate construction and operation analyses. This is because most policies broadly consider the appropriateness of types of land uses. Also, the analysis is organized by the chronological placement of the particular policies within the guidance or regulatory document. Based on the evaluation of the project's potential consistency with relevant plans and policies in Final EIR, Volume II, Chapter 5, Environmental Impact Analysis, the project would have the potential to result in inconsistencies with applicable policies pertaining to the alteration of designated historical resources. These impacts would initially occur during the construction process and would remain after construction has been concluded. Operation of the Recommended Project would not cause a substantial adverse change in the significance of historic resources pursuant, therefore

policy inconsistencies would not occur during the operational phase. The project would be potentially inconsistent with the policies identified in the Final EIR, Volume II, Table 5.10-8.

The project's conceptual plan includes components to enhance the preservation of, and access to, existing cultural and paleontological resources on-site. This would include improvements to existing tar pit sites involving the construction of clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage.

Finding: Significant and unavoidable with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that lessen the significant impacts related to the alteration of designated historical resources that would be potentially inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's General Plan Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources as identified in the EIR. Implementation of *CR-HIST/mm-1.1* through *CR-HIST/mm-1.5* would lessen environmental impacts associated with the project. However, inconsistencies with the objectives, goals, and policies would still exceed less-than-significant thresholds, and the County finds that specific economic, legal, social, technological, or other considerations make infeasible any additional mitigation measures. Impacts would be *significant and unavoidable.*

Implement ***Mitigation Measures CR-HIST/mm-1.1*** through ***CR-HIST/mm-1.5***.

Basis for Finding. However, project implementation would result in significant physical changes, partial demolition, and new construction affecting the two designated historical resources within the project site, which are the La Brea Tar Pits Historic District and the Page Museum. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while meeting the project objectives and keeping the primary elements of the Master Plan; therefore, impacts of the project would remain significant and unavoidable after implementation of the recommendations, creating inconsistencies with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan. Given there is no feasible mitigation to reduce impacts of the project related to historical resources or the identified land use policy inconsistencies, related impacts would be *significant and unavoidable*.

LUP Impact 3 (Cumulative Impacts): The Recommended Project would contribute incrementally toward cumulative effects on historical resources associated with the project and related land use policies protecting these resources (i.e., County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan). The potential inconsistencies are identified in Final EIR, Volume II, Table 5.10-8. The project would contribute significantly to cumulative impacts to historic resources, which would be considered a significant impact. *(Final EIR, Volume II, pages 5.10-32)*

As stated in Final EIR, Volume II, Section 5.10.5, the project would have no impact related to the physical division of an established community (threshold a) and would not contribute to cumulative impacts related to this issue.

The project site is located within a highly urban area that includes a mix of commercial uses and residential uses. Final EIR, Volume II, Chapter 4, Environmental Setting, details the existing and reasonably foreseeable future development projects located within proximity to the project site. The related projects provided in Chapter 4 generally consist of infill development and redevelopment of

existing uses, including mixed-use, residential, commercial, office, restaurant, retail, studio, museum, hotel, and combinations thereof. The project, in combination with the related projects provided in Final EIR, Volume II, Chapter 4, could result in cumulative impacts if it would conflict with a land use plan, policy, or regulation, adopted for the purposes of mitigating an environmental effect (threshold b).

Finding: Significant and unavoidable with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that lessen the significant cumulative effects on historical resources as identified in the EIR. Specifically, mitigation measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would implement procedures to reduce inconsistencies with related land use policies protecting these historical resources (i.e., County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan). After implementation of the measures, inconsistencies would still exceed less-than-significant thresholds, and the County finds that specific economic, legal, social, technological, or other considerations make infeasible any additional mitigation measures. Impacts would be *significant.*

Implement ***Mitigation Measures CR-HIST/mm-1.1*** through ***CR-HIST/mm-1.5***.

Basis for Finding: As discussed in LUP Impact 2, the project's significant and unavoidable impacts related to historic resources create inconsistencies with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan as identified in Final EIR, Volume II, Table 5.10-8. While the project's *Mitigation Measures CR-HIST/mm-1.1* through *CR-HIST/mm-1.5* would avoid, minimize, rectify, reduce, or compensate for the significance of the impacts to historical resources to the degree feasible, they would not mitigate impacts below the level of significance. As such, the identified land use policy inconsistencies would also be significant and unavoidable with no feasible mitigation to address the impact. When considered in combination with the impacts of these projects in the cumulative scenario, the project would contribute incrementally toward cumulative effects on historical resources associated with the project and related land use policies protecting these resources. The project's contribution to cumulative impacts related to conflicts with applicable land use plans and policies could be *significant*.

7.3 Transportation

TRA Impact 2: The Recommended Project would result in a net increase in VMT and would result in a substantial increase in vehicle miles traveled, which would be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b). This increase in VMT is largely due to anticipated increases in visitation during project operation but also considers construction-period impacts. Impacts would be considered significant. *(Final EIR, Volume II, pages 5.13-21 – 5.13-22)*

The analysis related to State CEQA Guidelines Section 15064.3, subdivision (b) and the analysis of the applicable transportation plans, policies, and regulations considers the holistic impacts associated with implementation of the project (i.e., it does not provide separate construction and operation analyses). This is because most policies broadly consider the appropriateness of types of land uses and the inclusion of features in the development plan that are consistent with the agency's long-range vision and goals.

The California Household Travel Survey average trip lengths by trip purpose for households in Los Angeles County and Orange County indicate the average recreation trip length is 6.65 miles. Ticketing information and reported zip codes (for visitors from Los Angeles County and Orange County zip codes) from fiscal year 2018 were used to estimate the average visitor trip length. According to this subset of fiscal year 2018 visitors, the average trip length per visitor was 19.70 miles.

The average visitor trip length (19.70 miles) is higher than the average recreation trip length (6.65 miles). Visitors to the museum travel approximately 196% longer than the average recreation trip in Los Angeles and Orange Counties. Given that museum visitor trips are longer than regional recreation trip lengths, additional visitor trips to the project site due to the project would result in a net increase in total VMT.

The Page Museum is one of several museums in the transportation study area. It is expected that a portion of visitors to the transportation study area would visit multiple museums in a single visit. This includes the additional visitors to the area due to the project; a portion of the increase in visitors could come from other nearby museums such as LACMA. Therefore, the VMT assessment used for the impact findings under TRA Impact 1 and TRA Impact 2 is conservative in that it assumes new visitors generated by the project would exhibit the same trip length patterns as existing visitors to the project site.

Finding: Significant and unavoidable with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that lessen the significant effects related to a net increase in vehicle miles traveled as identified in the EIR. Specifically, mitigation measure *TRA/mm-1.1* would implement procedures to reduce VMT. However, after implementation of the measure, the net increase in VMT would still exceed less-than-significant thresholds, and the County finds that specific economic, legal, social, technological, or other considerations make infeasible any additional mitigation measures.

Implement ***Mitigation Measure TRA/mm-1.1***.

Basis for Finding. According to the California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA 2022), the maximum VMT reductions for various categories of on- and off-site measures range from approximately 2% to 65% for projects located in urban areas. However, given the magnitude of VMT that would need to be reduced—due to visitor trips being 196% longer than average regional recreation trips—Mitigation Measure TRA/mm-1.1 may be insufficient to reduce VMT to less-than-significant levels. Therefore, the project would result in a substantial increase in vehicle miles traveled and would be considered a *significant* impact.

TRA Impact 5 (Cumulative Impacts): The Recommended Project would result in a significant contribution to cumulative transportation impacts by resulting in a net increase in VMT, which would be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b). This increase in VMT is largely due to anticipated increases in visitation during project operation but also considers construction-period impacts. Impacts would be considered significant. *(Final EIR, Volume II, pages 5.13-25 – 5.13-27)*

In accordance with the LADOT Transportation Assessment Guidelines, this cumulative analysis analyzes the effects of the project in relation to other developments in proximity of the project site that are proposed, approved, or under construction. The LADOT TAG define related projects as those that are within a 0.5-mile radius from a project site for CEQA analysis, and 0.25 mile beyond the farthest study intersection for non-CEQA circulation analysis[22] (LADOT 2020).

Estimated trip generation for the nine cumulative projects included in the Transportation Assessment is provided in Final EIR, Volume II, Table 5.13-5. More information on how the trip generation for the cumulative projects was developed is provided in the Transportation Assessment. The trip generation for

[22] The cumulative project list provided in Final EIR, Volume II, Chapter 4, Environmental Setting, includes an expanded list beyond the geographic requirements of the LADOT Transportation Assessment Guidelines to allow consideration of potential cumulative impacts related to other environmental issue areas with a broader geographic reach.

the cumulative projects is conservative by not applying negative net new trips and instead assuming those to be zero. Accordingly, a hyphen in a cell of the table denotes that the related project generates either zero or negative net new trips for that specific time period and inbound/outbound trip generation.

The analysis conducted for consistency with transportation plans and policies to determine if cumulative impacts may result from the project in combination with related projects in the transportation study area is as follows:

- **Mobility Plan 2035 PROW Classification Standards for Dedications and Improvements:** The LACMA Renovation is a related project that shares the block as well as West 6th Street and Wilshire Boulevard frontages with the project. However, while the LACMA Renovation also includes new construction along Wilshire Boulevard (an Avenue I) and West 6th Street (an Avenue II), the property is not zoned for R3 or less restrictive zoning. Therefore, cumulative conflicts are not anticipated.
- **Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes:** Related projects in the transportation study area do not propose curb modifications and new driveways near the project. Therefore, cumulative conflicts are not anticipated.
- **Network Access:** The related projects in the transportation study area do not propose to vacate or restrict public access or create cul-de-sacs in proximity of the project. Therefore, cumulative conflicts are not anticipated.
- **Parking Supply and Transportation Demand Management:** It is not anticipated that related projects in the transportation study area would conflict with the City's parking management policies (either through providing sufficient parking supply or implementing parking management strategies). The potential project shortcomings related to bicycle parking and TDM requirements would be exacerbated by related projects in the transportation study area. Therefore, *cumulative conflicts are anticipated.*
- **Consistency with Regional Plans:** The LACMA Renovation, located directly to the west of the project and sharing the city block, is similarly a museum that serves as a regional attraction and would likely result in a net increase in regional VMT. *Therefore, cumulative conflicts with regional plans related to mobility and GHG reductions are anticipated*.

Other projects in the transportation study area are generally residential, office, and retail projects. However, the LACMA renovation, located directly to the west of the project and sharing the city block, is similarly a museum that serves as a regional attraction and would likely result in a net increase in regional VMT. Cumulative increases in VMT are anticipated. Therefore, the project would contribute to a *significant* cumulative impact related to causing substantial vehicle miles traveled and consistency with transportation plans, programs, ordinance, and policies.

The analysis of potential increased hazards was reviewed to determine if cumulative impacts may result from the project in combination with related projects in the transportation study area. Related projects in the area would likely contribute additional vehicle, pedestrian, and bicycle activity. The project design would not be impacted by the related projects nor the increase in activity. Thus, the project would result in a *less than significant* cumulative impact when considering increasing hazards based on the geometric design and uses of the project.

Finding: Significant and unavoidable with mitigation. The County finds that changes or alterations have been required in, or incorporated into, the Recommended Project that lessen the significant cumulative effects related to a net increase in vehicle miles traveled as identified in the EIR. Specifically, mitigation measure *TRA/mm-1.1* would implement procedures to reduce VMT for the project. However, after implementation of the measure, the cumulative net increase in VMT for the project and near-by

LACMA Renovation would still exceed less-than-significant thresholds, and the County finds that specific economic, legal, social, technological, or other considerations make infeasible any additional mitigation measures.

Implement ***Mitigation Measure TRA/mm-1.1***.

Basis for Finding. As previously indicated in TRA Impact 2 above, given the magnitude of VMT that would need to be reduced for the project, mitigation measure *TRA/mm-1.1* may be insufficient to reduce project-specific VMT to less-than-significant levels. Therefore, a substantial increase in vehicle miles traveled would be considered a *significant* impact for the project. In addition, due to the LACMA Renovation, located directly to the west of the project and sharing the city block, a significant cumulative effect would likely result with a net increase in regional VMT. *Therefore, cumulative conflicts with regional plans related to mobility and GHG reductions are anticipated*.

SECTION 8 – FINDINGS REGARDING PROJECT ALTERNATIVES

In accordance with CEQA Guidelines, Section 15126.6(a), an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. The project's objectives are provided above in Section 2.2, Project Objectives, of this document. The CEQA Guidelines Section 15126.6(b) states that the selection of project alternatives "shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." Because the project would result in significant and unavoidable environmental impacts after implementation of the mitigation measures identified in the EIR, the County considered alternatives to the project specifically to reduce those impacts. The CEQA Guidelines Section 15126.6(f) further directs that "the range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice." CEQA Guidelines Section 15126.6(f) goes on to say that the "range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making."

The EIR considers a total of four alternatives to the project, including the "no project" alternative and three other "build" alternatives. CEQA Guidelines Section 15126.6(e)(2) indicates that an analysis of alternatives to a proposed project shall identify an environmentally superior alternative among the alternatives evaluated in an EIR, and that if the "no project" alternative is the environmentally superior alternative, the EIR shall identify another environmentally superior alternative among the remaining alternatives. In general, the environmentally superior alternative is the alternative with the least adverse impacts on the environment.

The impacts of each of alternative are evaluated in Final EIR, Volume II, Chapter 6, Alternatives Analysis, with a summary of comparative impacts provided in Table 6-10. Final EIR, Volume II, Chapter 6 identifies, describes, and evaluates the following four alternatives:

1. No Project/No Build Alternative
2. Alternative 1: Renovate Page Museum Only
3. Alternative 2: Maintain Central Atrium Pleistocene
4. Refined Alternative 3: Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green

As previously noted, Refined Alternative 3 in the Recommended Project. The Recommended Project would result in similar environmental impacts as the original project for each issue area analyzed in the EIR, except for historical resources and land use and planning, where the Recommended Project reduces the identified impacts. No environmental impacts would be increased with the Recommended Project when compared to the original project. The full analysis that demonstrates this finding is found in Final EIR, Volume II, Chapter 6, beginning on page 6-57. The Recommended Project (which is described as Refined Alternative 3 in the Final EIR) includes the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. This Recommended Project reduces historical impacts while attaining the project's basic objectives.

The following sections provide the Findings regarding the remaining three alternatives presented in the Final EIR, Volume II, Chapter 6 (beginning on page 6-9 of the Final EIR, Volume II, Chapter 6).

8.1 No Project/No Build Alternative

Section 15126.6(e) of the State CEQA Guidelines requires analysis of the No Project/No Build Alternative. In accordance with the State CEQA Guidelines, the No Project/No Build Alternative for a development project on an identifiable property consists of the circumstance under which the project does not proceed as provided by Section 15126.6(e)(3)(B) of the State CEQA Guidelines. Section 15126.6(e)(3)(B) provides that, "In certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained." As stated in Section 15126.6(e)(2), "The 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

In the No Project/No Build Alternative, implementation of the project would not occur and the existing project site and its physical conditions would generally remain as they are in their current state. This includes the majority of Hancock Park and the structures within the project boundary, including the Page Museum; therefore, these features would resemble existing conditions. Ongoing maintenance and minor upgrades to address necessary improvements, as required, would continue to occur and are considered to be part of the existing operational conditions. Site elements including the surface parking lot, maintenance areas, amphitheater, landscaping, and pathways would all remain. Site access for visitors, loading, maintenance vehicles, and the fire department would remain in its current configuration.

Finding: The County rejects the No Project/No Build Alternative and finds it infeasible because it would not achieve the objectives of the project, as described in detail in the table that follows. The findings set forth in this document and the overriding consideration set forth in the Statement of Overriding Considerations provide support for the Recommended Project and the elimination of this alternative from further consideration.

Attainment of Project Objectives—No Project/No Build Alternative

Project Objective	Does the Alternative Attain the Project Objective?
Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019).	**No.** This alternative would not involve the renovation or expansion of the Page Museum. It would not address deferred maintenance, or the necessary upgrades required to bring the Page Museum up to current building code standards. This alternative would not result in any changes to the project site to further the sustainability goals of the County's sustainability plan.
Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**No.** This alternative would maintain the existing fossil storage, maintenance, and service facilities along the northern boundary of the project site and would not expand or construct new fossil storage or support buildings on-site. The existing exhibition galleries and collections storage areas are largely inflexible which present programmatic and spatial limitations, challenging the museum's ability to adapt and allow for future growth in exhibition, education, research, and collections storage.
Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.	**No.** This alternative would not include renovating or expanding the Page Museum to provide for expanded laboratory research facilities. These on-site facilities would remain as they are under current conditions.
Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.	**No.** This alternative would not include expanding the Page Museum to provide space for additional exhibitions, facilities, or enhanced learning environments. This alternative would not expand museum programming; it would remain as is under current conditions. In addition, museum-related exhibits and facilities located within Hancock Park (i.e., tar pits and viewing locations) would remain as they are under current conditions.
Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.	**No.** This alternative would not alter the existing entrances to the project site, nor would this alternative modify any existing pathways or accessways. The Central Green would be maintained as is under current conditions.
Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.	**No.** This alternative would retain the existing Page Museum as is under current conditions and would not include the addition of expanded museum facilities; however, this alternative would limit impacts to historical resources. Regardless, this alternative would not meet this objective of providing expanded museum facilities.
Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.	**No.** In this alternative, the existing museum entrance would remain, and no additional museum facilities or buildings would be constructed.
Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes**. The National Natural Landmarks program seeks to encourage the identification, study, designation, recognition, and preservation of nationally significant ecological and geological resources that reflect the nation's natural heritage (including paleontological/fossil-based resources). This alternative would not result in physical changes or modifications to the project that would change its scientific or historical value, nor impact the current research or programming occurring on the project site. As such, La Brea Tar Pits would continue to be recognized and protected as a National Natural Landmark.
Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.	**No.** This alternative would maintain the Central Green as it is under current conditions and would continue to allow for passive recreational uses within this multi-purpose lawn area of Hancock Park; however, it would not include changes to the current landscaping scheme other than actively maintaining current conditions on-site nor would it involve enhancements that increase connections or further promote the importance of the project site as a cultural destination within the Miracle Mile neighborhood.

Basis for Finding: The No Project/No Build Alternative would not implement the project. No project-related construction activities would occur, and there would be no changes to the existing land use types or operational characteristics of the project site.

8.2 Alternative 1 – Renovate Page Museum Only

In Alternative 1, the exterior conditions of the La Brea Tar Pits Historic District and the Page Museum would be retained as-is under existing conditions, while addressing some of the museum's deficiencies by way of an interior renovation only. The renovation work within the Page Museum would upgrade its existing facilities and systems while maintaining its current program, spatial organization, and room sizes. This alternative was considered as the renovation would retain or replace in kind the historic, character-defining features related to the museum's interior such as the central open-air atrium and the fishbowl-like lab space. This alternative would emphasize remedial work on the building structure and existing exhibits and would be performed from the museum interior as much as possible. This alternative scenario would, however, require further study to determine the feasibility of the renovation to also meet modern seismic standards since modifications to the building's exterior would be avoided under this alternative. In those instances, the identified areas would be repaired or replaced in kind and designed to resemble their current physical appearance to avoid impacting the historic, character-defining features of the museum's exterior. The remainder of the project site would also resemble existing conditions, and site access for visitors, loading, maintenance vehicles, and the fire department would remain in the current configuration in this alternative. Other museum-related facilities, as well as associated passive recreational areas and pathways around and within the project site, would remain as-is under current conditions.

Finding: The County rejects Alternative 1 because it would not achieve most of the objectives of the project, as detailed in the table that follows. The findings set forth in this document and the overriding consideration set forth in the Statement of Overriding Considerations provide support for the Recommended Project and the elimination of this alternative from further consideration.

Attainment of Project Objectives—Alternative 1 Renovate Page Museum Only

Project Objective	Does the Alternative Attain the Project Objective?
Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019).	**Partially**. This alternative would renovate the existing Page Museum to address the deferred maintenance of the building envelope and systems to meet modern electrical and building code standards; however, further study is required to determine the feasibility of the renovation to also meet modern seismic standards since modifications to the building's exterior would be avoided under this alternative. The roof terrace of the Page Museum would remain inaccessible under this alternative's accessibility and universal design standards. In addition, options for achievable sustainability goals to meet the County's sustainability plan would also be further limited because this alternative would avoid any work on the Page Museum exterior and the existing site conditions in Hancock Park.
Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**No.** This alternative would maintain the existing fossil storage, maintenance, and service facilities along the northern boundary of the project site and would not expand or construct new fossil storage or support buildings on-site.
Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.	**No**. This alternative would not include the expansion of the Page Museum that would be needed to provide for expanded laboratory research facilities. These on-site facilities would remain as they are under current conditions.

Project Objective	Does the Alternative Attain the Project Objective?
Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.	**Partially.** While this alternative could feasibly upgrade the exhibition facilities and learning environments within the Page Museum such that they may be considered state-of-the-art, this alternative would not address or involve improvements to exhibition facilities and learning environments outside of the Page Museum within Hancock Park to further enrich the visitor experience and to support active educational programming.
Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.	**No.** This alternative would not alter the existing entrances to the project site, nor would this alternative modify any of the existing pathways or accessways. The Central Green would be maintained as is under current conditions.
Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.	**No.** This alternative would retain the existing Page Museum within its existing footprint and would renovate the interior only. It would not include the addition of expanded museum facilities; however, this alternative would limit impacts to historical resources. Regardless, this alternative would not meet this objective of providing expanded museum space for additional exhibits, collections, offices, and laboratory research facilities.
Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.	**No.** In this alternative, the existing museum entrance would remain, and no additional museum facilities or buildings would be constructed.
Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes.** The National Natural Landmarks program seeks to encourage the identification, study, designation, recognition, and preservation of nationally significant ecological and geological resources that reflect the nation's natural heritage (including paleontological/fossil-based resources). This alternative would result in interior renovations to the existing Page Museum only and would not result in physical changes or modifications to the project that would change its scientific or historical value, nor impact the current research or programming occurring on the project site. As such, La Brea Tar Pits would continue to be recognized and protected as a National Natural Landmark.
Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.	**No.** This alternative would maintain the Central Green as it is under current conditions and would continue to allow for passive recreational uses within this multi-purpose lawn area of Hancock Park; however, it would not include changes to the current landscaping scheme other than actively maintaining current conditions on-site nor would it involve enhancements that increase connections or further promote the importance of the project site as a cultural destination.

Basis for Finding: Alternative 1 would avoid the project's significant and unavoidable impact to historical resources as it would result in renovations to the interior of the Page Museum only, while retaining the character-defining features of both the Page Museum and the La Brea Tar Pits Historic District that qualify them as historical resources. However, Alternative 1 would meet only one of the project objectives related to preserving and protecting the National Natural Landmark—La Brea Tar Pits. Alternative 1 would partially meet two other project objectives related to addressing the deferred maintenance and meeting modern building code standards of Page Museum as well as partially meeting the project objective related to providing state-of-the-art exhibition facilities and learning environments within the museum.

However, Alternative 1 would not meet most of the project objectives, as detailed in the prior table.

8.3 Alternative 2 – Maintain Central Atrium Pleistocene Garden

Alternative 2 would include renovating the existing Page Museum to maintain the central atrium with the Pleistocene Garden in place while also providing the same expanded museum facilities and programming as proposed by the project. To maintain the central atrium footprint while providing the proposed laboratory, classroom, and multi-purpose educational spaces, Alternative 2 would include expanding the new museum space to the north and west of the existing Page Museum, increasing the size of the new museum building by approximately 15,000 square feet above what is proposed by the project. In addition, the character of the open-air roof would remain intact. This alternative would slightly reconfigure the surface parking lot, like the project, extending it west of the new museum building footprint. This alternative would adjust the project's triple-loop pedestrian path adjacent to the proposed new museum building to accommodate the larger building footprint. The landscaping improvements and overall landscape design of the project site in Alternative 2 would be similar to the project, except for the reconfigured northern portion of the project site, the reduced open space area, as well as the adjustment to the pedestrian path.

Finding: The County rejects Alternative 2 because it would not avoid or reduce the project's significant and unavoidable impacts related to historical resources and the substantial increase in regional VMT. Further, the County finds that Alternative 2 would not meet the project objectives as completely as the Recommended Project, as detailed in the table that follows.

Attainment of Project Objectives—Alternative 2, Maintain Central Atrium Pleistocene Garden

Project Objective	Does the Alternative Attain the Project Objective?
Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019).	**Partially.** This alternative would allow for renovating the Page Museum to address the deferred maintenance of the building envelope and systems to meet modern electrical and building code standards as well as seismic standards. This alternative would also include sustainability strategies designed to improve stormwater management, reduce the heat island effect, provide more shade, and reduce light pollution to further the sustainability of the County's sustainability plan. However, this alternative would reduce the amount of open space on-site and would not be consistent with the County's sustainability plan.
Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**Yes.** This alternative would include constructing an additional 2,000-square-foot satellite maintenance and support building dedicated to fossil storage, maintenance, and service facilities along the northern boundary of the project site.
Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.	**Yes.** This alternative would allow for renovating the Page Museum and constructing a new museum building that would add 55,000 square feet of museum space to support expanding the laboratory research facilities.
Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.	**Yes.** This alternative would include renovating the Page Museum and constructing a new museum building that would add 55,000 square feet of museum space to provide space for additional exhibition facilities or enhanced learning environments. In addition, this alternative would allow for renovating the existing facilities at all the tar pit locations throughout the project site to allow for improved interpretive signage and viewing areas to further enrich the visitor experience and to support active educational programming.

Project Objective	Does the Alternative Attain the Project Objective?
Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.	**Yes.** This alternative would provide for enhanced entrances to the project site at the Wilshire and 6th Street Gateways and would also reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking all the existing elements of the park. A pedestrian walking path would be constructed across the project site with interpretive signage and explanations related to the former industrial heritage of the site. The project site is currently served by a complete network of sidewalks around the project site block and adjacent street network, with signalized intersections and crosswalks. This alternative would also establish a new school drop-off/loading area on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.	**Yes.** This alternative would expand museum facilities through the construction of the new museum building, while retaining the Page Museum's central atrium Pleistocene garden and open-air roof line, thereby decreasing impacts to historical resources. The renovated Page Museum and new museum building would be connected via a central lobby area and an integrated organization of exhibits and collections, helping to create connection and cohesion between the two museum spaces.
Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.	**Yes.** This alternative would result in a renovated Page Museum and new museum building with a central entry point accessible from the project's parking lot as well as from the Central Green. The central entrance would lead to the museum lobby, which would provide a space for visitors to circulate and become familiar with organization of the museum's exhibits and collections both inside the museum spaces as well as the outdoor spaces within Hancock Park.
Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes.** This alternative would allow for renovating and expanding the existing Page Museum and the remainder of the project site within Hancock Park in a way that would further the fundamental mission of La Brea Tar Pits as a site and facility dedicated to research, education, and exhibition. Under this alternative, the project site would continue to be recognized and protected as a National Natural Landmark.
Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.	**Partially.** This alternative would reduce the amount of dedicated open space on-site due to the expanded footprint of the new museum building. However, this alternative would also redesign and renovate the Hancock Park community park green space to include a landscape design and planting scheme that would aim to ease water consumption and ensure appropriate maintenance. This alternative would include improvements to the existing multi-purpose grass lawn, the Central Green, which would provide a setting for community activities, passive recreational uses, events, and public gatherings. This alternative would also install a new welcome pavilion with a canopy and shade trees at Wilshire Gateway, and a shaded welcome area at the 6th Street Gateway to increase the project site's notability within the Miracle Mile neighborhood.

Basis for Finding: Alternative 2, Maintain Central Atrium Pleistocene Garden, would preserve most of the character-defining features of the Page Museum, but it would result in the loss of a greater amount of open space in the La Brea Tar Pits Historic District due to the increased footprint of the project. As such, the benefits of avoiding the impacts to the Page Museum's character-defining features do not outweigh the additional impacts to character-defining features to the La Brea Tar Pits Historic District and this alternative would not avoid the project's significant and unavoidable impacts related to alterations of historical resources.

Further, because Alternative 2 would not avoid the project's significant and unavoidable impacts to historical resources, it would also not avoid the project's inconsistencies with applicable land use plans and policies. In addition, Alternative 2 would not avoid the project's substantial increase in regional VMT and would still result in significant and unavoidable impacts related to this issue. Alternative 2 would also result in similar impacts as the project to the other environmental issues areas as this alternative would result in similar types of construction activities and operational uses as proposed by the project.

Alternative 2 would also not meet the project objectives as completely as the Recommended Project. Several of the project objectives would only be met partially. Specifically, while Alternative 2 would allow for renovating the Page Museum to address the deferred maintenance of the building envelope and systems and include sustainability strategies, this alternative would reduce the amount of open space on-site and would not be consistent with the County's sustainability plan. This would result in Alterative 2 only partially meeting two of the project objectives.

SECTION 9 – STATEMENT OF OVERRIDING CONSIDERATIONS

The primary purpose of CEQA is to fully inform the decision-makers and the public as to the environmental effects of a project and to include feasible mitigation measures and alternatives to reduce any such adverse effects below a level of significance. CEQA nonetheless recognizes and authorizes the approval of projects where not all adverse impacts can be fully lessened or avoided. However, the Lead Agency must explain and justify its conclusion to approve such a project through the statement of overriding considerations setting forth the recommended project alternative's general, social, economic, policy or other public benefits which support the agency's informed conclusion to approve that alternative over another. Under CEQA, before a project which is determined to have significant environmental effects which cannot be avoided can be approved, the public agency must consider and adopt a statement of overriding considerations pursuant to the CEQA Statutes Section 21081 and CEQA Guidelines 15043 and 15093.

The La Brea Tar Pits Master Plan EIR identifies significant environmental effects that would occur with implementation of the Recommended Project. The analysis for the Recommended Project is contained within Final EIR, Volume II, Chapter 5, in combination with Final EIR, Volume II, Section 6, Alternatives (comparative analysis of the Recommended Project, Refined Alternative 3, to the original project begins on page 6-47 of the Final EIR, Volume II). With implementation of the mitigation measures identified in the EIR, these effects can be mitigated to levels considered less than significant, except for significant and unavoidable impacts in the areas of Cultural Resources – Historic Resources , Land Use and Planning, and Transportation. These significant and unavoidable impacts are addressed in greater detail in Section 7 of this document. Specifically, implementation of the Recommended Project would result in the following significant impacts even after the implementation of all feasible mitigation measures:

- **Cultural Resources – Historic Resources (Construction-Related Impacts to Historic Resources).** As a result of construction of the Recommended Project, a substantial adverse change in the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines would occur. Specifically, the project would cause a substantial adverse change in the significance of the La Brea Tar Pits Historic District. This impact would be significant. The design refinements included in the Recommended Project would lessen impacts to character-defining features of the Page Museum when compared to the original project description. When considered in combination with the impacts of these projects in the cumulative scenario, the project would contribute incrementally to significant impacts on historical resources.

Further, the project's contribution to these cumulative impacts would be considerable and significant. Mitigation measures would avoid, minimize, rectify, reduce, or compensate for the significance of the impacts to the degree feasible. However, they would not mitigate impacts below the level of significance. No feasible mitigation exists that would reduce the Recommended Project's significant impact to the significance of the La Brea Tar Pits Historic District nor the contribution to cumulative considerable historic resource impacts.

- **Land Use and Planning (Construction-Related Impacts to Historic Resources).** Project construction or implementation would result in significant physical changes and new construction affecting the two designated historical resources within the project site, which are the La Brea Tar Pits Historic District and the Page Museum. As noted above, the design refinements included in the Recommended Project would lessen impacts to the character-defining features of the Page Museum, when compared to the original project. These project modifications and the identified mitigation measures would reduce historic impacts. However, there are no mitigation measures or project alternatives that would reduce these impacts to less than significant while meeting the project objectives and keeping the primary elements of the Master Plan; therefore, impacts of the project would remain significant and unavoidable after implementation of the recommendations, creating inconsistencies with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan.
- **Transportation (Operational-Related Impacts to Vehicle Miles Traveled).** The average length of visitor trips projected for the original project are 196% longer than the average regional recreation trip. As described in Final EIR, Volume II, Section 6, Alternatives Analysis, the Recommended Project would result in similar effects (see page 6-57). No mitigation measures are available that would reduce vehicle miles traveled to less-than-significant levels. Therefore, the Recommended Project would result in a substantial increase in vehicle miles traveled and would be considered a significant impact. Additionally, a substantial increase in vehicle miles traveled would be considered a significant cumulative impact for the project due to the LACMA Renovation, located directly to the west of the project and sharing the city block. The significant cumulative effect would likely result with a net increase in regional vehicle miles traveled.

Finding: The County hereby finds, after consideration of the EIR and the evidence in the record, that each of the specific overriding benefits (e.g., economic, legal, social, technological) of the project as set forth below independently and collectively outweighs the significant and unavoidable impacts of the project. Any one of the reasons for approval cited below is sufficient to justify approval of the project. Thus, even if a court were to conclude that not every reason is supported by substantial evidence, the County will stand by its determination that each individual reason is sufficient.

The County further finds that, as part of the process of obtaining project approval, all significant effects on the environment from implementation of the project have been eliminated or substantially lessened where feasible. Furthermore, the County has determined that any remaining significant effects on the environment found to be unavoidable are acceptable due to the following specific overriding benefits:

- The project will significantly expand daily scientific discovery at the world's most important Ice Age fossil excavation site and the only destination of its kind in an urban center.
- The project will double La Brea Tar Pits' lab facilities to strengthen its capacity to conduct world-class research to better understand the impacts of a changing planet.
- The project would strengthen and expand La Brea Tar Pits status as a preeminent research hub that attracts leading scientists and fosters global collaborations.

- The project will double public access to La Brea Tar Pits, accommodating approximately 800,000 annual local and international visitors of all ages who will witness and participate in scientific discovery in real time.
- The project will significantly expand immersive, hands-on educational programs, doubling the number of schoolchildren - to 75,000 a year - who will engage with the wonders of science, learn about creating a healthier planet, and be given the tools to become agents for change.
- The project will enlarge the exhibition space while transforming the grounds into a premier recreational and learning space with educational displays and historical native plants.
- The project will strengthen the pipeline of future scientists through education programs, internships, and apprenticeships.
- The project will elevate a distinctive urban oasis of nature as the premier destination for the public to connect with science and recognize the significance of fostering well-being in our communities and for our planet.
- The project will enhance and preserve valuable green spaces and community gathering areas for residents and the broader public to enjoy. Key features include the expansion and improvement of the Central Green, a versatile grass lawn designed to accommodate community activities, passive recreation, events, and public gatherings. Additionally, the project will introduce a new welcome pavilion with a canopy and shade trees at Wilshire Gateway, along with a shaded welcome area at the 6th Street Gateway, improving accessibility and wayfinding within the Miracle Mile neighborhood. A pedestrian walking path will be constructed across the project site with interpretive signage and explanations related to the former industrial heritage of the site.
- The project will redesign and renovate the Hancock Park community green space with a landscape plan and planting scheme tailored to Los Angeles' current and projected climate conditions. The design will prioritize water efficiency and ensure sustainable maintenance practices.
- The project would allow for renovating and expanding the existing Page Museum and the remainder of the project site within Hancock Park in a way that would further the fundamental mission of La Brea Tar Pits as a site and facility dedicated to research, education, and exhibition.
- The project would allow for renovating the Page Museum to address the deferred maintenance of the building envelope and systems to meet modern electrical and building code standards as well as seismic standards. The project would also include sustainability strategies designed to improve stormwater management, reduce heat island effect, provide more shade, and reduce light pollution to further the sustainability of the County's sustainability plan.
- The project would allow for construction of a new museum building, adding space for additional exhibitions, facilities, enhanced learning environments and public café and retail experiences.
- The project would allow for renovating the existing facilities at all the tar pit locations throughout the project site to allow for improved interpretive signage and viewing areas to further enrich the visitor experience and to support active educational programming.
- The project would include constructing maintenance and support space dedicated to fossil storage, maintenance, and service facilities along the northern boundary of the project site.
- The central, open atrium of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would be retained, covered, and converted to indoor space; it would remain as an open atrium garden.

- The structural space frame of the Page Museum that supports the frieze (including the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped.
- The project will bring significant improvements to Los Angeles County and its residents beyond the construction and related industries; wages will be paid to the workers and for payments for goods and services throughout the economy, thereby generating additional indirect and induced County activity.
- The project is estimated to support thousands of new direct, indirect, and induced jobs throughout the County during the construction phase.
- During construction, the project is estimated to contribute to the County's total output in the hundreds of million dollars: directly from construction, created by activities such as expenditures of construction materials, engineering and architectural costs, landscape, design, permitting, inspections, legal and other services; and indirect/induced economic activities such as finance, insurance, professional, scientific, and technical services.
- The project's labor income, including wages and benefits, is estimated to contribute several hundreds of thousands of dollars.
- The project will provide an economic impact to the County's gross regional product, due to spending by the construction workers and others throughout the supply chain.
- As a result of construction expenditures, the project will generate federal, state, County and local tax revenues.

SECTION 10 – FINDINGS ON MITIGATION MONITORING AND REPORTING PROGRAM

Pursuant to Section 15091(a)(1) of the CEQA Guidelines, the County finds that implementation of the mitigation measures identified in the EIR would substantially lessen the significant environmental impacts resulting from the project. These mitigation measures and project design standards have been required in or incorporated into the project. In accordance with Section 15091 (d), and Section 15097 of the CEQA Guidelines, which require a public agency to adopt a program for reporting or monitoring required changes or conditions of approval to substantially lessen significant environmental effects, the Mitigation Monitoring and Reporting Program included as part of the project submittal packet is hereby adopted as the Mitigation Monitoring and Reporting Program for this project.

SECTION 11 – CERTIFICATION OF EIR

Pursuant to Public Resources Code Section 21081 and CEQA Guidelines Section 15090, the County certifies that:

1. The EIR, State Clearinghouse No. 2022020344, is an accurate and objective statement that fully complies with CEQA and the CEQA Guidelines;
2. The EIR was presented to the Board of Supervisors, which is the decision-making body for the County of Los Angeles, and the Board reviewed and considered the information in the EIR prior to approving the project; and
3. The EIR reflects the County of Los Angeles' independent judgment and analysis.

The County of Los Angeles Board of Supervisors further finds that no comments or responses to comments made during the review period for the EIR, or any other public hearing on the project, rise to the level of significant new information requiring recirculation or additional environmental review pursuant to CEQA Guidelines Section 15088.5.

As required by Public Resources Code Section 21081.6, the Board of Supervisors, in adopting these Findings, also adopts a Mitigation Monitoring and Reporting Program, designated to ensure that, during project implementation, the County will comply with the mitigation measures adopted in these Findings.

The Board hereby finds that these Findings of Fact, Statement of Overriding Considerations, and Mitigation Monitoring and Reporting Program, which are included as part of the project submittal package, meet the requirements of Public Resources Code Section 21081.6 and have been prepared in accordance with CEQA and the CEQA Guidelines.

ATTACHMENT 2

CALIFORNIA ENVIRONMENTAL QUALITY ACT MITIGATION MONITORING AND REPORTING PROGRAM STATE CLEARINGHOUSE NO. 2022020344

PREPARED FOR:
Los Angeles County Museum
of Natural History Foundation
on behalf of the County
of Los Angeles Museum of Natural History
900 Exposition Boulevard,
Los Angeles, CA 90007
Contact: Leslie Negritto, Chief Operating Officer

PREPARED BY:
SWCA Environmental Consultants
320 North Halstead Street, Suite 120, Pasadena, CA 91107
(626) 240-0587 | www.swca.com
Contact: Bobbette Biddulph, SWCA Project No. 63953

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1.1 INTRODUCTION

The County of Los Angeles (County) has prepared the following Mitigation Monitoring and Reporting Program (MMRP) for the Final Environmental Impact Report (Final EIR), State Clearinghouse Number 2022020344, prepared for the Los Angeles County La Brea Tar Pits Master Plan (project). The Final EIR analyzes the significant and potentially significant environmental impacts, which may occur because of the project. The Draft EIR was published on September 11, 2023, and circulated for an initial public review for a period of 45 days. In compliance with the California Environmental Quality Act (CEQA), a Notice of Completion and the Draft EIR were filed with the State Clearinghouse at the time of publishing and are posted on the State Clearinghouse's CEQAnet Web Portal. The County, as the CEQA lead agency, prepared the Final EIR for the project and published it in January 2025.

1.2 STATUTORY REQUIREMENTS

When a Lead Agency makes findings on significant environmental effects identified in an EIR, the agency must also adopt a "reporting or monitoring program for the changes to the project which it has adopted or made a condition of approval in order to mitigate or avoid significant effects on the environment" (Public Resources Code [PRC] Section 21081.6(a) and California Environmental Quality Act [CEQA] Guidelines Sections 15091(d) and 15097). The MMRP is implemented to ensure that the mitigation measures and project revisions identified in the EIR are implemented. Therefore, the MMRP must include all changes in the proposed project either adopted by the project proponent or made conditions of approval by the Lead or Responsible Agency.

1.3 ADMINISTRATION OF THE MITIGATION MONITORING AND REPORTING PROGRAM

La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County of Los Angeles (County) but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation for the County of Los Angeles Museum of Natural History (Museum of Natural History), including La Brea Tar Pits and the Page Museum under the oversight of the County.

The County, as Lead Agency, acting through the Foundation proposes a redevelopment, or "reimagining," of the 13-acre La Brea Tar Pits site. The proposed project is referred to as the La Brea Tar Pits Master Plan. The project includes a reimagined site design, expansion, and upgrades for the Tar Pits complex, including renovations to the Page Museum, and development of a new museum building. The project site is located at 5801 Wilshire Boulevard in Los Angeles. The project site is within Hancock Park and is adjacent to the Los Angeles County Museum of Art (LACMA).

The California Environmental Quality Act (CEQA) Guidelines identify the Lead Agency as the public agency with the principal responsibility for carrying out or approving a project (State CEQA Guidelines Section 15367). The County is the CEQA Lead Agency for the project because the project is on

County-owned land; the Museum of Natural History is a County departmental unit.[1] Thus, the County is responsible for the adoption of the MMRP.

According to State CEQA Guidelines Section 15097(a), a public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity that accepts the delegation. The County may delegate responsibility for verifying and documenting compliance with the MMRP to the Foundation as coordinator of the project and its construction, and the Foundation will be responsible for compliance. However, until mitigation measures have been completed, the County, as the Lead Agency, remains responsible for ensuring that the implementation of the measures occurs in accordance with the program.

1.4 MITIGATION MEASURES

Table 1-1 is structured to enable quick reference to mitigation measures and the associated monitoring program based on the environmental resource. The numbering of mitigation measures correlates with numbering of measures found in Chapter 5, Environmental Impact Analysis, of Volume II of the Final EIR, and as included in Chapter 2, Summary, of Volume II of the Final EIR. The table also describes the timing for mitigation measure implementation (e.g., when the measure shall be implemented) and the responsible parties—such as the Museum of Natural History, County of Los Angeles Department of Public Works, and/or County of Los Angeles Department of Regional Planning—that are responsible for ensuring implementation of all aspects of each measure.

[1] In accordance with Chapter 2.94 of the Los Angeles County Code and other operating agreements, the County Museum of Natural History is a department of the County and has administrative charge and control over all County matters relating to history and science, and shall also include the administration of Hancock Park (except that area of said park devoted to the Los Angeles County Museum of Art [LACMA]), and the care, safeguarding, and maintenance of all exhibits, equipment, and structural improvements directly relating to exhibits, the administration and maintenance of Los Angeles County Museum, and other property hereafter acquired for or devoted to history and science. For consistency with the Los Angeles County Code, this document refers to this governmental department as the "Museum of Natural History." In addition, when it is important to specify that the document is referring to the physical museum location rather than the governmental department, this document refers to the Natural History Museum of Los Angeles County (Natural History Museum), which is located at 900 Exposition Boulevard, Los Angeles, California, 90007.

Table 1-1. Mitigation Monitoring and Reporting Program

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
Aesthetics					
AES/mm-4.1	During project construction, the following measures shall be required: • The hours of construction activities shall be limited to between 7:00 a.m. and 9:00 p.m. on weekdays and between 8:00 a.m. and 6:00 p.m. on Saturdays and national holidays, with no construction permitted on Sundays. • If construction during evening hours is deemed necessary, construction-related illumination shall be used for safety and security purposes only. Additionally, any construction lighting shall be directed toward the area undergoing work, which requires that construction lighting be shielded and/or aimed so that no direct beam illumination would fall outside of the project site boundary.	Include measures on grading and building plans and implement during equipment use on the project site.	Prior to finalization and approval of construction, grading, and building plans and approvals and during construction.	Foundation	County Museum of Natural History
AES/mm-4.2	The project shall implement the following design features: • All facades and/or building surfaces including glass windows shall be constructed using non-reflective materials or be treated with non-reflective coating. • All light emanating from new uses shall be either low scaled lighting or shielded to focus lighting and prevent lighting from spilling onto adjacent sensitive uses. • The project shall not include outdoor lighting that causes residential property to be illuminated by more than two footcandles of lighting intensity or receive direct glare from the light source. • All lights used to illuminate parking areas shall be designed, located, and arranged to reflect the light away from any street and any adjacent premises. • Signage with a light intensity of greater than three footcandles above ambient lighting, as measured at the property line of the nearest residentially zoned property, shall be prohibited.	Include specifications on final design plans.	Prior to finalization and approval of final design plans.	Foundation	County Museum of Natural History
Air Quality					
AQ/mm-3.1	To reduce the potential for health risks as a result of construction of the project, the following measures shall be implemented: • Prior to the start of construction activities, it shall be ensured that all 75 horsepower or greater diesel-powered equipment are powered with CARB-certified Tier 4 Interim engines, except where the County establishes that Tier 4 Interim equipment is not available. There are several other SCAQMD rules and regulations that serve as mitigation measures for the project construction. These rules are: • SCAQMD Rule 403, which requires projects to incorporate fugitive dust control measures; • SCAQMD Rule 1113, which limits the volatile organic compound content of architectural coating; and • SCAQMD Regulation XIII, New Source Review, which requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available technology control technology for new combustion sources such as boilers and water heaters).	Include measures on grading and building plans and implement during equipment use on the project site.	Prior to issuance of construction, grading, and/or building permits and during construction.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
Biological Resources					
BIO/mm-1.1	To protect the federal candidate monarch butterfly, which is a candidate species for listing under the federal Endangered Species Act, the following measures (BIO/mm-1.1a or BIO/mm-1.1b) shall be implemented: a. Full avoidance of impacting any milkweed populations on-site with observable monarch eggs and larvae. After obtaining permits and prior to construction, all individual milkweed plants will be surveyed. All individual plants found with eggs or larvae will be flagged for re-survey and avoidance. Individual plants without eggs and larvae will be removed. Flagged plants will be re-surveyed and removed when no eggs or larvae are present. All tropical milkweed will be replaced with native narrowleaf milkweed (*Asclepias fascicularis*) following construction. OR b. If monarch eggs and larvae are not present, any tropical milkweed populations in the project area should be replanted with native narrowleaf milkweed and other nectar-providing plants following construction activities. All tropical milkweed on the property will be assessed for the absence of monarch eggs and larvae and replaced with narrowleaf milkweed after construction.	Conduct survey of all individual milkweed plants on the project site to determine presence or absence of monarch eggs and/or larvae and implement measures based on survey findings.	After obtaining permits and prior to construction.	Foundation	County Museum of Natural History
BIO/mm-2.1	Impacts to Oil Creek may be avoidable but are subject to final project design. To protect sensitive and regulated aquatic resources associated with Oil Creek, one of the following measures (BIO/mm-2.1a or BIO/mm-2.1b) shall be implemented: a. Full avoidance of Oil Creek, including riparian habitats. To attain full avoidance of Oil Creek, construction and ground disturbance shall not occur within 125 feet of the centerline of Oil Creek. The limits of riparian habitat shall be flagged and construction fencing erected to clearly denote the limits of construction. No overnight staging of equipment or materials shall occur within the protected “no work” zone as delineated by the fencing. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area. OR	Retain a Project Biologist to review final project design to determine if full avoidance of Oil Creek can be achieved and to ensure compliance with biological resource mitigation measures in accordance with the determination.	Prior to construction	Foundation	County Museum of Natural History

b. If full avoidance of Oil Creek and a designated “no work” buffer is not possible after determination of final design, the following measures shall be required:

i. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Oil Creek feature. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the “protected zone”). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site.

ii. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to removed diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event.

iii. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing Oil Creek riparian corridor, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following:

- Native tree replacement requirements consistent with the requirements of the Plant Pest and Disease Management Plan (BIO/mm-6.2).
- A detailed planting scheme identifying the location and sizes of all container stock.
- Details on planned irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years.
- Annual monitoring, maintenance, and adaptive management measures and annual reporting requirements.

iv. The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area. v. Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.				
BIO/mm-3.1	This mitigation measure only applies to project features implemented in and around the Lake Pit, including the pedestrian path and bridge. The following measures shall be implemented prior to the implementation of these features: a. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Lake Pit features. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the "protected zone"). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site. b. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to remove diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event. c. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing riparian vegetation within and along the margins of the Lake Pit, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following: • A detailed planting scheme identifying the location and sizes of all container stock. • Details on planned Irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years. • Five years of annual monitoring, maintenance, and adaptive management measures and annual reporting requirements.	Retain a Project Biologist to ensure compliance with biological resource mitigation measures for project features implemented in and around the Lake Pit.	Prior to construction	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	d. The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter the Lake Pit and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area. e. Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.				
BIO/mm-5.1	To avoid impacts to nesting birds, one of the following measures (BIO/mm-5.1a or BIO/mm-5.1b) shall be implemented: a. If possible, no vegetation trimming, pruning, removal, construction, or grading shall occur during the nesting and breeding season (January 1 through September 15). OR b. If activities associated with vegetation trimming, pruning, removal, construction, or grading are necessary during the bird nesting and breeding season (January 1 through September 15), the following measures shall be implemented: • A qualified biologist shall conduct surveys for active nests weekly, beginning 14 days prior to initiation of any new construction activities, with the last survey conducted no more than 3 days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional pre-construction surveys should be conducted so that no more than 3 days have elapsed between the survey and ground-disturbing activities. • Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. The size of the buffer zone shall be at the discretion of the qualified biologist and shall be no less than 25 feet. Raptors may require a larger buffer zone, up to 300 feet. Installation of the exclusionary material shall be completed by construction personnel under the supervision of a qualified biologist prior to initiation of construction activities. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by a qualified biologist. The barrier shall be removed by construction personnel only at the direction of the biologist.	Conduct vegetation trimming, pruning, removal, construction, or grading between September 16 and December 31 only. If this is not possible, retain a Project Biologist to conduct preconstruction nesting bird and raptor surveys and implement measures based on survey findings.	Surveys to be conducted 14 days prior to initiation of any new construction activities	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
BIO/mm-5.2	New and replacement trees shall be 24-inch box specimen trees or larger to reduce temporary impacts to nesting birds.	Retain 24-inch box specimen trees or larger.	Prior to construction, during construction, and post-construction	Foundation	County Museum of Natural History
BIO/mm-5.3	To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.	Include bird deterrent features in project design.	During finalization and approval of final design plans and during construction.	Foundation	County Museum of Natural History
BIO/mm-6.1	For oak trees within the project site that are to be retained in their current location, prior to construction, chain-link fencing shall be installed around the protected zone of the trees (5 feet beyond the dripline, the outermost extent of the tree's branches, or 15 feet from the trunk, whichever is greater). The fencing shall remain in place throughout the entire period of construction. Any excavation or grading allowed within the protected zone shall be limited to hand tools or small hand-powered equipment. This measure shall only apply to existing trees where the limits of construction work are within 20 feet of the protected zone. In addition, one of the following measures (BIO/mm-6.1a or BIO/mm-6.1b) shall be implemented: a. If possible, removal, relocation, trimming, or replacement of the oak trees at the La Brea site shall be avoided. b. If modification (removal, relocation, trimming, or replacement) of protected oaks is required, coordination with the County of Los Angeles Department of Regional Planning shall occur prior to commencement of any work on-site. Any encroachment or removal requests must be reviewed by the County of Los Angeles Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Although an oak tree permit is not required, measures to mitigate for impacts to oak trees shall include the following: • Removed oak trees shall be mitigated by planting coast live oaks at a 2:1 ratio on the project site. Each replacement tree shall be at least a 15-gallon specimen. • The replacement oaks shall be monitored for a period of 5 years, with any failures resulting in a new oak being planted and initiation of a new 5-year monitoring period for the replanted tree.	Retain a Project Biologist to ensure compliance with oak tree mitigation measures	Prior to construction. Replacement oaks shall be monitored for a period of 5 years.	Foundation	County Museum of Natural History County of Los Angeles Department of Regional Planning
BIO/mm-6.2	A Plant Pest and Disease Management Plan shall be prepared prior to initiation of landscape planting and developed in consultation with an International Society of Arboriculture Certified Arborist. The Plant Pest and Disease Management Plan shall define methods to ensure new plant materials (container stock) are free of insect pests and diseases prior to delivery to the project site. Implementation of the Plant Pest and Disease Management Plan shall occur through the life of the project; modification and adaptation may occur to ensure applicability and viability of the plan.	Consult with an International Society of Arboriculture Certified Arborist to develop and implement Plant Pest and Disease Management Plan. Implement the Plant Pest and Disease Management Plan throughout the lifetime of the project.	Prior to the initiation of landscape planting.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
Cultural Resources, Archaeological Resources					
CR-ARCH/mm-1.1	Retain a Qualified Archaeologist. a. Prior to initiating any ground-disturbing activities, a Qualified Archaeologist shall be retained. A Qualified Archaeologist is defined as one who meets the Secretary of the Interior's (SOI) Standards for professional archeology and those defined for a Principal Investigator by the Society for California Archaeology (SCA). The qualifications shall be presented as part of a resume for at least one primary point of contact who will act in capacity as the Qualified Archaeologist but also other key staff who may serve in this role. The resume shall demonstrate their SOI and SCA qualifications and shall be subject to approval by the County. b. Ground-disturbing activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The Qualified Archaeologist shall carry out and ensure proper implementation of the mitigation measures and regulatory compliance related to archaeological resources and, where appropriate, tribal cultural resources during the project. The Qualified Archaeologist shall be responsible for establishing a meeting schedule with Page Museum curators and collections managers during implementation of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination. c. No more than 21 days before ground-disturbing activities for the project commence, the Qualified Archaeologist shall submit a letter confirming that they have been retained consistent with the terms of the CR-ARCH/mm-1.1 and attach the professional resumes for all staff who may be acting in the capacity of the Qualified Archaeologist.	Retain a Qualified Archaeologist to ensure proper implementation of the mitigation measures and regulatory compliance.	Prior to initiating any ground-disturbing activities.	Foundation	County Museum of Natural History
CR-ARCH/mm-1.2	Prepare an Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan). a. Prior to commencing ground-disturbing activities, an AR-TCR Management Plan shall be prepared by the Qualified Archaeologist and submitted to the Page Museum curators and the NHMLAC Curator of Anthropology, who shall review and approve the AR-TCR Management Plan on behalf of the County. The AR-TCR Management Plan shall be prepared in conformance with Public Resources Code Section 5024.1, Title 14 California Code of Regulations, Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1. b. The AR-TCR Management Plan shall include but not be limited to the following elements: i. Historical context statement, research design, the specific types of archaeological sites likely to be encountered. ii. Construction worker training program (described in CR-ARCH/mm-1.3).	Retain a County- approved qualified archaeologist to prepare an Archaeological and Tribal Cultural Resources Management Plan.	Prior to initiating any ground-disturbing activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	iii. Monitoring protocol for ground-disturbing activities that includes a framework for assessing the geoarchaeological setting to determine whether sediments capable of preserving archaeological remains are present in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment and include a protocol for identifying the conditions under which additional or reduced levels of monitoring (e.g., spot-checking) may be appropriate. The duration and timing of the monitoring shall be determined based on the rate of excavation, geoarchaeological assessment, and, if present, the quantity, type, and spatial distribution of archaeological resources identified.				
	iv. Limited program of archaeological presence/absence testing within naturally deposited asphaltic or non-asphaltic alluvial sediments before they are mechanically excavated. In particular, the area of the new museum, promenade, and parking lot expansion shall be further investigated. These investigations shall be conducted via a combination of archaeological units, hand tools, and mechanical trenching. The methods used to conduct the limited archaeological testing shall be coordinated with contractors to ensure that sufficient time is afforded to evaluate the significance of any identified resources, and if they are found to be significant, time to develop and implement a treatment plan appropriate to the type of resource. The timing of any such efforts shall be conducted in localized areas so that delays to project earthwork activities are minimized while allowing archaeological materials to be identified in a manner that retains the scientific integrity of the discovery.				
	v. An approach to evaluate newly identified site components, if applicable, as contributors to the significance of LAN-159/H as a “historical resource” pursuant to CEQA Guidelines Section 15064.5(a) or a “unique archaeological resource” pursuant to PRC 21083.2(g). If any archaeological resources are identified and are found not to be significant or do not retain integrity, then they shall be recorded to a level sufficient to document the contents and condition.				
	vi. Potential treatment plans to be implemented in the event a newly discovered archaeological resource is determined by the Qualified Archaeologist to contribute to the significance of the site as a historical resource based on California Register of Historical Resources criteria or a unique archaeological resource in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. The AR-TCR Management Plan shall require that if the treatment plans outlined therein are found to be infeasible or other alternatives are proposed, the Qualified Archaeologist shall coordinate with the project proponent and the County to amend the AR-TCR Management Plan with a formal treatment plan that would reduce impacts to the resource(s). The treatment plans stated in the AR-TCR Management Plan or prepared after the discovery of a historical resource, shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment and if it is determined avoidance is not feasible, treatment may include but not be limited to any of the following depending on the type of resource and the significance evaluation:				

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	• Native American archaeological site components. Data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant where significance is determined under CRHR Criterion 4 or as a unique archaeological resources and integrity is retained. Additional treatment measures to mitigate potentially significant impacts to the component as a tribal cultural resource, which is to be carried out in consultation with the Tribal Consultants and after considering the status of the discovery as a tribal cultural resource. • Historical archaeological site components. If a historical archaeological component of the site is present and found to retain integrity, data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant. vii. Discovery and processing protocol for inadvertent discoveries of archaeological resources that are encountered when an Archaeological Monitor is not present. viii. A process by which recovered materials will be prepared for curation at the Page Museum or the Research and Collections Department at the Natural History Museum of Los Angeles County as directed by Page Museum curators and collections managers, and in consultation with Tribal Consultants. The curation shall ensure their long-term preservation and allow access to interested scholars and shall be done at the expense of the County and/or the Foundation. If the materials are Native American in origin or any item of cultural patrimony, the manner of their handling and long-term curation may require additional consultation with the appropriate Native American community that shall be determined as part of a tribal consultation process to be conducted by the County who shall be responsible for the disposition of these materials. ix. The AR-TCR Management Plan shall summarize the requirements for tribal coordination in the event of an inadvertent discovery of Native American archaeological resources, including the applicable regulatory compliance measures or conditions of approval for the inadvertent discovery of archaeological resources to be carried out in concert.				
CR-ARCH/mm-1.3	Conduct an archaeological awareness training. a. The Qualified Archaeologist or a designee working under their direction shall provide training to on-site project personnel who are responsible for overseeing ground-disturbing activities (i.e., a foreman or site supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The training shall brief the crews on the regulatory compliance requirements and applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of archaeological resources. As an element of the worker training, the Qualified Archaeologist or their designee shall advise the construction crews on proper procedures to follow if an unanticipated archaeological resource is discovered during construction, including the authority of Archaeological Monitor(s) to temporarily halt or redirect work away from such a discovery. Workers shall be shown examples of the types of archaeological resources that would require notification of the archaeologist, if encountered. The workers shall be provided with contact information for the Qualified Archaeologist and their designee(s) as part of a brief handout summarizing the critical components of the training. Once	Conduct an archaeological awareness training with a Qualified Archaeologist.	Prior to initiating any ground-disturbing activities and during project construction.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	the ground-disturbing activities have commenced, the need for additional or supplemental worker trainings shall be determined by the Qualified Archaeologist based upon consultation with project personnel. b. Within five days of completing each training, a list of those in attendance shall be provided by the Qualified Archaeologist to a point of contact designated by the Museum of Natural History.				
CR-ARCH/mm-1.4	Monitoring for Archaeological Resources. a. At least one Archaeological Monitor working under the direction of the Qualified Archaeologist shall be present during ground-disturbing activities to implement the AR-TCR Management Plan. The Archaeological Monitor shall have the authority to temporarily halt or redirect construction activities when an archaeological resource, suspected resource, or archaeologically sensitive sediments are encountered, as determined by the Qualified Archaeologist in consultation with the Page Museum curators. The presence/absence testing protocol shall be implemented within the asphaltic alluvial sediments that have elevated archaeological sensitivity as stipulated in the AR-TCR Management Plan and conducted in concert with Tribal Monitors and applicable tribal cultural measure measures. The Qualified Archaeologist and Archaeological Monitor shall document the results of the presence/absence testing and allow ground-disturbing activities to proceed in the sediments with archaeological sensitivity once the archaeological and tribal monitors have confirmed the absence of resources. The Archaeological Monitor shall continue to monitor the ground-disturbing activities with the depths assessed by the presence/absence testing. Once the Archaeological Monitor identifies sediments or depths of excavation that are not capable of containing or are unlikely to contain archaeological resources, a corresponding reduction of monitoring coverage would be appropriate, and may be recommended by the Qualified Archaeologist. The Archaeological Monitor shall complete a daily written log documenting construction activities and observations, which shall be included in the final report. The number of Archaeological Monitors shall be determined by the County, based on the scale of ground-disturbing activities and a reasonable degree of effort required to implement the mitigation measures. b. In the event that potentially significant archaeological resources are exposed during construction, work in the immediate vicinity of the find (within 8 meters [25 feet]) shall stop until the Qualified Archaeologist can evaluate the significance of the find, with input from the tribal monitor if the discovery is affiliated with Native Americans and is also being assessed as tribal cultural resources. Construction activities may continue in other areas in coordination with the Qualified Archaeologist and, if applicable, tribal monitors.	Retain at least one Archaeological Monitor working under the direction of the Qualified Archaeologist to implement the AR-TCR Management Plan.	Prior to commencement and during ground-disturbing activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
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	c. At the conclusion of all ground-disturbing activities the Qualified Archaeologist shall prepare a technical report documenting the methods and results of all work completed under the AR-TCR Management Plan, including, if any, treatment of archaeological materials, results of artifact processing, analysis, and research, and evaluation of the resource(s) for the California Register of Historical Resources. The format and content of the report shall follow the California Office of Historic Preservation's Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. Any archaeological resources identified shall be documented on appropriate California Department of Parks and Recreation 523-Series Forms. The report shall be prepared under the supervision of a Qualified Archaeologist and submitted to curators of the Page Museum for initial review (on behalf of the Museum of Natural History, as the County departmental unit), and final copies shall be submitted to the County. The report shall be completed with 12 months of completion of the monitoring, unless other arrangements are required, as documented in writing and approved by the County, given the nature of the discovery, in which case a revised date can be determined through consultation with the Museum of Natural History. The final draft of the report shall be submitted to the South Central Coastal Information Center and the Tribal Consultants.				
Cultural Resources, Historical Resources					
CR-HIST/mm-1.1	Impacts to the La Brea Tar Pits Historic District and Page Museum resulting from project implementation shall be reduced through the ongoing input to the Design Team from a qualified Historic Architect, as the project design progresses. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in designing, developing, and reviewing architectural plans for conformance with the Secretary's Standards. The Historic Architect shall work with the Design Team to identify options for new construction, upgrades, stabilization, repairs, and rehabilitation activities that will facilitate compliance with the Secretary's Standards. This historic preservation input to the Design Team shall begin in the earliest phases of schematic design phase possible and extend throughout the development of 50% Construction Drawings. For new construction, the Historic Architect shall work with the Design Team to identify options and opportunities for: (1) ensuring compatibility of scale and character for new construction, site and landscape features, and circulation corridors, (2) ensuring that new construction, in materials, finishes, design, scale, and appearance, is compatible but differentiated from historic contributors and character-defining features; and (3) ensuring that new construction is designed and sited in such a way that it reinforces and strengthens, as much as feasible, character-defining site plan features, landscaping, and circulation corridors. For modernization and upgrade projects, the Historic Architect shall work with the Design Team to identify project options that facilitate compliance with the Secretary's Standards. The Historic Architect shall review proposed materials, finishes, window treatments/configuration, and other details to ensure compliance with the Secretary's Standards. The Historic Architect shall provide specifications for architectural features or materials requiring restoration or removal, maintaining and protecting relevant features in place, or on-site storage. Specifications shall include detailed drawings or instructions where historic features may be impacted.	Retain a qualified Historic Architect to work with the project Design Team.	During finalization and approval of final design plans and during construction.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	The Historic Architect shall document the input provided to the Design Team in Memoranda for the Record at the Schematic and 50% Construction Documents phases. A Draft Memorandum for the Record shall be provided to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment. The Historic Architect shall participate in pre-construction and construction monitoring activities, as appropriate, to facilitate conformance with the Secretary's Standards and/or lessening of material impairment to historical resources.				
CR-HIST/mm-1.2	An Inventory and Treatment Plan shall be prepared by a qualified historic preservation professional and implemented for the La Brea Tar Pits Historic District. Once complete, the Draft Inventory and Treatment Plan shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. The Inventory and Treatment Plan shall be finalized prior to the commencement of construction activities. Specific requirements for the Inventory and Treatment Plan are provided below: • A qualified historic preservation professional shall be retained to prepare the Inventory and Treatment Plan. The historic preservation professional shall satisfy the Secretary of the Interior's Professional Qualifications Standards for History and/or Architectural History as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in CEQA review of historic resources and reviewing architectural plans for conformance with the Secretary's Standards. A landscape architect or landscape specialist with a minimum of five (5) demonstrated years of experience working with historic landscapes shall contribute to preparation of the Inventory and Treatment Plan to identify historic landscaping and trees that fall within the period of significance for the historic district (up to 1977). • The Inventory and Treatment Plan shall adhere to best professional practices promulgated by the National Park Service and State Office of Historic Preservation. • The Inventory and Treatment Plan shall supplement the historic resources survey completed and documented in the Historic Resources Technical Report for the La Brea Tar Pits Master Plan by documenting the character-defining features and existing conditions of those "contributing" (i.e., historically significant) components of the historical resource. The inventory shall include site plan features, commemorative plaques and statues, artwork and sculptures, and other extant contributors to the historic district. • The study shall include recommendations for annual maintenance activities, treatment and repair priorities, and maximum retention of remaining district contributors. All recommendations shall be designed to maximize retention of remaining contributors to the historic district and minimize the loss of character-defining features. The Final Inventory and Treatment Plan shall be used for the ongoing stewardship of the property following construction.	Retain a qualified Historic Preservation Professional to prepare and implement an Inventory and Treatment Plan.	Prior to the commencement of construction activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
CR-HIST/mm-1.3	A historic documentation package shall be prepared to document the contributing features of the La Brea Tar Pits Historic District and Page Museum prior to the authorization of demolition or construction activities. The documentation package shall emulate and include elements of the Historic American Building Survey (HABS) and/or the Historic American Landscape Survey (HALS). The HABS/HALS-like Documentation Package shall adhere to best professional practices promulgated by the National Park Service and shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. Documentation shall be in accordance with the applicable standards described in the Secretary of the Interior's Standards for Architectural and Engineering Documentation. Prior to the commencement of construction activities, a historian or architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History shall be retained to prepare HABS/HALS-like documentation for the La Brea Tar Pits Historic District and Page Museum. Required contents for the HABS/HALS-like package include the following: • Photographs: Photographic documentation will focus on the Page Museum and, within the historic district, those contributing elements (built, landscape, hardscape, paleontological, and natural features) slated for demolition, alterations, or adjacent new construction. Photographs shall include detail shots of contributing features and components slated for demolition, with overview and context photographs for the adjacent setting. Photographs shall be taken using a professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Digital photographs will be provided in electronic format. • Descriptive and Historic Narrative: The historian or architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each contributing component, with accompanying photographs, and information on how the resource fits within the broader historic district during its period of significance. The historic narrative shall draw upon previously prepared studies, including the Historical Resources Technical Report prepared for the La Brea Tar Pits Master Plan, as well as the La Brea Tar Pits Inventory and Treatment Plan prepared under Mitigation Measure CR-HIST/mm-1.2. The narrative shall also include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate. Upon finalization of the HABS/HALS-like Documentation Package, a hard copy and digital copy shall be prepared and offered to the Seaver Center for Western History Research at the Natural History Museum of Los Angeles County, University of Southern California Special Collections, and the Los Angeles Public Library.	Retain a Historian or Architectural Historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History to prepare HABS/HALS-like documentation.	Prior to the commencement of construction activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
CR-HIST/mm-1.4	A Retrospective Exhibit and Interpretive Program shall be prepared and implemented. The Retrospective Exhibit and Interpretive Project shall be prepared by a qualified historic preservation professional who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History. The exhibit materials shall be drawn from previous studies including but not limited to the Inventory and Treatment Plan described in Mitigation Measure CR-HIST/mm-1.2 and the HABS/HALS-like documentation package described in Mitigation Measure CR- HIST/mm-1.3, as well as other supplemental research materials as needed. The retrospective exhibit and interpretive program shall focus on the history of the site, the people involved in the early ownership, development, and scientific discoveries and excavations, and the events leading to its donation to the County of Los Angeles, as well as on the site's development through the end of the period of significance for the La Brea Tar Pits Historic District, 1977. The retrospective exhibit and interpretive program may include but not be limited to exhibit materials and interpretive panels, both exterior (e.g., as a series of panels in the park), interior (e.g., as a permanent exhibit in the Page Museum or new museum building), and online (on the museum website). The exhibit and interpretive program shall be designed for maximum public accessibility. The plan for the interpretive and commemorative program shall be detailed in an Interpretive Program Plan Memorandum to be prepared with the guidance of a qualified historic preservation professional. The retrospective exhibit and interpretive program shall be completed within three (3) years of commencement of initial construction activities. The Draft Interpretive Program Plan Memorandum shall be reviewed by interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for comment.	Retain a qualified Historic Preservation Professional to prepare a Retrospective Exhibit and Interpretive Program.	To be completed within three (3) years of commencement of initial construction activities.	Foundation	County Museum of Natural History
CR-HIST/mm-1.5	A pre-construction protection plan for historical resources shall be prepared prior to any major alteration or construction activities that may potentially damage historic resources or contributing features of the La Brea Tar Pits Historic District or Page Museum. A qualified Historic Architect shall be retained to develop a Preservation Protection Plan that identifies potential risks to historical resources within or adjacent to the immediate project footprint. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in reviewing architectural plans for conformance with the Secretary's Standards. The Preservation Protection Plan may include, but not be limited to, the following components: • Inclusion/mapping of the historical resource/contributing feature on any architectural drawings, site plans, and/or construction documents. • Site walk with Design Team and construction team representative to review staging areas for construction and construction sequence and activities, to identify areas of concern and to provide input for proactive avoidance of unforeseen impacts. • Procedures and timing for the placement and removal of temporary protection features, such as fencing and other barriers, around the historical resource/contributing feature. • Monitoring of the installation and removal of temporary protection features by the Historic Architect, or designee.	Retain a qualified Historic Architect to develop a Preservation Protection Plan.	Prior to the commencement of construction activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	• Post-construction survey to document the condition of the historic resource after project completion. • Preparation of a technical memorandum documenting the pre-construction and post-construction conditions of the historic resource and compliance with protective measures outlined in the Preservation Protection Plan. The Preservation Protection Plan shall be submitted in draft form to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment.				
Geology and Soils					
GEO/mm-3.1	To prevent subsidence of the ground surface within the project site, temporary dewatering shall be required during construction for excavations which extend below the existing groundwater level (i.e., greater than 10 feet below ground surface), anticipated for deepest excavations associated with the proposed Page Museum one-story addition, as excavations will be required for construction of the proposed mat foundation and associated new utility placement. Dewatering activities shall be conducted as follows: a. Dewatering shall be performed prior to excavation. Temporary dewatering shall be performed during the construction stage, prior to beginning any excavation which will extend beneath the groundwater. The Construction Contractor shall decide the proper timeline which will permit a dry environment for the excavation work and prevent water seepage into the excavation. b. The design of a temporary dewatering system shall be performed by an experienced, qualified dewatering contractor. Prior to proceeding with the actual design of the dewatering system, a test installation shall be constructed to verify the design's effectiveness. c. The dewatering system shall be designed to lower the site groundwater sufficiently to permit a dry environment and to prevent water seepage from the temporary perimeter cut slopes. The design shall balance the soil conditions with well spacing and well depth. Recommendations for well design provided in the project's Geology and Soil Discipline Report shall be incorporated into the final design of the dewatering system, including: • Installation of relatively closely spaced wells around the excavation perimeter, referred to as well points • Wells shall include perforated casing with annular space filled with suitable filter material • Well points shall extend past the depth of proposed excavation • Elements of current dewatering system within the Lake Pit shall be incorporated, including collection piping, sump pumps, a sand-oil separator device, and a micro-filter device. In addition, separator and filter devices shall be considered for temporary dewatering pumps to help maintain the system's efficiency and increase the amount of time prior to the pumps being plugged up with tar.	Conduct dewatering activities in accordance with identified measures.	Prior to beginning any excavation which will extend beneath the groundwater.	Foundation and Project Contractor	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	d. Groundwater shall be pumped from the tar sands and is anticipated to contain a relatively high percentage of tar. The tar shall be removed, and the groundwater treated in accordance with all applicable regulatory requirements prior to disposal.				
GEO/mm-3.2	To ensure proper design and stability of structures to be constructed on existing artificial fill or upper alluvial soils, the excavation and replacement of existing compressible materials within the areas of the proposed improvements shall be required. Excavation and replacement shall consist of complete removal of artificial fill and/or compressible surficial alluvial soil beneath the areas of the proposed improvements and replacement with compacted structural fill, with an anticipated artificial fill depth ranging between 1 and 8 feet below ground surface based on review of existing explorations performed within or adjacent to the project site. This value will be confirmed after completion of subsurface explorations during the final geotechnical design to further characterize the subsurface conditions underlying the improvement areas (i.e., compressibility of the soft layers and the depth to firm material). Due to the anticipated soil contamination, on-site soils are not anticipated to be suitable for reuse as fill material and shall be exported for proper remediation and disposal in accordance with all applicable regulatory requirements. The final engineering design of the structures included in the project shall be reviewed and approved by the Los Angeles County Department of Public Works, Building and Safety Division.	Conduct subsurface explorations during the final geotechnical design to further characterize the subsurface conditions underlying the areas of disturbance.	During final geotechnical design and prior to commencement of construction.	Foundation	County Museum of Natural History Los Angeles County Department of Public Works, Building and Safety Division
GEO/mm-4.1	To address impacts related to expansive soils within the project site, additional expansion testing shall be required as part of the final geotechnical design for the project. Based on the outcome of the additional expansion testing, one or more of the following options shall be implemented to address expansive soils: a. <u>Over-excavation:</u> Over-excavation and replacement of the expansive material with a soil having low or non-expansive potential, with the upper 2 feet of expansive soil (where encountered at the site) being removed and replaced with non-expansive fill. OR b. <u>Soil Treatment:</u> Chemical treatment, such as lime treatment. This generally involves mixing a certain percentage of the chemical into the subgrade soil, compacting the mixed soil-chemical material, and then allowing the material curing time prior to continuing construction. The percentage of the chemical addition and the associated engineering properties of the improved soil will need to be determined through geotechnical laboratory testing. If chosen, the final geotechnical design shall provide design and construction recommendations related for this option. OR c. <u>Structural Design:</u> The structural design option would involve increasing the bearing pressure on the soil and/or extending the foundation or flatwork depth. However, while increasing the bearing pressure reduces the potential impact from expansive soil, it does increase the potential impact associated with excessive settlement. If this option is elected, settlement evaluation shall be performed as part of the final geotechnical design and based on the proposed loading conditions. Loading conditions shall be limited to a maximum differential of 1 inch over a 20-foot span within the structure.	Conduct additional soil expansion testing during the final geotechnical design to determine final design solution.	During final geotechnical design design and prior to commencement of construction.	Foundation	County Museum of Natural History Los Angeles County Department of Public Works, Building and Safety Division

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	The final design solution will be determined by the project engineer consistent with the above measures. The final engineering design of the structures included in the project shall be reviewed and approved by the Los Angeles County Department of Public Works, Building and Safety Division.				
GEO/mm-6.1	Retain a Qualified Professional Paleontologist (Project Paleontologist): Prior to the start of construction and/or ground-disturbing activities, the Los Angeles County Museum of Natural History Foundation, at the direction of the County, shall retain a Qualified Professional Paleontologist (Project Paleontologist) who meets or exceeds the professional standards defined by the SVP (2010), and who has specific experience overseeing mitigation projects in Pleistocene deposits of the Los Angeles Basin. The SVP (2010:10) defines a qualified professional paleontologist as: “a practicing scientist who is recognized in the paleontological community as a professional and can demonstrate familiarity and proficiency with paleontology in a stratigraphic context.” The Project Paleontologist shall have a graduate degree in paleontology or geology, and/or a publication record in peer reviewed journals; have demonstrated competence in field techniques, preparation, identification, curation, and reporting; have at least 2 full years of professional experience as assistant to a qualified professional paleontologist with administration and project management experience (supported by a list of projects and referral contacts); have proficiency in recognizing fossils in the field and in determining their significance; have expertise in local geology, stratigraphy, and biostratigraphy; and have experience collecting vertebrate fossils in the field (SVP 2010). The Project Paleontologist and Page Museum curators and collections managers shall meet weekly during scheduled ground-disturbing activities associated with the construction of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination. The Project Paleontologist shall oversee all regulatory compliance measures, shall oversee mitigation protocols related to paleontological resources, and shall be a point of contact for the Page Museum curators and County officials. A professional resume or curriculum vitae of the Project Paleontologist shall be submitted to the County for approval prior to the start of ground-disturbing activities.	Retain a Qualified Professional Paleontologist (Project Paleontologist) to oversee all regulatory compliance measures and mitigation protocols.	Prior to the start of construction and/or ground-disturbing activities.	Foundation	County Museum of Natural History
GEO/mm-6.2	Prepare a Paleontological Resources Management Plan: After finalization of the engineering, design, and grading plans for the project and prior to the start of preconstruction ground-disturbing activities, a Paleontological Resources Management Plan (PRMP) shall be prepared by the Project Paleontologist and submitted to the Page Museum curators, who shall review and approve the final PRMP on behalf of the County. The PRMP shall define the processes and procedures for paleontological monitoring and fossil excavation based on the nature of ground-disturbing activities required for the project. The PRMP shall: a. Incorporate the results of the Paleontological Resources Technical Report (SWCA 2023), the final geotechnical investigation, and the final engineering/grading plans for the project. b. Require all construction personnel to attend a Worker Environmental Awareness Program (WEAP) training to be presented by the Project Paleontologist, or their designee. c. Define the processes and procedures for coordinating and communicating with responsible parties and stakeholders (including but not limited to the contractors, consultants, County officials, and the Page Museum curators and collections managers), when construction activities would be halted due to discovery and subsequent salvage efforts during ground-disturbing activities, and when regularly scheduled meetings between the Project Paleontologist and the Page Museum curators and collections managers would be required.	Prepare and implement a Paleontological Resources Management Plan.	Prior to the start of construction and/or ground-disturbing activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	d. Outline a procedure whereby mechanical excavation is conducted to remove any non-fossil-bearing sediments or soils subject to environmental soil remediation, such that adequate time is afforded to identify fossil localities and to conduct scientific salvage operations to a feasible extent (see Millington and Dietler 2023); the timing of scientific fossil salvage operations during initial grading should be given special considerations in the PRMP such that delays to earthwork activities are minimized while allowing paleontological material to be salvaged at an acceptable level that retains the scientific integrity of the discoveries. e. Require full-time paleontological monitoring by qualified paleontological monitors who meet the standards of the SVP (2010) and shall be supervised by the Project Paleontologist; qualified paleontological monitors shall have the authority to temporarily halt construction activities to record and salvage fossil discoveries as they are unearthed to allow for potentially significant fossils to be collected with their scientific integrity intact to the extent feasible and practical. f. Discuss unanticipated fossil discovery and communication protocols if paleontological resources are discovered by non-paleontology staff working on the project in instances where paleontological monitors are documenting or recording paleontological resources discovered elsewhere within the project site. g. Discuss feasible monitoring procedures for each of the different ground-disturbing activities, including but not limited to active observation or inspection of sediments during active ground disturbances, whether they be trenching, grading, excavating, drilling, or some other activity that disturbs sediments; inspection of sedimentary spoils spiles or cuttings, as well as backfill originating from Hancock Park that may contain asphaltum or fossil material; and/or matrix screening of spoils for small or microfossils as needed. h. Define fossil salvaging procedures, including but not limited to outlining the treebox method for asphaltum bearing large accumulations of fossils, salvaging of isolated fossils, matrix screening in the field for microfossils, and chain-of-custody procedures for transferring the fossil discoveries to the Page Museum curators or collection managers as they are exhumed from the project site. Because of the unique conditions of the La Brea Tar Pits and the chemical considerations of working with asphaltum fossil deposits, any paleontological resource discoveries shall remain on-site with the Page Museum. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. i. Require the Project Paleontologist to prepare a report of the findings of the monitoring efforts within 90 days after construction is completed.				
GEO/mm-6.3	Conduct Worker Training: The Project Paleontologist shall develop and present a WEAP training to educate the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of an unanticipated fossil discovery. This training program shall be given to the crew before ground-disturbing work commences and shall include handouts to be given to new workers as needed.	Conduct worker's training through development and presentation of a Worker's Environmental Awareness Program.	Prior to the start of construction and/or ground-disturbing activities, to be updated as needed throughout construction.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
GEO/mm-6.4	Monitor for Paleontological Resources: Full-time monitoring shall be required during all ground-disturbing activities (including artificial fill or previously disturbed sediments), regardless of depth. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations, including but not limited to the paleontological screening of tar sands prior to disposal or treatment. Procedures and protocols for paleontological monitoring and fossil salvage shall be outlined in the PRMP. Monitoring shall: a. Be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist, who shall coordinate with the Page Museum curators and collections managers and County officials. The Project Paleontologist may periodically inspect construction activities to recommend adjusting the level of monitoring in response to subsurface conditions; however, modifications, such as increasing, reducing, or ceasing of paleontological monitoring, or any changes of the implementation of the PRMP, should be approved by Page Museum curators and the County. b. Include inspection of exposed sedimentary units during active excavations, grading, tar sand removal, and any other ground-disturbing activity that has the potential to impact sediments capable of preserving significant fossils. The Page Museum curators (or their representatives) and the paleontological monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, shall the fossils be determined significant or likely significant, professionally and efficiently recover the fossil specimens and collect associated data while minimizing delays. Data collection procedures may require the support of construction contractors to carefully and efficiently collect field data and extract the fossils to allow construction to continue. c. Require grading and earthwork contractors to follow the guidance of Page Museum staff or the Project Paleontologist regarding the collection and/or extraction of paleontological resources. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be directly retained by the Page Museum for later analysis, laboratory preparation, and eventual curation if deemed significant or important by the Page Museum curators or collection managers.	Retain a full-time qualified Paleontological Monitor.	Prior to and during construction activities	Foundation	County Museum of Natural History
GEO/mm-6.5	Prepare a Paleontological Resources Monitoring Report: Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing the implementation of the PRMP, including paleontological monitoring and fossil salvaging, shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Page Museum and the Research and Collections Department at the Natural History Museum of Los Angeles County within 90 days after construction is completed. If the project is developed in phases, the final report is only necessary at the completion of the last phase to be constructed. At the discretion of the County, if there are unanticipated gaps in the phases of construction or other reasons why the County would prefer phased final reports, multiple final reports could be prepared.	Prepare a Paleontological Resources Monitoring Report.	Upon conclusion of ground-disturbing activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
Greenhouse Gas Emissions					
GHG/mm-1.1	The modifications to the George C. Page Museum and the development of the new museum shall not include the installation of natural gas infrastructure. Future operation of the new facilities shall not use natural gas–fired appliances. In addition, the project shall provide more electric vehicle charging stations than the mandatory requirements in the Los Angeles County Code, Title 31, Green Building Standards, electric vehicle charging space and charging station calculations (Code Section 5.106.5.3.3).	Prohibit installation of natural gas infrastructure and provide vehicle charging stations as identified.	Prior to finalization and approval of final design plans	Foundation	County Museum of Natural History
Hazards and Hazardous Materials					
HAZ/mm-1.1	Prior to earthwork activities, the project contractor, in coordination with the LAFD and the County, through the Foundation, shall be required to prepare a Soil Management Plan (SMP) for the removal of contaminated soils and their transportation off-site. The SMP shall be prepared in accordance with all relevant and applicable federal, state, and local laws and regulations that pertain to the transportation and disposal of hazardous materials and waste. The SMP shall: • Describe the methodology to identify and manage (reuse or off-site disposal) contaminated soil during soil excavation and/or construction; • Provide protocols for confirmation sampling, segregation and stockpiling, profiling, backfilling, disposal, guidelines for imported soil, and backfill approval from the DTSC Information Advisory on Clean Imported Fill Material; and • In addition, the LAFD may consult with other agencies (e.g., DTSC and the LARWQCB) if the nature of the contamination warrants the involvement of these agencies.	Prepare and implement a Soil Management Plan.	Prior to earthwork activities.	Foundation and Project Contractor	County Museum of Natural History City of Los Angeles Fire Department
HAZ/mm-1.2	The following requirements and precautionary actions shall be implemented when disturbing soil at the project site: • No soil disturbance or excavation activities shall occur without a project site-specific Health and Safety Plan (HASP). Any soil that is disturbed, excavated, or trenched due to on-site construction activities shall be handled in accordance with applicable local, state, and federal regulations, as well as sampled and analyzed by a certified laboratory for constituents in accordance with the accepting landfill's requirements (including testing for the presence of hydrocarbons, volatile organic compounds, semi-volatile organic compounds, heavy metals, and pesticides).	Prepare and implement a project site-specific Health and Safety Plan.	Prior to earthwork activities.	Foundation and Project Contractor	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	• The contractor shall prepare a project-specific HASP. It is the responsibility of the contractor to review available information regarding project site conditions, including the SMP, and potential health and safety concerns in the planned area of work. The HASP shall describe the proposed construction activities and hazards associated with each activity. Hazard mitigation shall be presented in the HASP to limit construction-related risks to workers. The HASP shall include emergency contact numbers, maps to the nearest hospital, gas monitoring action levels, gas response actions, allowable worker exposure times, and mandatory personal protective equipment (PPE) requirements. The HASP shall specify Certificate of Competency action levels for construction workers as well as monitoring criteria for increasing the level of PPE. The HASP shall be signed by all workers on-site to demonstrate their understanding of the construction-related risks. • The contractor and each subcontractor shall require their employees who may directly come in contact with Suspect Soil (soil that is stained or odorous) to perform all activities in accordance with the contractor's HASP. If Suspect Soil is encountered, to minimize the exposure of other workers to potential contaminants on the project site, the contractor may erect temporary fencing around excavation areas with appropriate signage as necessary to restrict access and to warn unauthorized on-site personnel not to enter the fenced area. • There shall be no reuse of excavated soil deemed inappropriate for reuse as defined in the project-specific SMP. • The contractor shall conduct, or have its designated subcontractor conduct, visual screening of soil during activities that include soil disturbance. If the contractor or subcontractor(s) encounter any Suspect Soil, the contractor and subcontractor(s) shall immediately stop work and take measures to not further disturb the soils (e.g., cover suspect soil with plastic sheeting) and inform the Foundation and the environmental monitor. The Foundation shall identify the environmental monitor—an experienced professional trained in the practice of the evaluation and screening of soil for potential impact working under the direction of a licensed Geologist or Engineer—prior to the beginning of work. • Prior to excavation activities, the contractor or designated subcontractor shall establish specific areas for stockpiling Suspect Soil, should it be encountered, to control contact by workers and dispersal into the environment, per the provisions provided in the SMP.				
HAZ/mm-2.1	During construction activities at the project site, controls shall be in place to address the effects of subsurface gases and impacted soil and groundwater on workers and the public. During construction, the following shall be implemented: • Monitoring devices for methane and benzene shall be present to alert workers of elevated gas concentrations when subsurface soil-disturbing work is being performed.	Implement monitoring devices as identified for methane and benzene.	During construction	Foundation and Project Contractor	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	• Any trench or excavation wider than 18 inches and having a depth greater than 2× its narrowest width shall be monitored with a portable combustible gas detector. The portable detector shall have a resolution capable of reporting to 1% LEL (Lower Explosive Limit), or 0.1% by volume in air, or in parts per million (ppm). If concentrations of combustible gases reach or exceed 20% LEL, or 1.0% by volume in air, or 10,000 ppm, the trench or excavation shall be evacuated until such time as the gas concentrations are determined to be steadily below these levels. All welding and electrical equipment shall be removed from the trench/excavation until the area is deemed to be safe. Portable blowers are the most appropriate means of controlling combustible gas concentrations. The blower motors and appurtenant electrical wiring shall not be placed in the trench or excavation. • No welding, cutting, or other hot work shall be performed close to flammable tars which, when subjected to heat, might produce flammable or toxic vapors (per OSHA 1910.252(a)(3)(i)). Smoking should also be avoided when working near tar seeps. • Contingency procedures shall be in place if elevated gas concentrations are detected, such as the mandatory use of PPE, evacuating the area, and/or increasing ventilation within the immediate work area where the elevated concentrations are detected. • Workers shall be trained to identify exposure symptoms and implement alarm response actions. • Soil and groundwater exposure during excavations shall be minimized to reduce the surface area which could off-gas. This shall be achieved by staggering exposed excavation areas. • Soil removed as part of construction shall be sampled and tested for off-site disposal in a timely manner. If soil is stockpiled prior to disposal, it shall be managed in accordance with the project's Stormwater Pollution Prevention Plan. • Fencing shall be erected to limit public access and allow for gas dilution. The construction contractor can determine the appropriate type of fencing, as long as public access is restricted such that interaction with hazardous construction conditions does not occur. • All requirements of the project-specific HASP shall be implemented and followed as described in HAZ/mm-1.2.				
HAZ/mm-2.2	As part of the final project design, the project engineer shall develop and implement a methane mitigation system. The mitigation system, which would provide a barrier for hazardous vapors, methane, and tar, consists of a subslab venting system that exhausts to the atmosphere, a subslab impermeable gas/tar barrier membrane system, and a monitoring system consisting of probes above and below the gas barrier membrane. The monitoring program consists of routine (quarterly) monitoring and reporting to the County Public Works, Environmental Programs Division. The Environmental Programs Division shall also review the plans to see if the criteria meet the requirements of Los Angeles County Code 110.4 Methane Gas Hazards. Additionally, tar collection systems underneath the gas mitigation systems need to be evaluated by the engineer and by the county engineer to evaluate the performance of the overall system. A contingency plan should also be prepared to describe how matters shall be handled in the event that high concentrations of methane gas enter a building despite the mitigation measures.	Develop and implement a methane mitigation system. Implement quarterly monitoring throughout life of project.	Prior to finalization and approval of final design plans.	Foundation	County Museum of Natural History County Public Works Environmental Programs Division

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	The inspection and periodic observations of membrane and vapor control measures shall be performed by the Vapor Barrier Engineer (i.e., the Engineer or his Designee). At a minimum, inspection/observation shall take place during the installation of the vent piping, after backfilling of the vent piping, during the installation of the vapor barrier, after the installation of the vapor barrier (prior to backfilling), during the placement of the protection course, immediately prior to placement of foundation concrete, during and at the completion of the vent riser installation for the vent piping, and at the completion of construction prior to the issuance of the system certification and certification of occupancy.				
Hydrology and Water Quality					
HYD/mm-1.1	The Foundation shall implement the following non-structural Best Management Practices (BMPs) for the life of the project: <u>Open Paved Areas and Biofiltration Planter Areas</u> • Regular sweeping of all open and planter areas, at a minimum, on a weekly basis in order to prevent dispersal of pollutants that may collect on those surfaces. • Regular pruning of the trees and shrubs in the planter areas to avoid formation of dried leaves and twigs, which are normally blown by the wind during windy days. These dried leaves are likely to clog the surface inlets of the drainage system when rain comes, which would result in flooding of the surrounding area due to reduced flow capacities of the inlets. • Trash and recycling containers shall be used such that, if they are to be located outside or apart from the principal structure, are fully enclosed and watertight in order to prevent contact of stormwater with waste matter, which can be a potential source of bacteria and other pollutants in runoff. These containers shall be emptied and the wastes disposed of properly on a regular basis. <u>Education and Training</u> • Annual training of employees on property management and proper methods of handling and disposal of waste shall be provided. Employees should understand the on-site BMPs and their maintenance requirements. <u>Landscape Management</u> • Landscaping shall be maintained using minimum or no pesticides. <u>Litter Control</u> • An adequate number of trash receptacles shall be provided and inspected regularly. Leaky receptacles shall be prepared or replaced. Receptacles shall be covered. • Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site.	Include non-structural Best Management Practices as identified on final design plans and implement throughout lifetime of the project.	Upon project completion and throughout lifetime of the project.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	<u>Housekeeping of Loading Docks</u> • Loaded and unloaded items shall be moved indoors as soon as possible. <u>Catch Basin Inspection</u> • Stormwater pollution prevention information shall be provided. Owner shall be made aware that the following is to be followed: "Property owner shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create potential discharge to storm drains." • Catch basins shall be inspected regularly. <u>Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction</u> • Trash and waste will be handled and stored for pickup adjacent to the loading dock. This limits the potential introduction of pollutants into the site. Trash and waste pickup will occur regularly. <u>Use Efficient Irrigation Systems and Landscaping Design</u> • Landscape shall be generally designed to provide an efficient and continuous irrigation system. • Landscape areas shall be designed to include plants that are friendly to the climate of Los Angeles. <u>Storm Drain Stencil Signage</u> • Stencil or label all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language to prevent dumping of improper materials into the urban runoff conveyance system.				
HYD/mm-1.2	The Foundation shall ensure all structural and non-structural Best Management Practices (BMPs) are operated, monitored, and maintained for the life of the project pursuant to the following: • All structural BMPs shall be inspected, cleaned-out, and where necessary, repaired, at the following minimum frequencies: 1) prior to October 15th each year; 2) during each month between October 15th and April 15th of each year and, 3) at least twice during the dry season (between April 16th and October 14th of each year). • Debris and other water pollutants removed from structural BMPs during cleanout shall be contained and disposed of in a proper manner. • The drainage system, the associated structures, and BMPs shall be maintained according to manufacturer's specification to ensure maximum pollutant removal efficiencies.	Ensure all structural and non-structural Best Management Practices are operated, monitored, and maintained as identified.	Upon project completion and throughout lifetime of the project.	Foundation	County Museum of Natural History
Noise and Vibration					
NOI/mm-1.1	The following measures shall be implemented to reduce construction-related noise impacts: a. Operation of equipment used in construction, alteration, drilling, or demolition work shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and any time on Sundays or legal holidays.	Implement identified measures.	During construction activities on the project site.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	b. A temporary barrier shall be erected around active construction areas. The placement and height of the barrier shall be adjusted based on the specific location of construction activities within the site, ensuring that the barriers are positioned as close as feasible to the work area and are sufficiently tall to maximize effectiveness in minimizing direct noise transmission to surrounding areas, such that a sound reduction of 10 dBA is achieved at the property lines on the east side of Curson Avenue and north side of 6th Street. Prior to the commencement of each construction phase, a phase-specific acoustic analysis shall be conducted to determine the optimal placement and configuration of noise barriers. In consultation with an acoustical engineer, the barrier configuration may be modified to address the specific conditions of phased construction, provided that the adjustments achieve an equivalent noise reduction outcome. c. Noise levels from powered equipment or powered hand tools at a distance of 50 feet from the noise source or within 500 feet of a residential zone will be limited to 75 dBA, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment. d. All construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise-suppression devices. e. Pneumatic tools used at the site shall be equipped with an exhaust muffler on the compressed air exhaust to minimize noise levels. f. Stationary noise sources shall be located as far from adjacent sensitive receptors as possible and shall be muffled and enclosed within temporary sheds or insulated barriers when possible. g. Prior to commencement of construction, a designated project contact person will directly notify the management of any surrounding residential properties located within 100 feet of the project site about the construction schedule and activities and provide a contact number to address any noise-related complaints during construction. h. A designated point of contact shall be identified to address noise-related complaints during construction. The noise disturbance coordinator will be responsible for responding to any local complaints about construction noise.				
TRA/mm-1.1	In consultation with the LADOT, the Los Angeles County Museum of Natural History Foundation (Foundation) shall prepare and implement a Transportation Demand Management (TDM) Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. The Foundation shall designate an existing member of staff as the on-site TDM Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT.	Prepare and implement a Transportation Demand Management Program as identified and designate on-site Transportation Demand Management Coordinator.	Upon completion of project construction activities.	Foundation	County Museum of Natural History City of Los Angeles Department of Transportation

Employee Strategies:

Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures may be applied to reduce employee vehicle trips and VMT:

- Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.
- Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.
- Encourage and support participation in Metro vanpool, including subsidies for participation.
- Implement paid parking for employees.
- Subsidize transit passes.
- Offer flexible work schedules and telecommuting, when feasible.

Visitor Strategies:

Transportation information for visitors shall be displayed on the La Brea Tar Pit's website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT:

- Advertise and offer discounted museum tickets for visitors who use public transit or a bicycle to visit the project.
- Provide and maintain secure on-site bicycle parking for visitors and monitor usage to determine if additional bicycle racks are needed.
    - Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.
    - Ensure bicycle parking is well lit and monitored by staff.
- Continue to have paid parking for visitors.
- Coordinate with Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to the La Brea Tar Pits, through the following measures:
    - Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and the La Brea Tar Pits.
    - Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors.
    - Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection.

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	• Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and West 6th Street.				
TRA/mm-4.1	A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions: • Prohibition of construction worker parking on nearby residential streets. • Prohibition of construction-related vehicles parking or staging on surrounding public streets. • Prohibition of construction-related parking or staging on streets with bus service. • Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways. • Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate. • Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible. • Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible. • Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible.	Prepare a construction traffic management plan.	Prior to commencement of construction activities.	Foundation and Project Contractor	County Museum of Natural History City of Los Angeles Department of Transportation
TRA/mm-4.2	Consultation shall occur with the City of Los Angeles Fire Department (LAFD) to analyze the project's emergency access design, including a review of the proposed vehicle access points. Construction activities and their impact on emergency access shall also be reviewed to ensure that the final design provides adequate access to the project site and neighboring businesses and residences.	Consult with City of Los Angeles Fire Department regarding emergency access.	Prior to finalization and approval of final design plans.	Foundation	County Museum of Natural History City of Los Angeles Fire Department
TRA/mm-4.3	To improve emergency access safety and circulation, coordination shall occur with LADOT to explore the feasibility of implementing one or more of the following improvements: • Signal timing at the built-out intersection of Curson Avenue/Wilshire Boulevard shall be regularly updated to optimize traffic signal timing. In addition, the weekday a.m. and p.m. peak period bus-only lanes on Wilshire Boulevard shall be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection. • Signal timing at the Curson Avenue/West 6th Street intersection shall be regularly updated to optimize splits. In addition, improve existing lane striping to extend the northbound left-turn lane at the intersection, and/or add an inbound left-turn lane at the project's Curson Avenue driveway.	Consult with City of Los Angeles Fire Department regarding emergency access.	Prior to finalization and approval of final design plans.	Foundation	County Museum of Natural History City of Los Angeles Fire Department

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
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	• Incorporate safety features to accommodate passenger pick-up and drop-off along West 6th Street when planned separated bike lanes are implemented. • Monitor driveway operations at Curson Avenue. • The County of Los Angeles does not have the authority to impose these measures because they are within the discretionally authority of the City of Los Angeles. Thus, while they are recommended, the County of Los Angeles is not required to implement them. However, the requirement to coordinate with the City and facilitate possible implementation of the above measures shall be required.				
Tribal Cultural Resources					
TCR/mm-1.1	Retain Tribal Consultants. a. Prior to any ground-disturbing activities on the project site associated with the proposed project, the Gabrieleno Band of Mission Indians – Kizh Nation and Gabrieleno/Tongva San Gabriel Band of Mission Indians shall be retained as Tribal Consultants. Each of the Tribal Consultants shall provide the services of a representative, known as a Tribal Monitor. The Tribal Monitors shall be present on-site and carry out actions described in the Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan) and any actions required to comply with mitigation measures for tribal cultural resources. These actions shall include but not be limited to monitoring ground-disturbing activities. Ground disturbing activities are defined as excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing trees, clearing, driving posts or pilings, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The frequency of the monitoring services shall be provided on a rotational basis as outlined in TCR/mm-1.3. b. At least 21 days before any ground disturbing activities commence, each of the Tribal Consultants shall submit a letter of retention to the Museum of Natural History confirming that the that they have been retained consistent with the terms of the TCR/mm-1.1.	Retain Tribal Consultants from the Gabrieleno Band of Mission Indians – Kizh Nation and Gabrieleno/Tongva San Gabriel Band of Mission Indians. Implement the AR-TCR Management Plan.	Prior to any ground-disturbing activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
TCR/mm-1.2	Prior to any ground-disturbing activities on the project site associated with the proposed project, the Tribal Consultants or Tribal Monitor shall provide a worker training to on-site project personnel responsible for supervising ground-disturbing activities (i.e., foreman or supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The worker training shall include but not be limited to any topics related to protocols related to tribal cultural resources, regulatory compliance requirements, monitoring procedures and stop-work restrictions, and any other applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of tribal cultural resources. As an element of the worker training, the Tribal Consultants or Tribal Monitor shall advise the construction crews on proper procedures to follow if an unanticipated tribal cultural resource is discovered during construction whether a Tribal Monitor is present or not. The Tribal Consultants or Tribal Monitor shall also provide the construction workers with contact information for the Tribal Consultants and Tribal Monitors. Once the ground disturbances have commenced, the need for additional or supplemental worker training shall be determined through consultation with the Tribal Consultants, and project proponent or their designated project supervisor. Within 5 days of completing a worker training, a list of those in attendance shall be provided to the Museum of Natural History by the Tribal Consultants, the Qualified Archaeologist, or a designee of either parties.	Provide worker training to on-site project personnel responsible for supervising ground-disturbing activities from the identified Tribal Consultants or Tribal Monitor.	Prior to any ground-disturbing activities.	Foundation	County Museum of Natural History
TCR/mm-1.3	Monitoring for Tribal Cultural Resources. a. Prior to any ground-disturbing activities associated with the project, a minimum of one Tribal Monitor shall be present during ground-disturbing activities as stipulated in the AR-TCR Management Plan. The AR-TCR Management Plan shall establish a monitoring schedule in a manner that provides opportunities for each of the three Tribal Consultants to participate in monitoring throughout the project's duration and within specific project phases that involve ground-disturbing activities. The monitoring schedule shall be determined at the sole discretion of the Museum of Natural History. The Museum of Natural History or their designee shall notify each Tribal Consultant in advance of its assigned monitoring period to allow for adequate preparation and planning. The Qualified Archaeologist shall be responsible for coordinating and communicating with the Tribal Consultants to address the need for consistency in reporting of the results during the rotational monitoring process. If one Tribal Monitor is unable to attend on a given day, but another Tribal Monitor is present, ground disturbing work shall commence. The need for additional monitors exceeding the two respective Tribal Monitors shall be assessed if the areas subject to monitoring exceeds what can be reasonably covered. The Tribal Monitors shall work under the direction of their respective Tribal Consultant. The Tribal Monitors shall complete daily monitoring logs that provide descriptions of the relevant ground-disturbing activities (the type of construction activities performed and location of ground-disturbing activities), sediment types, presence or absence of tribal cultural resources or potential tribal cultural resources, and any other facts, conditions, materials, or discoveries of significance to the Tribal Consultants. Monitor logs shall identify and describe any discovered tribal cultural resources or potential tribal cultural resources as defined in Public Resources Code Section 21074(a), which includes but is not limited to Native American artifacts, remains, places of significance, as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs shall be provided to the project lead agency and the Qualified Archaeologist for purposes of summarizing in the monitoring report.	Provide monitoring for Tribal Cultural Resources pursuant to the AR-TCR Management Plan.	Prior to and during any ground-disturbing activities.	Foundation	County Museum of Natural History

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
	b. The Tribal Monitors shall have the authority to temporarily halt or redirect construction activities if a tribal cultural resource or potential tribal cultural resource is exposed during construction. If a tribal cultural resource or potential tribal cultural resource is identified, work in the immediate vicinity (not less than 50 feet) of the find shall stop unless another distance is determined by both the Tribal and Archaeological Monitors, which shall consider the nature of the find and the potential for additional portions of the resource to remain buried in the unexcavated areas of the project site. Construction activities may continue in other areas in coordination with the qualified archaeologist and tribal consultant.				
	c. If a potential component of the existing tribal cultural resource (LAN-159/H) is identified, it shall be assessed by the Tribal Consultants as a tribal cultural resource in terms of its cultural value, based on tribal expertise, and supported by substantial evidence. If the discovery is archaeological in nature, then the assessment shall also incorporate the Qualified Archaeologist's evaluation as a potential contributor to the significance of LAN-159/H based on the California Register of Historical Resources criteria or as a unique archaeological resource, as specific in the AR-TCR Management Plan and in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. Any identified tribal cultural resources shall be assessed by both Tribal Consultants and the materials shall be cataloged and stored at the Page Museum for the period in which the ground-disturbing activities are occurring. Further analysis and the disposition of any collected materials shall be determined through consultation with the Tribal Consultant, the County, and informed by the evaluation of the materials as elements that contribute to the significance of the archaeological resource. Any consultation required shall occur on an as-needed basis during the ground-disturbing activities and continue after tribal monitoring has concluded as part of the reporting process described in Part F of TCR/mm-1.4 and CR-ARCH/mm-1.4.				
	d. If initial monitoring identifies no further sensitivity (i.e., sediments incapable of containing tribal cultural resources) below a certain depth or within a certain portion of the project site, a corresponding reduction of monitoring coverage would be appropriate. The reasoning for and scale of the recommended reduction shall be assessed by the Tribal Consultant in consultation with the Qualified Archaeologist and communicated to the Museum of Natural History in writing prior to reduction. Monitoring for tribal cultural resources shall be required until there is written confirmation from the County or a supervisor responsible for overseeing the ground-disturbing activities that there shall be no further ground-disturbing activities on the project site or in connection with the project site, either for the duration of the project.				
	e. Within one month of concluding the tribal cultural resources monitoring, the Tribal Consultants shall prepare a memo stating that the monitoring requirements have been fulfilled consistent with the terms of TCR/mm-1.3 and summarize the results of any finds and actions taken by the tribal monitor to implement the final measures related to tribal cultural resources. The memo shall be submitted to the Museum of Natural History and the Qualified Archaeologist to be attached to a final archaeological and tribal monitoring report prepared by the Qualified Archaeologist consistent with CR-ARCH/mm-1.4.				

Mitigation Measure	Requirements of Measure	Compliance Method	Verification Timing	Responsible Party	
				Implementation	Verification of Compliance
TCR/mm-1.4	If human remains are encountered during construction all ground-disturbing work shall be immediately diverted from the discovery as directed by the Tribal Consultant and Qualified Archaeologist and based on consideration of the possibility that additional or multiple Native American human remains may be located in the project site, and after having considered whether the bones are human or faunal. Upon discovery of human remains, whether the archaeological or tribal monitor is present, the Los Angeles County Coroner's Office shall be notified, as prescribed in PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the Coroner determines that the remains are of Native American origin, the Coroner shall proceed as directed in Section 15064.5(e) of the State CEQA Guidelines, and as specified in the TCRMMP, which require the coroner to notify the NAHC who will appoint a Most Likely Descendent (MLD). Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated accordingly. While the coroner determines whether the remains are Native American and the MLD is designated and notified, the discovery is to remain confidential and secure to prevent any further disturbance.	Cease work in the event of discovery and contact the County Coroner.	During ground-disturbing activities.	Foundation	County Museum of Natural History
Utilities and Service Systems					
UTL/mm-1.1	To confirm the sewer system serving the project site can accommodate the total wastewater flows generated by the project, the Los Angeles County Museum of Natural History Foundation (Foundation) shall coordinate with Los Angeles Sanitation and Environment (LASAN) during project permitting and prior to construction for confirmation of sewer system capacity. LASAN shall make this determination by conducting detailed gauging and further evaluation to identify a specific sewer connection point and/or to determine if upgrading or additional sewer lines are necessary to accommodate the project.	Coordinate with Los Angeles Sanitation and Environment for confirmation of sewer system capacity.	During project permitting and prior to construction.	Foundation	County Museum of Natural History Los Angeles Sanitation and Environment

LA BREA TAR PITS MASTER PLAN

FINAL ENVIRONMENTAL IMPACT REPORT

JANUARY 2025

SCH NO. 2022020344

Volume I: Response to Comments and EIR Clarifications

LEAD AGENCY: COUNTY OF LOS ANGELES

PREPARED BY: SWCA ENVIRONMENTAL CONSULTANTS
320 NORTH HALSTEAD STREET, SUITE 120, PASADENA, CA 91107

LA BREA TAR PITS & MUSEUM

LA BREA TAR PITS MASTER PLAN

FINAL ENVIRONMENTAL IMPACT REPORT

SCH NO. 2022020344

Volume I: Response to Comments and EIR Clarifications

JANUARY 2025

LEAD AGENCY: County of Los Angeles

PROJECT PROPONENT: Los Angeles County Museum of Natural History Foundation on behalf of the County of Los Angeles Museum of Natural History
900 Exposition Boulevard, Los Angeles, CA 90007
Contact: Leslie Negritto, Chief Operating Officer

PREPARED BY: SWCA Environmental Consultants
320 North Halstead Street, Suite 120, Pasadena, CA 91107
(626) 240-0587 | www.swca.com
Contact: Bobbette Biddulph, SWCA Project No. 63953

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CHAPTER 1. INTRODUCTION

This chapter provides an overview of the purpose and intended uses of the Final Environmental Impact Report (EIR) for the La Brea Tar Pits Master Plan (project). It explains the organization of this volume (Volume I) of the Final EIR and includes a description of the environmental and public review process for the project. The Final EIR includes two volumes: Volume I (this volume) and Volume II which contains the full text and analysis of the EIR, including the incorporation of changes to the Draft EIR since its publication on September 11, 2023.

During the Draft EIR public review period, the County of Los Angeles (County) received 35 comment documents on the Draft EIR from agencies, organizations, and individuals through letters, emails, and comment cards. After considering and responding to these comments, the County prepared this Final EIR to address the concerns raised by the commenters and to provide supplemental information.

1.1 PURPOSE OF THE FINAL EIR

The California Environmental Quality Act (CEQA) Guidelines specify that a Lead Agency is the public agency with the principal responsibility for carrying out or approving a project (State CEQA Guidelines Section 15367). The County is the CEQA Lead Agency for the project because the project is on County-owned land; the County of Los Angeles Museum of Natural History (Museum of Natural History) is a County departmental unit.[1] Thus, the County is responsible for the coordination and direct oversight of the environmental review process. The County has prepared the Final EIR for consideration and certification by the Los Angeles County Board of Supervisors (Board of Supervisors).

As described in CEQA Guidelines Sections 15088, 15089, 15090 and 15132, the Lead Agency must evaluate comments received on the Draft EIR and prepare written responses and consider the information contained in a Final EIR before approving a project. Pursuant to CEQA Guidelines Section 15132, a Final EIR consists of: a) the Draft EIR or a revision of the Draft; b) comments and recommendations received on the Draft EIR either verbatim or in summary; c) a list of persons, organizations, and public agencies commenting on the Draft EIR; d) the responses of the Lead Agency to significant environmental points raised in the review and consultation process; and e) any other information added by the Lead Agency. The combination of Volume I (this volume) and Volume II provides all of this required information.

1.2 PROJECT SUMMARY

La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation for the Museum of Natural History, including La Brea Tar Pits and the Page Museum, under the oversight of the County.

[1] In accordance with Chapter 2.94 of the Los Angeles County Code and other operating agreements, the County Museum of Natural History is a department of the County and has administrative charge and control over all County matters relating to history and science, and shall also include the administration of Hancock Park (except that area of said park devoted to the Los Angeles County Museum of Art [LACMA]), and the care, safeguarding, and maintenance of all exhibits, equipment, and structural improvements directly relating to exhibits, the administration and maintenance of Los Angeles County Museum, and other property hereafter acquired for or devoted to history and science. For consistency with the Los Angeles County Code, this document refers to this governmental department as the "Museum of Natural History." In addition, when it is important to specify that the document is referring to the physical museum location rather than the governmental department, this document refers to the Natural History Museum of Los Angeles County (Natural History Museum), which is located at 900 Exposition Boulevard, Los Angeles, California, 90007.

The County, as Lead Agency, acting through the Foundation, proposes a redevelopment, or "reimagining," of the 13-acre La Brea Tar Pits site. The proposed project is referred to as the La Brea Tar Pits Master Plan. The project includes a reimagined site design, expansion, and upgrades for the Tar Pits complex, including renovations to the Page Museum, and development of a new museum building. The project site is located at 5801 Wilshire Boulevard in Los Angeles. The project site is within Hancock Park and is adjacent to the Los Angeles County Museum of Art (LACMA).

1.3 SUMMARY OF REVISED ALTERNATIVE 3

After completion of the Draft EIR, the County, acting through the Foundation, considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals. Many comments noted that the full build out of the Master Plan, as reflected in the Draft EIR, would result in historic resources losing their eligibility. Additionally, some commenters opined that the footprint of the project was too large and expressed that alternatives should be considered which would result in fewer impacts to the Page Museum. As a result, the County conducted further feasibility studies of the original Alternative 3; the County determined that further exploration of Alternative 3 should occur to determine if additional improvements could be made to the alternative to address the comments received on the Draft EIR. As a result of this process, the Final EIR expands the consideration of the original Alternative 3 with a refined version of the alternative. Refined Alternative 3 does not create additional or more intense environmental impacts than those previously disclosed when compared to the original Alternative 3 concept, as further detailed in Chapter 6, Alternative Analysis, of Volume II of the Final EIR.

1.4 OVERVIEW OF THE ENVIRONMENTAL REVIEW PROCESS

In compliance with the CEQA Guidelines, the County, as the Lead Agency for the project, has provided opportunities for the public to participate in the environmental review process. As described below, throughout the environmental review process, an effort was made to inform, contact, and solicit input from the public and various Federal, State, regional, and local government agencies and other interested parties on the project.

1.4.1 Scoping and Notice of Preparation Process

Pursuant to Section 15082 of the State CEQA Guidelines, the Lead Agency is required to send a Notice of Preparation (NOP) stating that an EIR would be prepared to the State Office of Planning and Research, responsible and trustee agencies, and federal agencies involved in funding or approving the project. On February 14, 2022, in accordance with Sections 15063 and 15082 of the State CEQA Guidelines, the County published an NOP for the EIR and circulated it to governmental agencies, organizations, and persons who may be interested in the proposed project, including nearby landowners, homeowners, and tenants. The NOP requested comments on the scope of the EIR and asked interested parties for their suggestions regarding ways the project could be revised to reduce or avoid any significant environmental impacts. The NOP provided a general description of the proposed project, a description of the project site, and a preliminary list of potential environmental effects.

The 30-day NOP comment period extended through March 16, 2022. Copies of the NOP were made available for public review on the project's website, available at https://tarpits.org/reimagine. In addition, the NOP was also distributed via the following methods: direct mailings to residents in the 90036 zip code; two rounds of email blasts sent to residents in the 90036 and 90048 zip codes; and a full-page advertisement placed in the *Beverly Press/Park La Brea News* on February 17 and February 24, 2022.

Two public scoping meetings were held virtually via Zoom on March 2, 2022, at 2:30 p.m. and 5:30 p.m. to provide a description of the project and solicit input from any interested parties on the scope and content of the EIR in conformance with PRC Section 21083.9. Live language interpretation of the presentation and scoping meeting input was provided in Spanish and Korean during both scoping meetings.

A summary matrix of written comments received during the NOP comment period as well as verbal comments recorded at the two public scoping meetings is provided as an appendix to Volume II of the Final EIR (Appendix A).

1.4.2 Draft Environmental Impact Report

The Notice of Availability (NOA) of the Draft EIR was distributed to responsible and trustee agencies, other affected agencies, interested parties, and all parties requesting a copy of the Draft EIR in accordance with PRC Section 21092(b)(3). The Notice of Completion and NOA of the Draft EIR were distributed and posted as required by CEQA. The public review period was from September 11, 2023 through October 26, 2023. During the review period, the Draft EIR and its appendices were available for review on the Natural History Museum's website: https://tarpits.org/reimagine.

A newspaper advertisement of the NOA and Draft EIR comment period and information regarding the public meeting was also placed in the Los Angeles Times. Printed copies of the documents with attached electronic appendices were also available for review during the public review period at the following locations and hours, as listed in Table 1-1.

Table 1-1. Document Review Locations

Location	Address	Hours of Operation	Online Access (URL), if available
George C. Page Museum (Front Desk)	5801 Wilshire Boulevard Los Angeles, CA 90036	Open daily 9:30 am to 5 pm, except the first Tuesday of the month	https://tarpits.org/reimagine
Julian Dixon Library	4975 Overland Avenue Culver City, CA 90230	Tuesday and Wednesday: 12 pm to 8 pm Thursday through Saturday: 10 am to 6 pm Sunday: Closed	n/a
View Park Bebe Moore Campbell Library	3854 West 54th Street View Park-Windsor Hills, CA 90043	Monday through Thursday: 10 am to 8 pm Friday and Saturday: 10 am to 6 pm Sunday: Closed	n/a
West Hollywood Library	625 North San Vicente Boulevard West Hollywood, CA 90069	Monday through Friday: 12 pm to 6 pm Saturday and Sunday: Closed	n/a
Chief Executive Office at the Hall of Administration	500 West Temple Street, Room 754 Los Angeles, California 90012	Appointment must be made for review. Appointments are available Monday through Friday, 8 am to 3 pm. Contact Alisa Chepeian, (213) 974-4266, achepeian@ceo.lacounty.gov	n/a

During the Draft EIR public review period, the County of Los Angeles received 35 comment documents on the Draft EIR from agencies, organizations, and individuals through letters, emails, and comment

cards. A public meeting was held on September 30, 2023 from 9:00 A.M. to 11:00 A.M. at La Brea Tar Pits to present project information, provide information on the Draft EIR's analysis and findings regarding the project, and provide instructions on how to submit written comments on the Draft EIR. All written comments received during the public review period and responses to these received comments are provided in Chapter 2, Responses to Comments, of Volume I of the Final EIR.

1.4.3 Final Environmental Impact Report

Following the close of the Draft EIR public review and comment period, the County of Los Angeles prepared responses to comments received on the Draft EIR, provided in Volume I of the Final EIR. The comments do not provide any indication that the Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded, as defined in State CEQA Guidelines Section 15088.5.

Consistent with State CEQA Guidelines Section 21092.5, responses to agency comments will be provided to each commenting agency at least 10 days prior to the Board of Supervisors' consideration of the EIR. The entire Final EIR (Volumes I and II) will also be publicly available online at least 10 days prior to the Board of Supervisors' consideration of the EIR at: https://tarpits.org/public-process.

Through the preparation of the Final EIR, the County made minor revisions to the text of the Draft EIR, which are provided in Volume II of the Final EIR. No significant changes have been made to the information contained in the Draft EIR that would result in a new or substantially increased environmental impact because of the responses to comments, and no significant new information has been added that would require recirculation of the document under State CEQA Guidelines Section 15088.5. These revisions are summarized in Chapter 3, Revisions, Clarifications and Corrections on the Draft EIR, of Volume I of the Final EIR.

1.5 FINAL EIR VOLUME I CONTENTS

This volume of the Final EIR is organized into the following chapters:

1. **Introduction.** This chapter describes the purpose of the Final EIR, provides a summary of the proposed project, summarizes the Final EIR public review process, and presents the contents of the Final EIR.
2. **Responses to Comments.** This chapter presents all comments received by the County during the public review period of the Draft EIR (September 11, 2023 through October 26, 2023) as well as the responses to those comments. A total of 35 comment documents (letters, emails, and comment cards) were received.
3. **Revisions, Clarifications and Corrections to the Draft EIR.** This chapter presents revisions, clarifications, and corrections that have been made to the Draft EIR. Deletions are shown with ~~strikethrough~~ and additions are shown with <u>underline</u>. No significant changes have been made that would result in a new or substantially increased environmental impact, and no significant new information has been added that would require recirculation of the document under State CEQA Guidelines Section 15088.5.

1.6 AGENCY USE OF THE DOCUMENT

Lead Agency reviewers and decision makers (i.e., the County Board of Supervisors) will use the Final EIR as an informational document to assist in the decision-making process, ultimately resulting in

approval, denial, or conditions of approval for the project. The following jurisdictions may also use this Final EIR in reviewing and issuing their respective authorizations (if applicable):

- Los Angeles Department of Water and Power
- Los Angeles Sanitation and Environment
- City of Los Angeles Department of Transportation
- South Coast Air Quality Management District
- Los Angeles Regional Water Quality Control Board
- California Department of Fish and Wildlife (CDFW)
- U.S. Army Corps of Engineers (USACE)

The CDFW is a potential responsible agency and trustee agency, as defined by Sections 15381 and 15386, respectively, of the State CEQA Guidelines. While CDFW does not have regulatory authority over approval of the broader La Brea Tar Pits Master Plan, CDFW could have regulatory authority over project activities within the riparian habitat and/or aquatic resources in and along Oil Creek and at the Lake Pit. Similarly, USACE could also have discretionary authority over activities in these features. These considerations are further discussed under thresholds "b)" and "c)" in Section 5.3.5 of Volume II of the Final EIR.

Lead Agency: County of Los Angeles
Natural History Museums of Los Angeles County
Leslie Negritto, Chief Financial and Operating Officer
Phone: (213) 763-3303
Email: lnegritto@nhm.org

Environmental Consultant: SWCA Environmental Consultants
Bobbette Biddulph, Senior Project Manager
320 North Halstead Street, Suite 120
Pasadena, California 91107

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CHAPTER 2. RESPONSE TO COMMENTS

This chapter of the EIR presents responses to comment documents (letters, emails, and comment cards) that were received on the Draft EIR for the La Brea Tar Pits Master Plan (project). These comments were received from multiple entities, including state and local agencies, non-agency organizations, and members of the public. In accordance with State CEQA Guidelines Sections 15132(d) and 15088, this Final EIR presents the County of Los Angeles's (County) responses to comments submitted during the Draft EIR review process.

The comment documents are in chronological order with the responses following the individual comment documents. Comment documents are reproduced in total, and numerical annotation has been added as appropriate to delineate and reference the responses to those comments. A set of Master Responses has been developed to address certain topical issues raised multiple times by different commenters. These Master Responses are provided in Section 2.1 and referenced throughout the chapter.

Information provided in this chapter clarifies, amplifies, or makes minor modifications to the Draft EIR. No significant changes have been made to the information contained in the Draft EIR that would result in a new or substantially increased environmental impact because of the responses to comments, and no significant new information has been added that would require recirculation of the document under State CEQA Guidelines Section 15088.5.

2.1 MASTER RESPONSES

Many comments submitted by members of the public related to substantially similar issues. The following responses are master responses intended to address all of the comments submitted in relation to these issue areas. All individual responses set out in the following sections related to comments regarding one of these issue areas refer to the appropriate master response identified in this section to avoid unnecessary length and duplication in this document.

Table 2.1-1. Master Responses

Master Response #	Master Response
MR-1	**Preferred Alternative** Section 15126.6(a) of the State CEQA Guidelines requires an EIR to "describe a reasonable range of alternatives to a project, or to the location of a project, which could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives." The EIR provides this analysis in Chapter 6, Alternatives Analysis. As directed by the State CEQA Guidelines, because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment, the discussion of alternatives in Chapter 6 is focused on alternatives to the project which can avoid or substantially lessen any significant effects of the project (State CEQA Guidelines Section 15126.6(b)). Table 2-2 in Chapter 2 of the EIR provides a summary of the potentially significant impacts of the project and corresponding mitigation measures. Table 5-1 in Chapter 5 of the EIR provides a summary of the impact determination for each resource section of the EIR. Chapter 6 of the EIR identifies, describes, and evaluates four alternatives. As detailed in Chapter 6, Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar environmental impacts as the project for each issue area analyzed in this EIR, except for historical resources and land use and planning where the alternative reduces the identified impacts. However, despite these reductions, impacts to historical resources and land use and planning would remain significant and unavoidable even with the implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5. Refined Alternative 3 would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. Specifically, the following adjustments are included in Refined Alternative 3: • The central, open courtyard of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would no longer be covered and converted to indoor space; it would remain as an open courtyard. The landscaping

Master Response #	Master Response

and hardscaping features of the courtyard would be renovated to create a more usable public space and include climate-appropriate and native vegetation relevant to interpretive themes of the tar pits. This differs from the original Alternative 3, which replaced the open courtyard with research laboratory space.

- The structural space frame that supports the frieze (the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped, as had been proposed in the original Alternative 3. Instead, the existing space frame and open-air grid roof would remain intact as it is currently but would be repainted and repaired.
- The Page Museum and the new museum building would be connected only with a covered, open-air breezeway; the original Alternative 3 proposed a physical connection/joining of the two buildings. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway. The open-air breezeway that is proposed in the Refined Alternative 3 is a contrast to the previous concept of an enclosed entrance space joining the two buildings, which was proposed by the original Alterative 3. This change in the Refined Alternative 3 design means the connection between the two buildings would be scaled down, and demolition at the northwest corner of the Page Museum would be reduced, thereby retaining more of the original character-defining features and materials of the historical Page Museum resource.
- Removal of a portion of the berm would be focused at the northwest corner to accommodate a new entrance to the Page Museum, and modification of the west and north sides of the berm would still be necessary, albeit in a scaled down manner. The modifications would result in a new version of the berm that would allow for an Americans with Disabilities Act (ADA) ramp up to the terrace level on the west, and a change in elevation on the north allowing for access to the new entrance.
- As described above, the on-site surface parking would be reconfigured to complement the adjusted building footprint. The original Alternative 3 proposed two driveways along 6th Street and one driveway on South Curson Avenue for public vehicular access to the parking lot. However, it has been determined that it would be operationally preferred to eliminate the driveway at the far western end of the parking lot on 6th Street. The result is that Alternative 3 would have one driveway on 6th Street and one driveway on South Curson Avenue. This modification has been further addressed in the Transportation analysis contained in Section 6.4.4.2, below.
- The programming for interior spaces of the Page Museum and the new museum building would be revised, resulting in changes to the location of the theater, classrooms, the retail store, the café, and other interior elements. The Page Museum would also feature less staff office space than originally proposed.
- The canopy above the existing main entrance to the Page, which was envisioned in the proposed project and the original Alternative 3, would not be included in Refined Alternative 3, and would be replaced with trees to shade the proposed stepped seating.
- The reduced footprint of Refined Alternative 3 would require less ground disturbance during construction and would result in less soil import and export. The features retained by Refined Alternative 3 would be maintained and repaired as needed.
- Like the project, Refined Alternative 3 would include renovations to address deferred maintenance of the building and systems and to meet modern seismic, electrical, building code standards, and universal design standards.

After completion of the Draft EIR, the County, acting through the Museum of Natural History Foundation, considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals. As a result, the County considered how Alternative 3 could be further enhanced to meet the intent of the alternative and further meet the objectives of the County and commenting entities alike. Through this consideration and exploration, refinements to the original Alternative 3 have been developed, which are presented in Chapter 6, Alternatives Analysis, of this EIR. New text added to the EIR since publication of the Draft EIR is shown as underlined text and deleted text is shown as strikethrough text. As discussed in Chapter 6, Refined Alternative 3 merely amplifies and expands upon the broad intent of the original Alternative 3. As reflected in edits made to Chapter 6 in this Final EIR, differences between the Refined Alternative 3 and the original concept are not substantial from an environmental perspective. According to State CEQA Guidelines 15088.5, the four conditions which require an EIR to be recirculated are as follows:

(1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
(2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
(3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project's proponents decline to adopt it.
(4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

Master Response #	Master Response
	The adjustments made in the Refined Alternative 3 do not constitute "significant" new information because no additional substantial environmental effect of the project has been identified, nor has the severity of an environmental impact been increased. Further, Refined Alternative 3 does not differ considerably from the original Alternative 3 that was described in the Draft EIR. Instead, Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate reductions of the potential impacts to the character-defining features of the Page Museum, which is a historical resource. There has been no disclosure of any feasible alternatives or mitigation measures that would clearly lessen the impacts of the project that the County has declined to adopt, nor does Refined Alternative 3 propose new mitigation measures. Lastly, there has been no evidence provided which demonstrates that the Draft EIR was inadequate or conclusory in nature. Therefore, none of the conditions for recirculation of the Draft EIR, as specified above in State CEQA Guidelines 15088.5, have been met. The County will be seeking approval of Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, by the Los Angeles Board of Supervisors (Board of Supervisors) as it reduces historical impacts while attaining the project's basic objectives. Refined Alternative 3 consists of the original version of the alternative included in the Draft EIR in combination with the refinements described in Chapter 6 of this Final EIR.
MR-2	**Impacts to Native and Mature Trees** Several comments were received on the Draft EIR expressing concern over the number of trees to be removed as a result of the project, specifically regarding native and mature trees. Additionally, many commenters pointed out that the Draft EIR lacked a tree inventory and did not specify which trees would be slated for removal or relocation. As discussed in Section 3.4.7.1 of the EIR, more than 330 trees currently exist within the project site. The EIR indicates that the project would require the removal and replacement of 150 to 200 trees, and estimates that up to 10 percent of these trees would be relocated rather than replaced. The project would favor avoiding or reducing tree removal where possible. As discussed in Section 5.3, Biological Resources, page 5.3-24, Mitigation Measure BIO/mm-6.1 has been identified to reduce the project's impacts to the 13 protected oak trees located on the project site. However, other than these oak trees, there is no requirement for the project to protect or preserve any of the existing trees. Despite this, the County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to several project requirements, including, the excavation requirements for construction of the new building, the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The Tree Inventory provides additional information about existing conditions at the site and supports the analysis contained in the EIR. The tree inventory does not change the proposed plan for the treatment of trees onsite or otherwise affect the EIR analysis; rather, it provides additional substantiation of the analysis included in the Draft EIR. The environmental analysis regarding vegetation and local tree impacts that is contained in Section 5.3 of the EIR is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal and no changes to this assessment are made through the Final EIR process. No "significant new information" has been identified through the inclusion of Appendix N. As the Tree Inventory only clarifies and supports the impacts regarding the removal of existing trees which was already discussed within the EIR, recirculation is not required. The exact trees to be removed through implementation of the project would not be finalized until after the EIR is certified and the project concept is approved by the County Board of Supervisors. As more detailed construction documents are developed, the County will continue to update the count of new native trees to be planted. While it may be that the design can be refined to reduce the number of trees that would be required to be removed and replaced, until more detailed construction documents are prepared, it is not possible to commit to a lower number of trees to be removed. Trees would need to be removed where they conflict with the footprint of the project (e.g., new buildings or hardscape features, like pathways). Furthermore, it is important to note that many trees slated for removal would be those which are diseased or in bad health or are non-native species. Regardless of the implementation of the project, these trees may have to be removed anyway if they threaten any structures, or the safety of visitors. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The preparation of the Tree Inventory, included in the Final EIR as Appendix N, provides additional information about existing conditions at the site and the information that supports the analysis contained in the EIR. The tree inventory does not change the proposed plan for the treatment of trees onsite or otherwise affect this information does not change the EIR analysis; rather, it provides additional substantiation of the existing conditions information in the EIR and supports and clarifies the analysis included in the Draft EIR. The County acknowledges the importance of balancing the recreational and naturalistic values of the park with the objectives of the project. With implementation of the project, Hancock Park would continue to act as an

Master Response #	Master Response
	important natural resource for neighboring residents and visitors. While completion of the project would require the removal of several mature tree specimens, the County would be planting significant native trees and vegetation to improve the overall park experience. Furthermore, no "significant new information" has been identified as a result of these changes. As the changes to the EIR only clarify and support the impacts regarding the removal of existing trees which was already discussed within the EIR; therefore, recirculation is not required
MR-3	**Use of Native Plants and Vegetation** Several comments were received requesting that the project should limit the removal of existing native species in the park and should prioritize using native plants for landscaping. The plant palette, which is provided in the EIR in Chapter 3, Project Description, responds to the existing park setting and the historical significance of the site; it is based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. The palette specifically highlights plants which were previously present at La Brea Tar Pits as historical floral communities. The plant palette also prioritizes pollinator resources. Information on the planting strategy is provided starting on page 3-19 of the EIR. As shown in Figure 3-10, the planting and landscaping concept for La Brea Tar Pits would be divided into three distinct zones encircled by the looping path system. Each loop of the pedestrian path would have a theme that represents different geologic epochs—Pleistocene in the southeastern loop, Holocene in the northwestern loop, and Anthropocene in the central loop (Figure 3-12 through Figure 3-14 of the EIR provide illustrations of these concepts and the species of the plant palette). While some trees and vegetation would be required to be removed to fully realize the design of the Master Plan, the landscaping concept for most of the site responds to the native vegetation of the Los Angeles basin and has been informed by the research gathered from the fossil record of La Brea Tar Pits. Furthermore, it should be noted that the plant palette consists primarily of California natives and contains considerations for historical floral communities and pollinator resources. However, the plant palette contains a limited quantity of adapted species in some areas of the site, due to practical reasons. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native plant resources. Despite the importance of the identified native species on the project site, some existing native plant specimens would need to be removed to accommodate the objectives of the project. However, the planting strategy would ensure that the resulting vegetation establishment of native species after project implementation would be greater than under existing conditions. The discussion included in the EIR regarding native plants and vegetation is accurate, and no "significant new information" has been identified. Therefore, no changes to the EIR are necessary.
MR-4	**Non-Substantive Comments** Pursuant to State CEQA Guidelines Section 15132, *Contents of Final Environmental Impact Report*, and Section 15088, *Evaluation of and Response to Comments*, the Final EIR shall consist of the response of the Lead Agency to significant environmental issues raised in the review and consultation process. Substantive comments typically do one or more of the following: • question, with reasonable basis, the accuracy of information in the EIR; • question, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis; • present new information relevant to the analysis; • present reasonable alternatives other than those analyzed in the EIR; and/or • cause changes or revisions in one or more of the alternatives. In cases where the comment does not raise a substantive issue relevant to the environmental analysis, detailed responses are not warranted. Non-substantive comments for the purpose of the Final EIR typically include statements of opinion or preferences regarding a project's design or its presence as opposed to points within the purview of the EIR. These points may be relevant for consideration in the project approval process at the County Board of Supervisors and will be made available through their publication in this Final EIR; however, they do not warrant revisions to the EIR or preparation of detailed responses in the Final EIR.

2.2 AGENCY COMMENTS AND RESPONSES

The following agencies have submitted comments on the Draft EIR.

Table 2.2-1. Agency Comment Documents Received

Respondent	Code	Contact Information	Page
California Governor's Office of Planning and Research State Clearinghouse EIR posted: June 7, 2023	SCH	1400 10th Street Sacramento, CA 95814	2.2-3
Los Angeles County Metropolitan Transportation Authority Letter dated: October 20, 2023	Metro	One Gateway Plaza Los Angeles, CA 90012 *Contact: Cassie Truong, Senior Transportation Planner, Development Review Team Transit Oriented Communities*	2.2-8
California Department of Transportation District 7 Letter dated: October 26, 2023	Caltrans	100 South Main Street MS 16 Los Angeles, CA 90012 *Contact: Miya Edmonson, LDR/CEQA Branch Chief*	2.2-19

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2.2.1 California Governor's Office of Planning and Research State Clearinghouse

La Brea Tar Pits Master Plan Project

Summary

SCH Number
2022020344

Lead Agency
Los Angeles County

Document Title
La Brea Tar Pits Master Plan Project

Document Type
EIR - Draft EIR

Received
9/11/2023

Present Land Use
13-acre public park, research facility and museum

Document Description
The project would result in upgrades to the 13-acre La Brea Tar Pits site, including renovations to the George C. Page Museum and the development of a new museum northwest of the George C. Page Museum. The project would also include improvements to the existing tar pit facilities, modifications to the configuration of the pedestrian paths, and improvements to the recreational areas within the site.

SCH-1

Contact Information

Name
Leslie Negritto

Agency Name
County of Los Angeles

Job Title
Chief Operating Officer, Natural History Museums

Contact Types
Lead/Public Agency

Address
900 Exposition Boulevard
Los Angeles, CA 90007

Phone

(213) 763-3303

Email
lnegritto@nhm.org

Name
Bobbette Biddulph

Agency Name
SWCA

Job Title
Senior Environmental Planner

Contact Types
Consulting Firm

Address
320 N. Halstead Street Suite 120
Pasadena, CA 91107

Phone
(626) 553-7995

Email
bobbette.biddulph@swca.com

SCH-1
(cont'd)

Location

Coordinates
34°0'0"N 118°0'0"W

Cities
Los Angeles

Counties
Los Angeles

Regions
Citywide, Countywide, Southern California

Cross Streets
Wilshire Boulevard, South Curson Avenue, West 6th

Zip
90036

Total Acres
13

Jobs
17

Parcel #

5508-016-902

State Highways
SR 2, SR 101

Railways
N/A

Airports
N/A

Schools
Fusion Academy, Hancock Park Elementary School, Westside Jewish

Waterways
N/A

Township
34N

Range
-118W

Section
20, 21

Base
N/A

Other Location Info
5801 Wilshire Blvd, 90036

SCH-1
(cont'd)

Notice of Completion

State Review Period Start
9/11/2023

State Review Period End
10/26/2023

State Reviewing Agencies
California Air Resources Board (ARB), California Department of Fish and Wildlife, South Coast Region 5 (CDFW), California Department of Forestry and Fire Protection (CAL FIRE), California Department of Parks and Recreation, California Department of Water Resources (DWR), California Highway Patrol (CHP), California Native American Heritage Commission (NAHC), California Natural Resources Agency, California Public Utilities Commission (CPUC), California Regional Water Quality Control Board, Los Angeles Region 4 (RWQCB), California Santa Monica Mountains Conservancy (SMMC), Department of Toxic Substances Control, Office of Historic Preservation, California Department of Transportation, District 7 (DOT)

State Reviewing Agency Comments
California Department of Transportation, District 7 (DOT)

Development Types
Other (Museum renovation and expansion with public recreational improve)

Local Actions

Master Plan

Project Issues
Aesthetics, Agriculture and Forestry Resources, Air Quality, Biological Resources, Cultural Resources, Cumulative Effects, Drainage/Absorption, Energy, Flood Plain/Flooding, Geology/Soils, Greenhouse Gas Emissions, Growth Inducement, Hazards & Hazardous Materials, Hydrology/Water Quality, Land Use/Planning, Mandatory Findings of Significance, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Schools/Universities, Sewer Capacity, Solid Waste, Transportation, Tribal Cultural Resources, Utilities/Service Systems, Vegetation, Wetland/Riparian, Wildfire

Local Review Period Start
9/11/2023

Local Review Period End
10/26/2023

Attachments

Draft Environmental Document [Draft IS, NOI_NOA_Public notices, OPR Summary Form, Appx,]

1_OPR-Summary_Form F_for_Document_Submittal PDF 629 K | 2 PDF 503 K

La Brea Tar Pits Master Plan Draft EIR_Sept 2023 PDF 16572 K

La Brea Tar Pits Master Plan Draft EIR_Sept 2023_Appendices PDF 88428 K

Los Angeles Times NOA_NOC (09.11.23) PDF 431 K | NOA_La Brea Tar Pits MP Draft EIR (09.11.23) PDF 313 K

Notice of Completion [NOC] Transmittal form

NOC_La Brea Tar Pits MP Draft EIR (09.11.23)_fex PDF 328 K

State Comment Letters [Comments from state reviewing agencies]

2023020344_DOT comment PDF 399 K

Disclaimer: The Governor's Office of Planning and Research (OPR) accepts no responsibility for the content or accessibility of these documents. To obtain an attachment in a different format, please contact the lead agency at the contact information listed above. You may also contact the OPR via email at state.clearinghouse@opr.ca.gov or via phone at (916) 445-0613. For more information, please visit OPR's Accessibility Site.

SCH-1
(cont'd)

2.2.1.1 Response to Posting by California Governor's Office of Planning and Research State Clearinghouse

Comment No.	Response
SCH-1	The Draft EIR was received by the California Governor's Office of Planning and Research State Clearinghouse and the public review period began on September 11, 2023. The Draft EIR, Draft EIR Appendices, Notice of Completion, Notice of Availability, and State Clearinghouse Summary Form were made available for public review at https://ceganet.opr.ca.gov/2022020344/3 for the full duration of the 45-day review period. No comments regarding the environmental effects of the project were included in the posting; therefore, no changes to the EIR were determined to be necessary in response to this comment.

2.2.2 Los Angeles County Metropolitan Transportation Authority

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Tel
metro.net

Metro

October 20, 2023

Leslie Negritto
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

Sent by Email: lnegritto@nhm.org

RE: La Brea Tar Pits Master Plan Project
Notice of Availability of a Draft Environmental Impact Report (DEIR)

Dear Ms. Negritto:

Thank you for coordinating with the Los Angeles County Metropolitan Transportation Authority (Metro) regarding the proposed La Brea Tar Pits Master Plan Project (Project) located at 5801 Wilshire Boulevard in the County of Los Angeles. Metro's mission is to provide a world-class transportation system that enhances quality of life for all who live, work, and play within Los Angeles County (County). As the County's mass transportation planner, builder and operator, Metro is constantly working to deliver a regional system that supports increased transportation options and associated benefits, such as improved mobility options, air quality, health and safety, and access to opportunities.

Per Metro's area of statutory responsibility pursuant to sections 15082(b) and 15086(a) of the Guidelines for Implementation of the California Environmental Quality Act (CEQA: Cal. Code of Regulations, Title 14, Ch. 3), the purpose of this letter is to provide the County and the Natural History Museums of Los Angeles County (NHM) with specific detail on the scope and content of environmental information that should be included in the Environmental Impact Report (EIR) for the Project. In particular, this letter outlines topics regarding the Project's potential impacts on the under-construction Metro D Line Extension Section 1 and Metro bus facilities and services which should be analyzed in the EIR, and provides recommendations for mitigation measures as appropriate. Effects of a project on transit systems and infrastructure are within the scope of transportation impacts to be evaluated under CEQA.[1]

Metro-1

Metro is committed to coordinating with the County and NHM on the renovation of the La Brea Tar Pits campus, an important cultural and scientific resource for the Los Angeles region. In particular, we greatly appreciate the early consultation meetings held in 2022 with NHM staff, and look forward to

[1] See CEQA Guidelines section 15064.3 (a); Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts In CEQA, December 2018, p. 19.

Page 1 of 6

future discussion and collaboration. In addition to the specific comments outlined below, Metro is providing the County and NHM with the Metro Adjacent Development Handbook (attached), which provides an overview of common concerns for development adjacent to Metro right-of-way (ROW) and transit facilities, available at https://www.metro.net/devreview.

Project Description

The Project includes the renovation of the existing Page Museum and add a new one-story museum building toward the northwest. The Project would also add the following improvements to Hancock Park: a pedestrian path (improving pedestrian circulation within the project site), additional seating and rest areas, a Wilshire Gateway entry plaza at the southeastern corner of the site, a 6th Street Gateway entry plaza at the northwestern corner of the site, a pedestrian bridge over the Lake Pit, three pavilions with canopies, and new and enhanced recreation areas. Enhanced landscaping would also be provided, including native vegetation plantings and a garden bioswale to improve stormwater infiltration. **Metro-1 (cont'd)**

Recommendations for EIR Scope and Content

Transit Services and Facilities

The EIR should include information on existing and planned transit services and facilities in the vicinity of the Project. In particular, Metro's NextGen Bus Plan (completed in December 2021) should be used as a resource to identify bus stop locations and service frequency. For more information, visit the NextGen Bus Plan's website at: https://www.metro.net/projects/nextgen/ **Metro-2**

Bus Service Adjacency

1. Service: Metro Bus Line 20 operates on Wilshire Boulevard and Curson Avenue, adjacent to the Project. One Metro Bus stop is directly adjacent to the Project at Wilshire Boulevard and Curson Avenue. A second stop is located just to the west of the Project site, at Wilshire Boulevard and Spaulding Avenue. Other transit operators such as LADOT may provide service in the vicinity of the Project and should be consulted. **Metro-3**

2. Impact Analysis: The EIR should analyze potential effects on Metro Bus service and identify mitigation measures as appropriate. Potential impacts may include impacts to transportation services, stops, and temporary or permanent bus service rerouting. Specific types of impacts and recommended mitigation measures to address them include, without limitation, the following: **Metro-4**

    a. Bus Stop Condition: The EIR should identify all bus stops on all streets adjacent to the Project site. During construction, NHM may either maintain the stop in its current condition and location, or temporarily relocate the stop consistent with the needs of Metro Bus operations. Temporary or permanent modifications to any bus stop as part of the Project, including any surrounding sidewalk area, must be Americans with Disabilities Act (ADA)-compliant and allow passengers with disabilities a clear path of travel between the bus stop and the Project. Once the Project is completed, NHM **Metro-5**

must ensure any existing Metro bus stop affected by the Project is returned to its pre-Project location and condition, unless otherwise directed by Metro. **Metro-5 (cont'd)**

b. Driveways: Driveways accessing parking and loading at the Project site should be located away from transit stops, and be designed and configured to avoid potential conflicts with on-street transit services and pedestrian traffic to the greatest degree possible. Vehicular driveways should not be located in or directly adjacent to areas that are likely to be used as waiting areas for transit. **Metro-6**

c. Bus Stop Enhancements: Metro encourages the installation of enhancements and other amenities that improve safety and comfort for transit riders. These include benches, bus shelters, wayfinding signage, enhanced crosswalks and ADA-compliant ramps, pedestrian lighting, and shade trees in paths of travel to bus stops. **Metro-7**

d. Bus Operations Coordination: NHM shall coordinate with Metro Bus Operations Control Special Events Coordinator at 213-922-4632 and Metro's Stops and Zones Department at 213-922-5190 not later than 30 days before the start of Project construction. Other municipal bus services may also be impacted and shall be included in construction outreach efforts. **Metro-8**

Subway Adjacency

1. Operations: Metro is currently constructing Metro D Line Extension Section 1, with tunnels within Wilshire Boulevard right-of-way, adjacent to the Project site. When completed, the D Line will operate peak service as often as every four minutes in both directions. Trains may operate up to 24 hours a day, seven days a week in the tunnels adjacent to the Project. Currently, Metro D Line Extension Section 1 is forecasted to be completed and open for revenue service in 2025; this date is subject to change. Should construction for the Project overlap with Metro's construction activities for the D Line Extension, Metro kindly requests that the Project's construction traffic control plans be coordinated with Metro. **Metro-9**

2. Impact Analysis: Due to the Project's proximity to the under-construction Metro D Line Extension Section 1 tunnels, the EIR must analyze potential effects on subway operations and identify mitigation measures as appropriate. Critical impacts that should be studied include (without limitation): impacts of Project construction and operation on the structural and systems integrity of subway tunnels; damage to subway infrastructure, including tracks; and to subway service. **Metro-10**

   The following provisions should be used to develop a mitigation measure that addresses these potential impacts: **Metro-11**

   a. Technical Review: Not later than six months before start of construction, NHM shall submit to Metro the Project's architectural plans, engineering drawings and calculations, and construction work plans and methods, including any crane

placement and radius, to evaluate any impacts to the under-construction Metro D Line Extension Section 1 tunnels infrastructure in relationship to the Project. **Metro-11 (cont'd)**

b. Construction Safety: The construction and operation of the Project shall not disrupt the operation and maintenance activities of the Metro D Line Extension Section 1 or the structural and systems integrity of Metro's tunnels. During Project construction, NHM shall:

   i. Work in close coordination with Metro to ensure that structural integrity of the tunnels are not compromised by construction activities or permanent build conditions; **Metro-12**

   ii. Notify Metro of any changes to demolition/construction activities that may impact the use of the ROW;

   iii. Permit Metro staff to monitor construction activity to ascertain any impact to the Metro D Line Extension Section 1

3. Advisories to Applicant: The Project's design team is encouraged to contact the Metro Development Review Team early in the design process to address potential impacts. NHM should also be advised of the following:

   a. Occupational Safety and Health Administration (OSHA) Requirements: Demolition, construction or excavation work in proximity to Metro right-of-way (ROW) with potential to damage subway tracks and related infrastructure may be subject to additional OSHA safety requirements.

   b. Technical Review: Metro charges for staff time spent on engineering review and construction monitoring.

   c. Right of Way (ROW) Entry Permit: For temporary or ongoing access to Metro ROW for demolition, construction, and/or maintenance activities, NHM shall complete Metro's Track Allocation process with Metro Rail Operations and obtain a Right of Entry Permit from Metro Real Estate. Approval for single tracking or a power shutdown, while possible, is highly discouraged; if sought, NHM shall apply for and obtain such approval not later than two months before the start of Project construction. NHM shall apply for and obtain approval for any special operations, including the use of a pile driver or any other equipment that could come in close proximity or encroach on the tunnels or related structures, not later than two months before the start of Project construction. **Metro-13**

   d. Cost of Impacts: NHM will be responsible for costs incurred by Metro resulting from Project construction/operation issues that cause delay or harm to Metro service delivery or infrastructure, including single-tracking or bus bridging around closures. NHM will also bear all costs for any noise mitigation required for the Project.

Transit Supportive Planning: Recommendations and Resources

Considering the Project's proximity to the future Wilshire/Fairfax Station, Metro would like to identify the potential synergies associated with transit-oriented development:

1. Transit Connections and Access: Metro strongly encourages NHM to install Project features that help facilitate safe and convenient connections for pedestrians, people riding bicycles, and transit users to/from the Project site and nearby destinations. These features include:

    a. Walkability: The provision of wide sidewalks, pedestrian lighting, a continuous canopy of shade trees, enhanced crosswalks with ADA-compliant curb ramps, and other amenities along all public street frontages of the development site to improve pedestrian safety and comfort to access the bus stops at Wilshire/Curson and Wilshire/Spaulding. **Metro-14**

    b. Bicycle Use and Micromobility Devices: The provision of adequate short-term bicycle parking, such as ground-level bicycle racks, and secure, access-controlled, enclosed long-term bicycle parking for employees and visitors. Bicycle parking facilities should be designed with best practices in mind, including highly visible siting, effective surveillance, ease to locate, and equipment installation with preferred spacing dimensions, so bicycle parking can be safely and conveniently accessed. Similar provisions for micro-mobility devices are also encouraged.

2. First & Last Mile Access: Adopted in September 2021, Metro adopted a First/Last Mile Plan for Section 1 of the Purple Line Extension. This First/Last Mile Plan was developed with considerable stakeholder engagement and in partnership with the City and County. Metro encourages NHM to partner with the City and County to support implementation of improvements to the pedestrian and bicycle network connecting to Wilshire/Fairfax Station, as described in the First/Last Mile Plan. These improvements include, without limitation, a proposed bike lane on Wilshire Boulevard; an east-west bike facility on 6th Street; and ADA-compliant curb cuts at the corner of Wilshire/Curson. **Metro-15**

    In addition, Metro strongly encourages NHM to coordinate with the Los Angeles County Museum of Art (LACMA) to promote connectivity between the two museum campuses and linkages to Wilshire/Fairfax Station. **Metro-16**

    For reference, please review the Purple (D Line) Extension First Last Mile Plan available online at https://www.metro.net/about/first-last/. **Metro-17**

3. Parking: Metro encourages the incorporation of transit-oriented, pedestrian-oriented parking provision strategies such as the reduction or removal of minimum parking requirements and the exploration of shared parking opportunities. These strategies could be pursued to reduce automobile-orientation in design and travel demand. **Metro-18**

4. Wayfinding: Any temporary or permanent wayfinding signage with content referencing Metro services or featuring the Metro brand and/or associated graphics (such as Metro Bus or Rail **Metro-19**

pictograms) requires review and approval by Metro's Signage and Environmental Graphic Design team. **Metro-19 (cont'd)**

5. Transit Pass Programs: Metro would like to inform NHM of Metro's employer transit pass programs, including the Annual Transit Access Pass (A-TAP), the Employer Pass Program (E-Pass), and Small Employer Pass (SEP) Program. These programs offer efficiencies and group rates that businesses can offer employees as an incentive to utilize public transit. For more information on these programs, please visit the programs' website at https://www.metro.net/riding/eapp/. **Metro-20**

If you have any questions regarding this letter, please contact me by phone at 213.418.3484, by email at DevReview@metro.net, or by mail at the following address: **Metro-21**

Metro Development Review
One Gateway Plaza
MS 99-22-1
Los Angeles, CA 90012-2952

Sincerely,

Cassie Truong
Senior Transportation Planner, Development Review Team
Transit Oriented Communities

Attachments and links:

- Adjacent Development Handbook: https://www.metro.net/devreview

2.2.2.1 Response to Letter from Los Angeles County Metropolitan Transportation Authority

Comment No.	Response
Metro-1	The comment serves as an introduction to the comment letter and describes the project. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, no response is necessary.
Metro-2	The commenter requests that the EIR include information on existing and planned transit services in the study area, including future changes to transit service and bus stop locations in the study area as proposed in LA Metro's NextGen Bus Plan. Section 5.13.1.3 of the EIR discusses existing bus service in the study area provided by LA Metro, Los Angeles Department of Transportation (LADOT), and Antelope Valley Transit Authority, as well as the location of existing bus stops and a discussion of future LA Metro rail service. Through this Final EIR, the text of Section 5.13.1.3 has been revised as follows (added text shown in underline): There are three Los Angeles County Metropolitan Transportation Authority (Metro) bus routes that run on roads that parallel the project site. • Line 20 (Downtown Los Angeles – Westwood/Santa Monica via Wilshire Boulevard) runs between Downtown Los Angeles and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs 7 days a week; the bus runs 24 hours, with 15-minute headways during daylight hours and 30-minute headways during overnight every day of the week. Stops near the project site are located at Wilshire/Spaulding and Wilshire/Curson for both directions of travel. As part of its NextGen Bus Plan, LA Metro proposes to merge Line 20 and 720 between Downtown Santa Monica and Downtown Los Angeles. <u>The new Line 20 would have 5-minute headways during weekday peak periods. Bus stop consolidation includes the removal of the Wilshire/Masselin bus stops approximately 750 feet east of the project site.</u> • Line 217 (Hollywood/Vine Station – La Cienega Station via Hollywood Boulevard-Fairfax Avenue) runs between Los Angeles' Los Feliz and Baldwin Hills neighborhoods, on Vermont Avenue, Hollywood Boulevard, and Fairfax Avenue along the west side of the project site. Service runs 7days a week; the bus runs on 12- to 15-minute headways for the majority of the day every day of the week, with longer headways at the beginning and end of service. Stops near the project site are located at Fairfax/6th and Fairfax/Wilshire for both directions of travel. <u>As part of its NextGen Bus Plan, LA Metro proposes to merge Lines 180, 181, 217, and 780; Line 217 would be discontinued south of La Cienega/Jefferson Station to Howard Hughes Center. The new Line 180 would have 7.5-minute headways during weekday peak periods. Bus stop consolidation is not proposed for this route.</u> • Line 720 (Santa Monica – Downtown Los Angeles via Wilshire Boulevard) runs between Downtown Los Angeles and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs 7days a week; the bus runs on 5- to 10-minute headways for the majority of the day, with 15-minute headways during overnight hours of service. This is an express bus with limited stops, so the closest bus stops to the project site are at Wilshire/Cloverdale and at Wilshire/Crescent Heights. <u>As part of its NextGen Bus Plan, LA Metro proposes to merge Line 20 and 720 between Downtown Santa Monica and Downtown Los Angeles. The new Line 720 would continue to operate weekday peak periods with 10-minute headways, serving only between Downtown Los Angeles and Westwood.</u> These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5: Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR. As demonstrated above, the revised text included in Section 5.13.1.3 does not differ considerably from the original what was described in the Draft EIR. Instead, these revisions merely include further detail regarding the bus routes that operate near the project site. As no significant modifications have been made, recirculation of the EIR is not required.
Metro-3	The commenter requests that the EIR include a description of adjacent LA Metro bus service and bus stops, as well as other transit services in the project vicinity. Section 5.13.1.3 of the EIR details LA Metro and other local transit services. In addition, the transportation assessment report, provided as Appendix J to the EIR, includes a map of bus stops near the project site. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
Metro-4	The commenter requests that the EIR include an analysis and mitigation of potential impacts to transit service and stops, as well as impacts from project construction. The EIR and the transportation assessment report (Appendix J) include an analysis and mitigation of potential impacts to transit service and stops resulting from site operation. Mitigation Measure TRA/mm-1.1 includes coordinating with LA Metro to improve local bus stops as follows: • Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors. • Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection. As well, Mitigation Measure TRA/mm-4.3 includes coordinating with LADOT to explore the feasibility of implementing roadway improvements, which can mitigate effects on bus operations in the study area: • Signal timing at the built-out intersection of Curson Avenue/Wilshire Boulevard shall be regularly updated to optimize traffic signal timing. In addition, the weekday a.m. and p.m. peak period bus-only lanes on Wilshire Boulevard shall be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection. The EIR also includes Mitigation Measure TRA/mm-4.1, which requires a construction traffic management plan (CTMP), to be developed by the contractor, approved by the County and the City LADOT, and implemented to alleviate construction period impacts. The text of Mitigation Measure TRA/mm-4.1 has been revised as follows to incorporate LA Metro (added text shown in underline): A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, ~~and~~ the City of Los Angeles Department of Transportation (LADOT), <u>Caltrans, and LA Metro</u>, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions: • Prohibition of construction worker parking on nearby residential streets. • Prohibition of construction-related vehicles parking or staging on surrounding public streets. • <u>Prohibition of construction-related parking or staging on streets with bus service.</u> • Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways. • Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate. • Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible. • <u>Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible.</u> • <u>Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible.</u> These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5: Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR. As demonstrated above, the revised text in Mitigation Measure TRA/mm-4.1 does not differ considerably from the original measure that was described in the Draft EIR. Instead, these revisions merely include further detail and refinements to better achieve the goal of the measure, which is to require the County to prepare a thorough construction traffic management plan. As no significant modifications have been made, recirculation of the EIR is not required.
Metro-5	The commenter requests that the EIR include a description of adjacent bus stops and include mitigation of construction impacts to bus stops. The transportation assessment report, provided as Appendix J to the EIR, includes a map of bus stops near the project site. In addition, the EIR includes Mitigation Measure TRA/mm-4.1, which requires the development of a CTMP as described in response to comment Metro-4. No changes to the EIR were determined to be necessary in response to this comment.
Metro-6	The commenter requests that project driveways be designed to avoid effects on transit service and people accessing transit. The proposed driveways were analyzed as part of the transportation assessment report (Appendix J); driveways are not proposed on streets with transit service or bus stops. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
Metro-7	The commenter requests that EIR's transportation impact analysis mitigate impacts through the installation of bus stop and pedestrian enhancements. Mitigation Measure TRA/mm-1.1 includes coordinating with LA Metro to improve local bus stops as follows: • Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits. • Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors. • Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection. No changes to the EIR were determined to be necessary in response to this comment.
Metro-8	The commenter requests that the coordination occur with LA Metro before the start of project construction to address potential impacts to bus services. The EIR includes Mitigation Measure TRA/mm-4.1, which requires the development of a CTMP, to be developed by the contractor, approved by the County and the City of Los Angeles LADOT, and implemented to alleviate construction period impacts. The mitigation measure, with revisions, is provided in response to comment Metro-4. As revised in this Final EIR, this measure requires coordinating with LA Metro before the start of the project and consideration of construction activity near bus service.
Metro-9	The commenter requests that Metro would like to be coordinated with regarding the project's construction traffic control plans if project construction overlaps with construction of the Metro D Line Extension Section 1. The EIR includes Mitigation Measure TRA/mm-4.1, which requires the development of a CTMP, to be developed by the contractor, approved by the County and the City of Los Angeles LADOT, and implemented to alleviate construction period impacts. The mitigation measure, with revisions, is provided in response to comment Metro-4. As revised in this Final EIR, this measure requires coordinating with LA Metro before the start of the project.
Metro-10	The commenter indicates that, due to the project's proximity to the under-construction Metro D Line Extension Section 1 tunnels, the EIR should analyze potential effects on subway operations and identify mitigation measures, where appropriate. Considering the depths of the excavation anticipated for the foundation system of the project, and the depth of the Metro tunnel, significant effect on the Metro tunnel lining is not anticipated. Nevertheless, the County will continue close coordination with Metro regarding construction timing and activities. Further coordination is necessary to determine tolerance and complete the requested load analyses. The County will prepare a report with relevant geotechnical, structural and load details as well as an appropriate instrumentation program in coordination with Metro. No changes to the EIR were determined to be necessary in response to this comment.
Metro-11	The commenter requests that the County submit to Metro the project's architectural plans, engineering drawings and calculations, and construction work plans and methods, including any crane placement and radius, to evaluate any impacts to the under-construction Metro D Line Extension Section 1 tunnels infrastructure in relationship to the project. As the project design plans are further developed, the County will coordinate with Metro and submit the architectural plans, engineering drawings and calculations, and construction work plans and methods. The County is agreeable to Metros request. Furthermore, the County will prepare a report with relevant geotechnical, structural and design details in coordination with Metro. No changes to the EIR were determined to be necessary in response to this comment.
Metro-12	The commenter indicates that the construction and operation of the project shall not disrupt the operation and maintenance activities of the Metro D Line Extension Section 1 or the structural and systems integrity of Metro's tunnels and requests that the County work in close coordination with Metro. Further, Metro details several coordination and notification efforts that are being requested. The County will continue to work with Metro to ensure that construction and operation of the project would not disrupt the operation and maintenance activities of the Metro Purple Line or the structural and systems integrity of the Purple Line subway tunnels and to implement the coordination and notification efforts outlined by Metro in this comment. No changes to the EIR were determined to be necessary in response to this comment.
Metro-13	The commenter provides several details on how Metro encourages communication with Metro and where coordination should occur. Specifics provided by the commenter indicate requirements of the Occupational Safety and Health Administration, guidance for requesting Metro technical review, and requirements for working in Metro's right of way. The County will continue to work with Metro and ensure that communication occurs between the agencies and that Metro is afforded appropriate technical review. Further, the County will adhere to all requirements of the Occupational Safety and Health Administration and other safety and permitting requirements. Further, the County will implement the requested coordination and notification efforts outlined by Metro in this comment. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response

Metro-14	The Metro letter provides a section that is introduced as "recommendations and resources", which follows the specific comments on the EIR. This is the first comment in this supplemental section of the Metro letter; as indicated by Metro, these are not comments specifically on the EIR. In this section of the letter, the commenter identifies opportunities for the project to support transit use through strategies that improve the walking and bicycling environment along the project frontage, to/from the project, and at the project site.
	While the project site plan is currently conceptual, it provides for amenities that include, but are not limited to, shaded pedestrian pathways and pedestrian-oriented access points and gateways. In addition, Mitigation Measure TRA/mm-1.1 provides for improvements for people walking and bicycling to and from the site, including to adjacent transit stops. While some improvements would be provided on-site, others are off-site and would require coordination with external agencies such as LA Metro and LADOT. Improvements under Mitigation Measure TRA/mm-1.1 include:
	• Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.
	• Provide and maintain secure on-site bicycle parking for visitors and monitor usage to determine if additional bicycle racks are needed.
	  o Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.
	  o Ensure bicycle parking is well lit and monitored by staff.
	• Coordinate with Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to La Brea Tar Pits, through the following measures:
	  o Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits.
	  o Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors.
	  o Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection.
	• Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and 6th Street.
	These improvements were already included in the EIR through Mitigation Measure TRA/mm-1.1; therefore, no changes to the EIR were determined to be necessary in response to this comment.

Metro-15	The Metro letter provides a section introduced as additional "recommendations and resources" which are supplemental to Metro's comments on the EIR. In this section, the commenter requests the support of the County with implementation of various pedestrian and bicycle improvements, including a proposed bike lane on Wilshire Boulevard; an east-west bike facility on 6th Street, and ADA-compliant curb cuts at the corner of Wilshire/Curson, as described in the LA Metro First/Last Mile Plan for Section 1 of the Purple Line Extension. The EIR includes Mitigation Measure TRA/mm-1.1, which requires the County to coordinate with LA Metro and the City of Los Angeles to implement various bicycling- and walking-supportive improvements in the project vicinity. Therefore, no changes to the EIR were determined to be necessary in response to this comment.
Metro-16	The Metro letter provides a section introduced as additional "recommendations and resources" which are supplemental to Metro's comments on the EIR. In this section, the commenter requests that the County should coordinate with the adjacent property (LACMA) to improve pedestrian connectivity between the campuses and the future Metro station. While this is not a comment specifically on the analysis contained in the EIR, it should be noted that coordination between the two properties would be conducted at the time of final site design. Further, the County will support efforts to improve pedestrian connectivity between the campuses and the future Metro station.
Metro-17	The Metro letter provides a section introduced as additional "recommendations and resources" which are supplemental to Metro's comments on the EIR. In this section, the commenter provides a reference to the LA Metro Purple (D Line) Extension First Last Mile Plan. No response to this comment is required as it does not provide any specific comment on the CEQA analysis; therefore, no changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
Metro-18	The commenter requests that strategies that support transit and walking through reduced or alternative parking arrangements such as shared parking be considered. While the overall museum square footage would increase with development of the new museum building, the project does not propose an increase in the on-site parking supply; the anticipated increase in visitors is anticipated to be accommodated by shared parking structures in the project vicinity. In addition, as part of Mitigation Measure TRA/mm-1.1, the County would be required to prepare and implement a Transportation Demand Management (TDM) Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. This mitigation measure consists of strategies to reduce the vehicle demand of both employees and visitors to the site and increase walking, bicycling, and transit trips. No changes to the EIR were determined to be necessary in response to this comment.
Metro-19	The commenter requests that transit-oriented wayfinding be coordinated with and approved by LA Metro. Mitigation Measure TRA/mm-1.1 includes working with LA Metro to improve transit access and user comfort in the project vicinity, including improving pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits. No changes to the EIR were determined to be necessary in response to this comment.
Metro-20	The commenter provides information regarding opportunities to provide transit passes for museum employees through various LA Metro programs. Through Mitigation Measure TRA/mm-1.1, the County would be required to prepare and implement a TDM Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. This mitigation measure includes the provision of subsidized employee transit passes, which could be offered through LA Metro's programs. No changes to the EIR were determined to be necessary in response to this comment.
Metro-21	The comment serves as a closing remark. No changes to the EIR were determined to be necessary in response to this closing remark. No changes to the EIR were determined to be necessary in response to this closing comment. The County appreciates Metro's attention to this important project.

2.2.3 California Department of Transportation, District 7

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 266-3562
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

October 26, 2023

Leslie Negritto
County of Los Angeles
900 Exposition Blvd
Los Angeles, CA 90007

RE: La Brea Tar Pits Master Plan Project - Draft Environmental Impact Report (DEIR)
SCH # 2022020344
Vic. I-10, SR-2/PM LA 8.087, 1.362
GTS # 07-LA-2022-04309

Dear Leslie Negritto:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-referenced project. The proposed project would renovate the existing George C. Page Museum and add a new one-story museum building, increasing the total museum square footage from 63,000 gsf to 105,000 gsf. The new building would have additional space for exhibits, classrooms, and laboratories. The existing parking lot would be shifted to the northeast and add up to 5-10 additional parking spaces. Within Hancock Park, the project would add a pedestrian path, enhanced recreation areas, additional seating and rest areas, and new site entry plazas at Wilshire Blvd/S. Curson Ave. and on W. 6th Street. Phased construction would occur over approximately 7 to 10 years. The County of Los Angeles is the Lead Agency under the California Environmental Quality Act (CEQA). **Caltrans-1**

The closest state facilities are the I-10, and SR-2 (Santa Monica Blvd). After reviewing the project's DEIR, Caltrans has the following comments:

- The Los Angeles County Bicycle Master Plan states that their benefits model predicts that by 2030, bike ridership will increase up to 246% in the Westside Planning area. Given this trend, Caltrans encourages the Lead Agency to consider any reduction in vehicle speeds to benefit pedestrian and bicyclist safety, as there is a direct link between impact speeds and the likelihood of fatality or serious injury. The most effective methods to reduce pedestrian and bicyclist exposure to vehicles is through physical design and geometrics. **Caltrans-2**

  These methods include the construction of physically separated facilities such as Class IV bikeways, wide sidewalks, curb extensions, pedestrian refuge islands, landscaping, street furniture, and reductions in crossing

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October 26, 2023
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distances through roadway narrowing. Visual indicators such as, pedestrian and bicyclist warning signage, flashing beacons, crosswalks, signage, and striping should be used in addition to physical design improvements to indicate to motorists that they can expect to see and yield to people walking or riding bikes. **Caltrans-2 (cont'd)**

- In accordance with the Los Angeles County 2035 General Plan, the Metro Purple (D Line) Extension Transit Project is currently undergoing construction and will service riders to the Wilshire/Fairfax Station by 2040. To increase ridership and lower total VMT trips, Caltrans recommends reducing the amount of proposed car parking.
  - Research looking at the relationship between land-use, parking, and transportation indicates that the amount of car parking supplied encourages driving and can undermine a project's ability to encourage public transit and active modes of transportation. For any project to better promote public transit and reduce vehicle miles traveled, we recommend the implementation of Transportation Demand Management (TDM) strategies as an alternative to building car parking. **Caltrans-3**
- The site is located between several Caltrans Active Transportation (CAT) plans where needs have been identified to for walking and bicycling trip potential. In accordance with the planned Metro Wilshire/Fairfax Station, Caltrans recommends that the Lead Agency works with the city on implementing Class IV bike lanes along the main arterial roads to create connected corridors for bike and pedestrian visitors. For more information regarding CAT plans, please see: **Caltrans-4**

  https://storymaps.arcgis.com/stories/835bb16c4e3141f2b4f3e6dae7880fd3
- For the duration of the construction period, Caltrans recommends the following: **Caltrans-5**
  - Work with Caltrans Office of Permits, Multi-Modal Unit, for a designated truck route for construction trucks to transport construction equipment to and from the construction sites.
  - Construction vehicles/equipment should use alternative routes to avoid congested state facilities, especially during peak hours.
  - Cover construction trucks with tarpaulin to avoid debris spillage onto State facilities.
  - Inform Caltrans of any additional impacts to the I-10 ramps should it occur during the construction phase.

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As a reminder, any transportation of heavy construction equipment and/or materials that requires the use of oversized transport vehicles on State Highways will need a Caltrans transportation permit. Caltrans recommends that the Project limit construction traffic to off-peak periods to minimize the potential impact on State facilities. If construction traffic is expected to cause issues on any State facilities, please submit a construction traffic control plan detailing these issues for Caltrans' review. **Caltrans-6**

If you have any questions, please feel free to contact Jaden Oloresisimo, the project coordinator, at Jaden.Oloresisimo@dot.ca.gov and refer to GTS # 07-LA-2022-04309. **Caltrans-7**

Sincerely,

Anthony Higgins for

MIYA EDMONSON
LDR/CEQA Branch Chief

cc: State Clearinghouse

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2.2.3.1 Response to Letter from California Department of Transportation, District 7

Comment No.	Response
Caltrans-1	The comment serves as an introduction to the comment letter and describes the project. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, no response is necessary.
Caltrans-2	The commenter requests that strategies to reduce speeds and accommodate bicyclists and pedestrians, including visual indicators and physically separated walking and bicycling facilities, be included in the project. The transportation assessment report, prepared by Kittelson & Associates in August 2022 and provided as Appendix J to the EIR, reviewed and provided recommendations to accommodate and improve pedestrian, bicycle, and transit access in the study area. These recommendations, which were incorporated into Mitigation Measure TRA/mm-1.1, include: • Coordinate with Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to La Brea Tar Pits, through the following measures: o Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits. o Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors. o Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection. • Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and 6th Street. Through Mitigation Measure TRA/mm-1.1, coordinating would be required with LA Metro and the City of Los Angeles in order to accommodate facilities in the study area that would improve walking and bicycling conditions. As the recommendation is consistent with the EIR, no changes to the EIR were determined to be necessary in response to this comment.
Caltrans-3	The commenter requests that the amount of proposed car parking be reduced and TDM strategies to reduce vehicle demand be implemented. While the overall museum square footage would increase, the project does not propose an increase in the on-site parking supply. In addition, Mitigation Measure TRA/mm-1.1 would require the preparation and implementation of a TDM Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. This mitigation measure consists of strategies to reduce the vehicle demand of both employees and visitors to the site and increase walking, bicycling, and transit trips. As the comment is consistent with the recommendations of the EIR, no changes to the EIR were determined to be necessary in response to this comment.
Caltrans-4	The commenter requests that the bicycle facilities be planned and implemented in the project area in coordination with the City of Los Angeles. Mitigation Measure TRA/mm-1.1 of the EIR provides for the following: • Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and West 6th Street. With implementation of this mitigation measure, coordinating with the City of Los Angeles would occur to ensure bicycle facilities in the project area are implemented, as recommended by Caltrans. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
Caltrans-5	The commenter requests coordination with Caltrans during project construction occur to avoid effects on state facilities. The EIR includes Mitigation Measure TRA/mm-4.1, which requires the development of a CTMP, to be developed by the contractor, approved by the County and LADOT, and implemented to alleviate construction period impacts. The text of Mitigation Measure TRA/mm-4.1 has been revised in this Final EIR as follows to include the recommendations of Caltrans (added text shown in underline): A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, ~~and~~ the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions: • Prohibition of construction worker parking on nearby residential streets. • Prohibition of construction-related vehicles parking or staging on surrounding public streets. • Prohibition of construction-related parking or staging on streets with bus service. • Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways. • Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate. • Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible. • Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible. • Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible. These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5: Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR. As demonstrated above, the revised text in Mitigation Measure TRA/mm-4.1 does not differ considerably from the original measure that was described in the Draft EIR. Instead, these revisions merely include further detail and refinements to better achieve the goal of the measure, which is to require the County to prepare a thorough construction traffic management plan. As no significant modifications have been made, recirculation of the EIR is not required.
Caltrans-6	The commenter requests coordination with Caltrans during project construction, including application for a Caltrans transportation permit (if required). In addition, the commenter requests that construction effects do not occur on state facilities through implementation of a construction traffic control plan. The EIR includes Mitigation Measure TRA/mm-4.1, which requires the development of a CTMP, to be developed by the contractor, approved by the County and the LADOT, and implemented to alleviate construction period impacts. The text of Mitigation Measure TRA/mm-4.1 has been revised in this Final EIR as follows to include consideration of construction activities along state facilities (added text shown in underline): A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, ~~and~~ the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions: • Prohibition of construction worker parking on nearby residential streets. • Prohibition of construction-related vehicles parking or staging on surrounding public streets. • Prohibition of construction-related parking or staging on streets with bus service. • Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways. • Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate. • Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible. • Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible. • Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible. These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5: Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR. As demonstrated above, the revised text in Mitigation Measure TRA/mm-4.1 does not differ considerably from the original measure that was described in the Draft EIR. Instead, these revisions merely include further detail and refinements to better achieve the goal of the measure, which is to require the County to prepare a thorough construction traffic management plan. As no significant modifications have been made, recirculation of the EIR is not required.

Comment No.	Response
Caltrans-7	The comment serves as a closing remark. No changes to the EIR were determined to be necessary in response to this closing comment. The County appreciates Caltrans' attention to this important project.

2.3 NON-AGENCY ORGANIZATIONS COMMENTS AND RESPONSES

The following non-agency organizations have submitted comments on the Draft EIR.

Table 2.3-1. Non-Agency Organization Comment Documents Received

Respondent	Code	Contact Information	Page
The Climate Reality Project, Los Angeles Chapter Letter dated: October 23, 2023	TCRP	Email: charlesallenmiller@gmail.com *Contact: Charles Miller, Chair*	2.3-3
Los Angeles Audubon Society Letter dated: October 24, 2023	LAA	P.O. Box 931057 Los Angeles, California 90093-1057 *Contact: Travis Longcore, Ph.D., President*	2.3-11
Los Angeles Conservancy Letter dated: October 26, 2023	LAC	523 West Sixth Street, Suite 826 Los Angeles, CA 90014 *Contact: Adrian Scott Fine, Senior Director of Advocacy*	2.3-113
Neighborhood Council Sustainability Alliance of Los Angeles Letter dated: October 26, 2023	NCSA	Email: ncsa@empowerla.org *Contact: Lisa Hart, Executive Director*	2.3-124
Park La Brea Impacted Residents Group Letter dated: October 26, 2023	PLBIRG	351 South Fairfax Avenue, #421 Los Angeles, CA 90036 *Contact: Barbara Gallen, Co-President*	2.3-136

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2.3.1 The Climate Reality Project, Los Angeles Chapter

The Climate Reality Project®
LOS ANGELES CHAPTER

October 23, 2023

Leslie Negritto, Chief Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007
Via e-mail: lnegritto@nhm.org, reimagine@tarpits.org

RE: Public Comment On Proposed La Brea Tar Pits Master Plan Project

Dear Chief Operating Officer Negritto:

The Los Angeles Chapter of the Climate Reality Project, which has 1500 members and is the largest local chapter connected to the international Climate Reality Project, submits this public comment to the Natural History Museums of Los Angeles County (NHM) regarding the La Brea Tar Pits Master Plan Project. We have concerns about the project as presented which we feel are reasonable and can be accommodated without major cost or delay. **TCRP-1**

We believe there are specific adjustments to the landscaping plan that will improve the sustainability, historical value, and cultural significance of the project. Accordingly, we request that the following changes be incorporated into the design.

1) Allow biofiltration areas to recharge groundwater and irrigate lawn. **TCRP-2**

As outlined in DEIR Section 3.4.7.2, the three biofiltration spaces will be lined with an impermeable liner, and water will be routed to the city stormwater drains. This is a missed opportunity. Central to the function of a true bioswale is the absorption of water for groundwater recharge. This can only be accomplished if the bioswale (or biofiltration planter) does not reside over an impermeable barrier. Therein, an unlined or partially unlined bottom in each of the three biofiltration spaces would have greater benefit to the community and the urban ecosystem by allowing some groundwater recharge. Of particular significance is that Oil Creek is a naturally occurring spring that is a fundamental component of the very system and unique phenomenon that the park celebrates. To add impermeable barriers to such a system undermines the functionality of a unique historical site, diminishing its educational value and threatening the existence of the Oil Creek spring. Importantly, it is counterintuitive to use natural systems to filter onsite water, only to dump it back into the city stormwater drain system, where it will be polluted again before reaching our local watershed. Certainly any flooding concerns could be addressed with overflow drainage in the bioswale and bioplanter designs. Groundwater flow is an inherent element of Oil Creek. **TCRP-3**

The immense footprint of grass lawn in the project underscores the need to utilize onsite water sources rather than dumping naturally cleaned water into the stormwater drain. Overflow water cleaned by the biofiltration spaces should be captured as an irrigation source to offset the significant impact of using potable water to irrigate the grass lawn in the project. **TCRP-4**

2) Redesign the landscaping plan to save / incorporate four historically significant tree specimens. **TCRP-5**

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The area to the northwest of the current Central Green, south of the current Pleistocene garden, contains two old-growth *Rhus ovata* (Sugarbush) and one old-growth *Heteromeles arbutifolia* (Toyon). These are visible (albeit difficult to identify) in Existing Site Figure 3-3 in the DEIR. We believe the two *Rhus ovata* are the largest specimens in the City of Los Angeles and among the largest in existence for this regionally local species. Likewise, the *Heteromeles arbutifolia*, a species declared the official native plant of Los Angeles by City Council in 2012 and a protected tree species via Los Angeles Ordinance 186873, has historical and cultural significance. A 1924 overhead photo of the site in the Los Angeles Public Library archives shows probable evidence of these three trees existing on the site a century ago. Further northwest of these three trees, north of Oil Creek and a few feet northwest of the current Pleistocene garden, is an exceptional example of *Aesculus californica* (California Buckeye) that also carries significance as being among the largest examples in the City of Los Angeles. Though the DEIR lacks a tree inventory and specifics on exactly which trees will be preserved, preliminary documents suggest all four of these trees are slated for removal. Due to their age and size, these four trees are poor candidates for survival if moved, even if the large expense and effort to do so was undertaken. However, an overlay of the Conceptual Site Plan in Figure 3-4 onto Figure 3-3 suggests these four trees are outside the proposed new building footprint and could be accommodated and preserved with minor alterations to the landscaping design. **TCRP-5 (cont'd)**

Consider that the project site also includes two mature *Sequoia sempervirens* (Coast Redwood), two mature *Umbellularia californica* (California Bay Laurel), and several mature *Pinus torreyana* (Torrey Pine). These native trees are among the largest trees on the site, and a superior plan would have designed around them. *Umbellularia californica* is a protected species in Los Angeles and *Pinus torreyana* is an endangered species that is the rarest pine species in the United States. However, because they are within the footprint of a new building in the DEIR, we don't see how they can be saved without a major redesign of the project. The loss of these trees will constitute a significant harm to the ecosystem of the area and the cultural heritage of the region. This makes it all the more imperative that the four trees listed in the prior paragraph (which can be saved with comparatively minimal effort) be saved. **TCRP-6** **TCRP-7**

3) Removal of any native tree protected by Los Angeles Ordinance 186873 should result in the full 4:1 replacement ratio planted on site within the project boundaries. **TCRP-8**

Though this is a County facility, it is situated in the City of Los Angeles, which has a Protected Tree Ordinance in place to discourage the removal of native trees and shrubs. The project should not attempt the use of a legal technicality to avoid the spirit in the law of the City of Los Angeles, as supported by the stakeholders of the community. The existing site contains multiple healthy mature specimens of these five protected tree species (*Heteromeles arbutifolia* (Toyon), *Platanus racemosa* (Western Sycamore), *Umbellularia californica* (California Bay Laurel), *Sambucus mexicana* (Blue Elderberry), and *Juglans californica* (Southern California Black Walnut)) and one protected tree genus *Quercus* (Oaks) of native origin as defined in Los Angeles Ordinance 186873. Many of these are slated for removal. The project site is noteworthy for having all these species in a relatively small area that is easily walkable and accessible, and consequently serves as an extremely valuable education tool in addition to having the biodiversity benefits these native trees provide. Section 3.4.7.1 of the DEIR estimates that 135 to 180 trees (including many non-native trees) in the existing site will be removed, assuming the calculation that an additional 10 percent will be relocated. This is a significant loss of mature tree canopy for the **TCRP-9** **TCRP-10**

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community, with decades-long loss of shade, carbon capture, and heat-island effect offset. Installing the full 4:1 replacement ratio of our protected species on site as part of the new design is an important long term mitigation to these losses. **TCRP-10 (cont'd)**

4) The removal of any *Berberis nevinii* (Nevin's Barberry) should also result in a 4:1 replacement ratio planted on site within the project boundaries.

Berberis nevinii is a federally and state listed endangered species. Several large, mature examples of this shrub are at the existing site, specifically within the current Pleistocene garden—an area slated for removal in current plans. Though these plants were planted by humans, they are well established at the location. The new plant palette designs in Figures 3-12, 3-13, and 3-14 of the DEIR do not include plans for *Berberis nevinii*. While relocation of the existing on site mature shrubs is technically possible, this may have a low success rate beyond the short term. By incorporating new plantings of this species into the design, a long term presence for this endangered species can be secured. **TCRP-11**

5) All new plantings, other than functional lawn, must be native species, with a preference for species from the tar pits fossil record. **TCRP-12**

The original vision of this park as articulated by naturalist Theodore Payne and landscape architect Ralph Cornell over a century ago was to feature an exclusively native plant habitat. This project offers a singular opportunity to bring that vision closer to reality, and there are extremely important reasons to do so. Los Angeles is experiencing a biodiversity crisis, having lost over 90% of our local pollinators since the beginning of the twentieth century. Key Lepidoptera species (butterflies and moths) are disappearing to extinction at the rate of two regional species per year. Because many specialist fauna depend on the native plants with which they have evolved, native landscaping plants and trees provide essential support for local biodiversity. There is not a better case for an all-native urban landscaping design than that of Hancock Park in the La Brea Tar Pits Master Plan Project, a space noteworthy for being the most important Pleistocene fossil site on the planet. The tar pits have established a fossil record with tens of thousands of years of evidence of our native plants surviving climate change and varying carbon levels that exceed those anticipated from anthropogenic climate change. These changes were a factor in wiping out the famous megafauna displayed in the Page Museum at the tar pits, yet our surviving local native plants endured these changes. **TCRP-13**

As a demonstration of the power of adaptability within the DNA of our local native plants in our unique biodiversity hotspot, the project site has unparalleled importance as an education tool for climate change and biodiversity, but only if the landscaping design utilizes those native plant species. Happily, the creators of the DEIR document seem to get this, as all the proposed species in Sections 3.4.7 and 3.4.7.1 and the aforementioned Figures of the DEIR exclusively reference native species. However, suggested plant palettes are different from actual detailed landscaping plans. In conversations with several members of the landscape design team, our members were repeatedly told that new landscaping installations would be "90 to 95 percent native" with some members of the design team going on to mention plans to install multiple exotic trees such as *Tipuana tipu*. There is no scientific, cultural, or practical justification for including non-native tree species in the planting palette of this project. With well over 70 locally native tree and shrub species and hundreds of local herbaceous plant species providing **TCRP-14** **TCRP-15**

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ample choices for both drought resistant landscaping as well as the project's riparian biofiltration areas, no credible argument can be made that it is biologically valuable or necessary to add more ornamental non-native species to this site (a site that will still contain over 100 mature non-native trees slated for preservation in the current plan).

Furthermore, even the "90 to 95 percent" natives suggested by designers is greatly misleading. Consider that a large percentage of the 13 acres in both the existing site and proposed site in the DEIR consists of non-native grass species for open lawn. Thus, the native percentage estimate by designers omits the lawn that will constitute the highest percentage of planted biomass for the project. While lawn has a functional green space value for the community, the ornamental landscaping trees and other non-lawn plants added to this site, going forward, should be exclusively native in recognition of the historical significance of the plants in the fossil record that make this site a true treasure for the local community, region, and world. **TCRP-15 (cont'd)**

Thank you for this opportunity for public comment. We hope the Los Angeles Climate Reality Project, an organization committed to equitable and urgent climate action wherever possible, can serve as an advisor on this project as it moves forward. We support NHM for its ambitious goals. **TCRP-16**

Sincerely,

Charles Miller
310 806 1635 (m)
CharlesAllenMiller@gmail.com
Chair, Los Angeles Chapter
Climate Reality Project
laclimatereality.org

cc: CFAC.Chair@gmail.com
Councilmember.Yaroslavsky@lacity.org
Mayor.Bass@lacity.org
HollyJMitchell@bos.lacounty.gov

2.3.1.1 Response to Letter from The Climate Reality Project, Los Angeles Chapter

Comment No.	Response
TCRP-1	The comment provides an overview of the Los Angeles Chapter of the Climate Reality Project and introduces the letter, indicating that the Climate Reality Project requests changes to the proposed project. Responses to the specific comments in the letter are provided below. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. It is important to note that this letter does not state any concern or critique of the analysis contained within the Draft EIR. However, the County is providing responses to the concerns raised to provide as much information and transparency to the commenter and interested parties as possible. Throughout the comment letter, the Climate Reality Project requests specific adjustments to the landscaping plan that the commenter believes would improve the sustainability, historical value, and cultural significance of the project. After receiving comments on the Draft EIR, the project proponent, the County Museum of Natural History, considered the comments made by the commenting entities, including the Climate Reality Project, and refined the design of the improvements proposed at the La Brea Tar Pits site, including the landscaping plan and what features could be retained and/or protected and to what degree. As a result, the County has proposed of a variation of the Master Plan which is described in the Final EIR. Refer to **MR-1, Preferred Alternative, MR-2, Impacts to Native and Mature Trees,** and **MR-3, Use of Native Plants and Vegetation,** for more information regarding the additional information provided by the updated designs, Refined Alternative 3, and the County's commitment to meet and exceed the regulatory requirements for impacts to trees and other vegetation at the La Brea Tar Pits site.
TCRP-2	The commenter shares the opinion that the bioswales included in the project (as described in the EIR) should be redesigned without an impermeable liner because the use of an impermeable liner limits the ability for the bioswales to recharge the site's groundwater. While this is not a comment on the environmental impact analysis contained in the EIR, additional information is provided within this response to provide an understanding of the rationale for the proposed bioswale approach. It is correct that the use of an impermeable liner would limit the bioswale's ability to recharge groundwater. However, the proposed bioswale is intentionally designed this way. Further, groundwater recharge is not an objective of the proposed project. Due to the conditions of the project site, constructing a permeable bioswale would not be feasible. Bioswales relying on permeable basins require the composition of the local soil to allow for a high enough infiltration rate in order to avoid any standing water. This is because standing water can lead to vector control issues, by potentially providing a breeding ground for mosquitos and other harmful organisms. The project site's soil composition includes clays and tar sands which would not allow stormwater to infiltrate into the ground at a high enough rate to avoid standing water. As well, groundwater must not be found less than 10 feet from the bottom of the bioswale, in order to allow for adequate filtration to reduce the amount of surface pollutants entering the groundwater. Groundwater at the project site has been discovered less than 10 feet from the surface, which would not allow stormwater to be adequately filtered prior to entering the groundwater. Lastly, since the site's soil includes clays and tar sands, this composition would further limit the ability for stormwater to infiltrate into the ground at high enough rates to allow for adequate filtration. Given the soil and groundwater conditions at the project site, the most feasible option is the use of bioswales which rely on stormwater bioretention basins, as proposed by the project. These types of bioswales consist of a raised planter system with a retention basin and an underdrain. They can be designed to be permeable, however certain site conditions may require an impermeable barrier. For the proposed project, the bioswales would be required to include an impermeable liner for two reasons. First, due to the presence of high groundwater, if the bioswale did not include an impermeable liner, the underdrain could continuously capture the site's groundwater leading to unnecessary discharge. Second, without an impermeable barrier, the tar seeps present in the site's soil would enter and clog the drainage system, reducing the effectiveness of the bioswale. For these reasons, permeable bioswales are not possible on the project site. No changes to the EIR were determined to be necessary in response to this comment.
TCRP-3	This comment states that the use of bioswales with impermeable liners would undermine the functionality of the project site. As discussed in TCRP-2, the bioswales on the project site must be designed with an impermeable liner. However, the bioswales proposed would still be able successfully capture significant amounts of stormwater runoff and would reduce the potential for surface pollutants to further contaminate any groundwater present at the project site. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
TCRP-4	The comment states that overflow water from the proposed bioswales should be captured for re-use on the project site. The County requires that all captured stormwater must be re-used within 96 hours to reduce the potential for vector control issues, as discussed in TCRP-2. Since the project will be landscaped with low-water use plants, it is anticipated that the demand required for reused water would not be met. EIR Sections 5.9 Hydrology and Water Quality and 5.15 Utilities include analyses with the assumption that water on the project site would not be recycled. The EIR concluded that the project would have less-than-significant impacts to hydrology and water quality as well as utility and service systems, with the implementation of identified mitigation measures. Therefore, no changes to the EIR were determined to be necessary in response to this comment.
TCRP-5	The commenter requests that the landscaping plan be redesigned to save the four tree specimens that have been highlighted by the Climate Reality Project as having value to the community because of their age. Specifically, these are identified by the commenter as two old-growth Sugarbush, one old-growth Toyon, and one California Buckeye. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. The location of the trees identified by the commenter can be found in this appendix, which includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The trees at the project site do not have any historic designation. The County will prioritize the protection of these trees and will avoid their removal if feasible while also meeting the budgetary and design needs for the project. Retention of these trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The County will continue to refine the designs as the project develops to account for the most protections possible for native and community resources. This may include protection of individual tree species noted as important to the community and/or increases in replacement ratios for trees that are particularly valued by the community. However, because the property is not regulated by the City of Los Angeles, the replacement ratio set by the City of Los Angeles is not required to be met. The environmental analysis regarding vegetation and local tree impacts that is contained in Section 5.3 of the EIR is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. No changes to the EIR were determined to be necessary in response to this comment. Refer to **MR-2, Impacts to Native and Mature Trees**.
TCRP-6	The commenter opines that a superior plan would have been to design around the California Bay Laurel and several mature Torrey Pines. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. While there is not a requirement to protect or preserve these trees, the County will prioritize the protection of these trees and will avoid their removal if feasible while also meeting the budgetary and design needs for the project. No changes to the EIR were determined to be necessary in response to this comment. Refer to **MR-2, Impacts to Native and Mature Trees**.
TCRP-7	The commenter reiterates that the four trees listed (two old-growth Sugarbush, one old-growth Toyon, one California Buckeye) be saved. No changes to the EIR were determined to be necessary in response to this comment. Refer to **MR-2, Impacts to Native and Mature Trees,** and Responses TCRP-5 and TCRP-6.
TCRP-8	The commenter indicates that the City of Los Angeles Ordinance 186873 should be followed, which would result in different replacement ratios than what is being proposed or required for the project. Wherever possible, the County will provide for higher replacement ratios than what is required by the regulatory requirements that apply to the project. However, the requirements set by the City of Los Angeles do not apply to the project, as the property is subject only to the regulatory requirements of the County of Los Angeles. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. This may include possible voluntary increases in replacement ratios. However, the requirements identified in the EIR are not required to be revised as they are consistent with the regulatory requirements that apply to the project and what is necessary to reduce impacts to mature trees to less than significant. These measures are included in the EIR as Mitigation Measures BIO/mm-5.2, BIO/mm-6.1, and BIO/mm-6.2. No changes to the EIR were determined to be necessary in response to this comment.
TCRP-9	The commenter identifies additional trees that they feel should be protected with development of the Master Plan even though the project site is not subject to the City of Los Angeles regulations. Refer to **MR-2, Impacts to Native and Mature Trees**, and Responses TCRP-5, TCRP-6, and TCRP-8. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
TCRP-10	The commenter indicates that the project site is noteworthy for having many identified tree species in a relatively small area and consequently serves as a valuable education tool. Further, the commenter indicates that Section 3.4.7.1 of the DEIR estimates that 135 to 180 trees (including many non-native trees) in the existing site would be removed, assuming the calculation that an additional 10% would be relocated. The County agrees with the commentor that the site is an important educational resource. The designs for improvement and development at the La Brea Tar Pits project site are intended to amplify the educational resources at the site, including the thought that has been put towards the proposed landscaping plan. The plant palette that is being proposed responds to the existing park setting and the historical significance of the site; it is based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. The palette specifically highlights plants which were previously present at La Brea Tar Pits as historical floral communities. The plant palette also prioritizes pollinator resources. As correctly reflected by the commenter, while some trees and vegetation would be required to be removed to fully realize the design of the Master Plan, the landscaping concept for most of the site responds to the native vegetation of the Los Angeles basin and has been informed by the research gathered from the fossil record of La Brea Tar Pits. Also, the plant palette consists primarily of California natives. The commenter's estimate of the number of trees that would be removed is within the range currently estimated by the County and the design team, although this is only as estimate at this time. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** and **MR-3, Use of Native Plants and Vegetation**, as well as Responses TCRP-5 and TCRP-8. No changes to the EIR were determined to be necessary in response to this comment.
TCRP-11	The commenter expresses that any removal of Nevin's Barberry should be replanted with a 4:1 replacement ratio. There are two Nevin's Barberry on site located in the Pleistocene Garden, which is proposed to be removed to accommodate grade changes for building and park improvements and the addition of a fire lane. However, this species can be included in the plant palette and incorporated into the design where appropriate. The requirements set by the City of Los Angeles do not apply to the project, as the property is subject only to the regulatory requirements of the County of Los Angeles. The County will continue to refine the designs as the project develops to account for the most protections possible for native resources. This may include voluntary increases in replacement ratios. However, a specific replacement ratio is not required beyond the requirements specified in Mitigation Measure BIO/mm-6.1. No changes to the EIR were determined to be necessary in response to this comment.
TCRP-12	The commenter requests that all new plantings be native species, with a special preference for species found in the tar pits fossil records, as the park was originally envisioned to exclusively feature native plants. While this is not a comment specifically on the analysis contained in the Draft EIR, it should be noted that native species have been prioritized in the plant palette and incorporated into the design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. The County will continue to refine the designs as the project develops to account for the most protections possible for native resources. No changes to the EIR were determined to be necessary in response to this comment. Additionally, refer to **MR-3, Use of Native Plants and Vegetation**.
TCRP-13	The commenter states that it is critical that native plants are incorporated in the project's design as Los Angeles is currently experiencing a biodiversity crisis. As discussed in Response TCRP-12, native plants are prioritized in the plant palette, which specifically highlight plants which are present in Tar Pits fossil record. Furthermore, it should be noted that the plant palette also contains considerations for historical floral communities and pollinator resources. The County will continue to refine the designs as the project develops to account for the most protections possible for native resources. No changes to the EIR were determined to be necessary in response to this comment. Additionally, refer to **MR-3, Use of Native Plants and Vegetation**.
TCRP-14	The commenter emphasizes that the project site has unparalleled importance as an education tool for climate change and biodiversity, but only if the landscaping design utilizes those native plant species. The commenter also expresses a concern that the final landscaping plans may differ from the proposed plant palettes, which primarily feature native plants. Refer to **MR-3, Use of Native Plants and Vegetation**, and Responses TCRP-12 and TCRP-13. The plant palettes included in Chapter 3 of the EIR are the palettes that were provided by the design team, and they are continuing to be used as a guide for the detailed landscaping design plans. As previously noted, native plants have been prioritized in the plant palette and considerations for historical floral communities and pollinator resources are being incorporated in the project's landscaping design plans. Refinements to the landscaping plan are continuing to be considered by the County as the design evolves. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
TCRP-15	The commenter notes that they were provided information that new landscape installations would include 90 to 95% natives. While an exact percentage is not available at this time, California native plants and trees will be prioritized in the project's landscaping plan. However, for practical reasons a limited quantity of adapted species that are not native would be included in some areas of the site. It is correct that the estimates excluded the open lawn areas. However, this comment does not change the findings or conclusions in the Draft EIR; no changes to the EIR were determined to be necessary in response to this comment. Additionally, refer to **MR-3, Use of Native Plants and Vegetation**.
TCRP-16	The commenter states that the Los Angeles Climate Reality Project hopes to serve as an advisor to the project. This is not a comment on the Draft EIR; therefore, no response is necessary. The County appreciates the input that the Climate Reality Project has provided on the project to-date, and it is being considered throughout the design process. No changes to the EIR were determined to be necessary in response to this comment.

2.3.2 Los Angeles Audubon Society

Los Angeles Audubon Society
P.O. Box 931057
Los Angeles, California 90093-1057

October 24, 2023

Via Email (lnegritto@nhm.org)

Leslie Negritto, Chief Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007

Re: Draft Environmental Impact Report for the La Brea Tar Pits Master Plan Project (SCH # 2022020344)

Dear Ms. Negritto:

Los Angeles Audubon Society has been a voice for birds and conservation in Los Angeles for over 110 years. Our mission is to promote the study and protection of birds, other wildlife, and their habitats throughout the diverse landscapes of the Los Angeles area. We have over 3,500 members and supporters, most of whom live in the County of Los Angeles.

The La Brea Tar Pits and Page Museum are important cultural and scientific institutions that educate the public about the history of the region. The insights from the excavations and associated research are vitally important and inform much of what we know about the paleohistory of birds in this region (Allen et al. 2016). The park and museum complex is also a unique site in that it has areas that have never been developed to urban uses, including vegetation that could well be over 100 years old. **LAA-1**

Los Angeles Audubon Society offers the following comments on the Draft Environmental Impact Report (DEIR) for the Master Plan for the redevelopment of the Tar Pits portion of the park.

This project, in combination with the overdevelopment of the remainder of the site by the Los Angeles County Museum of Art, represents one more step toward the total replacement of the remaining bits of open, undeveloped space with buildings, active programming, and sterilized landscape. Where will the nature persist after cutting down 200 trees? How will the ecological contiguity of land be maintained? People and wildlife need parks with fewer buildings, not more. **LAA-2** **LAA-3**

Second, the design of the project could not be more hazardous for birds if had intentionally been designed to kill birds for the purpose of adding them to the Museum's collection. Given the ongoing, known bird mortality resulting from the construction of a large glass cube at the **LAA-4**

Museum's facility in Exposition Park in 2013, one would have imagined that the project designers would have been instructed to pursue bird-friendly building practices (Sheppard and Phillips 2015). Apparently, this did not happen. **LAA-4 (cont'd)**

The large expanses of glass that characterize the new facilities are inherently dangerous to birds. Birds cannot perceive glass as a barrier and will try to fly through these walls of glass. They also cannot distinguish reflections from reality and will collide with windows for this reason as well. To make things even worse, the intention is to light these walls of glass from within at night, which will also attract birds and increase the probability of them colliding with the glass. This is a similar situation, at a larger scale, to the lobbies at the Wilshire Federal Building in Westwood, where I have collected birds that were attracted to and then collided with windows in exactly the manner that they will be attracted to and die at the extension of the Page Museum. **LAA-5** **LAA-6** **LAA-7**

The renderings for the future design of the pathways around and over the lake depict glass barriers without any design elements that would allow birds to see them. These are especially deadly to birds because they see right through them, do not perceive them to be barriers, and collide with them. This cannot be monitored if it were constructed as currently rendered because the birds would fall right into the lake. It is extremely common for birds to fly over the surface of wetlands when foraging for insects. The failure of a Museum of Natural History to consider the very basic issue of bird-friendly building is astonishing, especially after constructing a bird-killing structure previously (the Otis Booth Pavilion; see https://www.archpaper.com/2013/09/las-natural-history-museum-addition-not-for-the-birds/). **LAA-8**

We request that the Master Plan adopt, as a mitigation, the bird collision deterrence guidelines articulated in the LEED system for new construction (see https://www.usgbc.org/credits/new-construction-core-and-shell-schools-new-construction-retail-new-construction-data-75?return=/credits/New%20Construction/v4.1). This should apply to both the building and the glass pathway railings. It would involve using glass with fritting, etching, or other patterns to make the surfaces visible for birds, or changing the design to avoid massive expanses of glass. **LAA-9**

The mitigation measure would also involve reducing light at night to meet the LEED SS credit for Light Pollution Reduction.

Proper mitigation is necessary because millions of birds migrate over the City of Los Angeles each spring and fall and they are subject to attraction to lights and mortality (Horton et al. 2019). These birds include sensitive species and as a whole, migratory songbirds are a sensitive group, having declined precipitously since the 1970s (Rosenberg et al. 2019). Construction of the facility as depicted in the renderings would constitute an impact through disturbance of migratory pathways for migratory birds and through impacts to migrants that winter in Los Angeles, such as Yellow-rumped Warbler, Townsend's Warbler, and Hermit Thrush (Wood and Esaian 2020). These species need not be rare or endangered to merit consideration under CEQA, as was found in the recent decision regarding the environmental review for the Sidewalk Repair Program in the City of Los Angeles. CEQA requires consideration of such impacts to native wildlife and their mitigation. **LAA-10**

2

The proposed design for the park renovations do not protect wildlife habitat to the degree feasible. It would have been possible to add to the Page Museum by building up vertically, keeping the footprint of the building and allowing the park to be kept as open space instead of eaten up by additional buildings. The range of alternatives in the DEIR is impermissibly narrow in that an alternative to does not increase the footprint of the museum, which absolutely could be designed to meet all project goals, was not included in the evaluation. **LAA-11**

The DEIR also fails to properly identify the removal of 150-200 trees as a significant adverse impact on wildlife. Resident and migratory birds use trees and shrubs across the City of Los Angeles as habitat and the aggregate loss of trees is generally understood to be an adverse impact on the environment. **LAA-12** The DEIR does not include adequate surveys for birds to be able to understand impacts, noting only "species typical of urban areas" and listing seven species. To the contrary, if one consults eBird for the Page Museum and surroundings, there is a species list of 97 native species, which one cannot construe as a typical urban location (see https://ebird.org/hotspot/L761484). The species documented at the La Brea Tar Pits / Page Museum include:

Mallard
Ring-necked Duck
Ruddy Duck
Band-tailed Pigeon
Mourning Dove
Vaux's Swift
White-throated Swift
Black-chinned Hummingbird
Anna's Hummingbird
Costa's Hummingbird
Rufous Hummingbird
Allen's Hummingbird
American Coot
Black-necked Stilt
Greater Yellowlegs
Short-billed Gull
Ring-billed Gull
Western Gull
California Gull
Herring Gull
Glaucous-winged Gull
Great Egret
Snowy Egret
Turkey Vulture
Sharp-shinned Hawk
Cooper's Hawk
Red-shouldered Hawk
Red-tailed Hawk
Western Screech-Owl
Acorn Woodpecker
Downy Woodpecker
Nuttall's Woodpecker
American Kestrel
Peregrine Falcon
Pacific-slope Flycatcher
Black Phoebe
Say's Phoebe
Ash-throated Flycatcher
Cassin's Kingbird
Western Kingbird
Plumbeous Vireo
Warbling Vireo
California Scrub-Jay
American Crow
Common Raven
Mountain Chickadee
Oak Titmouse
Northern Rough-winged Swallow
Tree Swallow
Violet-green Swallow
Barn Swallow
Bushtit
Wrentit
Ruby-crowned Kinglet
Red-breasted Nuthatch
White-breasted Nuthatch
House Wren
Bewick's Wren
Northern Mockingbird
Western Bluebird
Mountain Bluebird
Hermit Thrush
American Robin
Cedar Waxwing
Phainopepla
House Finch
Purple Finch
Pine Siskin
Lesser Goldfinch
American Goldfinch
Chipping Sparrow
Lark Sparrow
Fox Sparrow
Dark-eyed Junco
White-crowned Sparrow
Savannah Sparrow
Song Sparrow
Lincoln's Sparrow
California Towhee
Spotted Towhee
Hooded Oriole
Bullock's Oriole
Red-winged Blackbird
Brown-headed Cowbird
Brewer's Blackbird
Great-tailed Grackle
Orange-crowned Warbler
Nashville Warbler
Common Yellowthroat
Yellow Warbler
Yellow-rumped Warbler
Black-throated Gray Warbler

LAA-13

3

Townsend's Warbler	Wilson's Warbler	LAA-13 (cont'd)
Hermit Warbler	Lazuli Bunting	

This list includes sensitive species, species in decline, and indicator species of the oak woodlands and wetland habitats found at the site. The DEIR is currently inadequate in its assessment of its impacts on birds and should find that the removal of 150 to 200 trees is a significant adverse impact on the bird community at this site. Simple replacement of trees would be an inadequate mitigation measure because the design reduces the habitat area for birds considerably and species number is closely tied to habitat area (Preston 1948). It is simple mathematics to see that more area converted to building and sterile turfgrass will reduce the bird diversity in the park, which should be recognized and mitigated. LAA-14 LAA-15

The DEIR fails to report on the presence of bat species at the project site, when they are almost certainly present, especially foraging over the pond. One of the region's bat experts works at the Natural History Museum, so it would be beneficial if he had been consulted. There is literally an announcement on the Museum's website that bats still fly over the Tar Pits as of 2014 and this information did not make it into the DEIR (see https://nhm.org/stories/we-found-bats-living-la-brea-tar-pits). The story on the Museum's own website reports that the Tar Pits support *four* bat species — big brown bat (*Eptesicus fuscus*), canyon bat (*Parastrellus hesperus*), Mexican free-tailed bat (*Tadarida brasiliensis*), and Yuma myotis (*Myotis yumanensis*). Yuma myotis is a sensitive species recognized by the State of California (see https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2349). There is no reason to think that these species are not still present. How will construction and tree removal affect these species? The DEIR does not even consider the possibility that bats might be present. How will lighting from the project, which will be extensive, affect these species? Bats are known to be sensitive to lighting impacts (see Voigt et al. 2018). The DEIR fails as an informational document in that it does not identify the presence of bat species, including one sensitive species. It further fails in not evaluating the impacts of a large construction project, cutting down hundreds of trees, and installation of extensive new lighting on the bat species. LAA-16 LAA-17

Los Angeles Audubon Society is available to work with the Natural History Musuems of Los Angeles County to reduce the significant adverse impacts on local wildlife represented by this proposal. LAA-18

Sincerely,

Travis Longcore, Ph.D.
President

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LEED BD+C: New Construction v4.1 - LEED v4.1

Innovation: Bird Collision Deterrence

Innovation catalog

Possible 1 Points

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Intent

Reduce bird injury and mortality from in-flight collisions with buildings.

Requirements

For all exterior lighting, meet uplight and light trespass requirements in the LEED SS credit Light Pollution Reduction. Emergency lighting and government-mandated lighting are exempt from this requirement.

AND

Comply with the "Building façade and site structures," requirements below.

Building façade and site structures

Develop a building façade and site design strategy to make the building and site structures visible as physical barriers to birds. For the purposes of this credit, "bird-friendly materials" include glazing that incorporates physical signals to birds created by fritting and UV coatings; non-glazing, opaque and non-reflective materials such as concrete; glazing behind qualifying sunshades and screens; glazing to which materials such as qualifying window films have been applied. Refer to ABC's Threat Factor Database for a list of qualifying materials (https://abcbirds.org/glass-collisions/products-database/?_product_interest=professionals).

If all materials on the building façade have a Threat Factor of 30 or below, the project is exempt from the building façade requirements. Otherwise, use the instructions below to calculate the Bird Collision Rating.

All other structures on the site, including, but not limited to handrails, guardrails, windscreens, noise barriers, gazebos, pool safety fencing, bus shelters, band shells, etc. must be constructed entirely of materials with a threat score value of 30 or less.

Steps for calculating the Bird Collision Rating (BCR)

First separate each building facade into Façade Zone 1 and Façade Zone 2. Façade Zone 1 includes the first 40 feet above grade, measured from grade at all points, as well as 12 feet above any green roof. Façade Zone 2 includes all façade areas between 40-100 feet. Establish total areas for Façade Zone 1, Façade Zone 2 and for the Adjusted Building Façade Area. Then identify the Material Types present on each façade, the corresponding Threat Factor of each material (for detailed types and associated threat factors, see the Threat Factor table developed by the American Bird Conservancy https://abcbirds.org/glass-collisions/products-database/?_product_interest=professionals), and the total area of each Material Type.

No more than 5% of the facade area in Façade Zone 1 can have a Threat Factor higher than 30. This area is quantified separately as the High Risk Factor (HRF) in the calculator. However, more than 5% of the glazed area in Zone 2 may have a Factor higher than 30. All glazed corners or fly-through conditions must have a Threat Factor less than or equal to 30.

Help

LAA-19

Table 1. General material types: threat potential

	Material Type
Greatest Threat Potential	Glass: Highly reflective and/ or completely transparent surface
Less Threat Potential	Glass: Reflective or transparent surface interrupted by a visible pattern or shielded by screens, shutters, or louvers where the resultant exposed glass satisfies the 2 x 2 Rule*.
Least Threat Potential	Glass: Translucent with matte or textured surface
No Threat	Opaque, non-reflective surface

*The 2 x 2 Rule is defined as a collision deterrence module based upon the physical profile of a bird in flight. Current research has established maximum module dimensions of 2" high x 2" wide for effective visual markers.

Using the formulas below, achieve a maximum total building Bird Collision Rating (BCR) of 15 or less. The Bird Collision Rating Calculation Spreadsheet can also be used. The total area of glass with a Threat Factor > 30 must be distributed across the building envelope in proportion to the façades.

For each Façade Zone, calculate the Factored Area: [(Material Type 1 Threat Factor) x (Material Type Area)] + [(Material Type 2 Threat Factor) x (Material Type Area)]... = Façade Zone Factored Area

Determine the Adjusted Building Façade Area: [(2 x Zone 1 Area) + Zone 2 Area] = Adjusted Building Façade Area

Calculate the total building Bird Collision Rating by dividing the sum of Zone 1 and Zone 2 Factored Areas by the Adjusted Building Façade Area: (Zone 1 Factored Area + Zone 2 Factored Area) / Adjusted Building Façade Area = Total Building BCTR

LAA-19 (cont'd)

General Documentation Requirements

Building façade and site features

- A completed Bird Collision Rating spreadsheet (if materials have a Threat Factor above 30).
- Plan(s) and/or elevation(s) depicting the location of all materials and shading/screening devices used to comply with this credit.
- Applicable specification details on all materials and shading/screening devices used to comply with this credit. If a chosen material does not have a Threat Factor value, provide an estimated value with justification.

Exterior lighting Submit the following:

- Exterior site lighting plan with boundaries, elements, location of fixtures, lighting zone, and applicable measurements
- Exterior luminaire schedule showing uplight ratings, nighttime off-time durations for a typical day, and manual override capability

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Stories | **We Found Bats Living at La Brea Tar Pits!**

(D BE ADVISED: On Saturday 10/28, the museum will close at 2 PM in preparation for a large event, with some areas closing to the public at noon. Boney Island at NHM will be open to the public at 8 PM. Please Q@JJ ;'Our visit accordingly. For more information or to reschedule your visit, email l.ofu_@_o.b.D1Qrg or cal 213.763.DINO

We Found Bats Living at La Brea Tar Pits!

We've recently discovered that bats are still flying over the Tar Pits on a regular basis!

By: Miguel Ordeiiana Share: f 't#

LAA-19
(cont'd)

Miguel Ordenana hanging out with a pallid bat *(Antrozous pallidus)-one* of only two species of bats recovered from the prehistoric Tar Pits-during field work.

Published October 9, 2014

LAA-19
(cont'd)

nhm.org

We Found Bats Living at La Brea Tar Pits!

4–5 minutes

Published October 9, 2014

If you've ever been to La Brea Tar Pits you might have wondered if bats were around during the last Ice Age when saber-toothed cats (*Smilodon fatalis*), Columbian mammoths (*Mammuthus columbi*), and dire wolves (*Canis dirus*) roamed the land that is now our city. Well, we're happy to tell you that the answer is yes, and we've recently discovered that bats are still flying over the Tar Pits on a regular basis!

But how do we know that bats are still living in the Miracle Mile? It's all thanks to bat detectors. Bat detectors are devices myself and other scientists use to record the ultrasonic calls—remember echolocation from biology class—that bats use to communicate, hunt, and find their way around in the dark. I then use special computer programs that turn the calls into sonograms so I can visualize the call. Because each bat species' call is distinct, I can then tell which bats have been flying near my detector.

Here are some sonograms of bats I detected at the L.A. Zoo: Pictured top is the canyon bat (*Parastrellus hesperus*), and below is the Western mastiff (*Eumops perotis*).

LAA-19
(cont'd)

In early July, I set up a bat detector along the shore of the big lake at the Tar Pits. I knew the site seemed like great bat habitat because it has a body of water which helps to support insects (a.k.a. bat food), and there are lots of trees for bats to roost in. However, this still felt like a big gamble to me. There are no bat specimens from the Tar Pits or Hancock Park in the museum's Mammalogy collection, and this is really expensive gear.

But after communicating with our paleontologists that work at the George C. Page Museum, I learned that bats did in fact use the area during the last Ice Age. Research conducted by Bill Akersten (former curator at the Page Museum) in the late 1970s found that unlike the hundreds of dire wolves that have been found at the Tar Pits, bat fossils were rarely recovered because they are fragile and small. Only two bat species have been confirmed at the Tar Pits, the pallid bat (*Antrozous pallidus*), and the hoary bat (*Lasiurus cinereus*). Although the environment has gone through dramatic changes since then, I find it remarkable that these two species still live in our region. But how many bats call the Tar Pits home today?

Just two months after I installed our bat detector in July 2014, we have discovered four species of bats at the Tar Pits! The detector has recorded the following species big brown bat (*Eptesicus fuscus*), canyon bat (Parastrellus hesperus), Mexican free-tailed bat (*Tadarida brasiliensis*), and Yuma myotis (*Myotis yumanensis*). I don't find it that surprising that we didn't record the pallid or hoary bat as these species are more sensitive to urbanization.

LAA-19
(cont'd)

However, I'm hopeful that the gardens we've been planting at both the Tar Pits, and the Nature Gardens at NHM will provide good habitat for more species of bats.

Case in point—in September 2013, the museum's Mammalogy Collections Manager, Jim Dines, and I set up a bat detector in the museum's Nature Gardens. Over the last year, we've recorded four species of bats in the gardens. If you want to hear that story, you'll have to wait until later this month during National Bat Week! So turn your echolocation on and stay tuned, and in the meantime take a moment to think about the bats that fly over the Tar Pits and your neighborhood nightly, and what life would have been like for bats, birds, and bees in the Ice Age!

LAA-19
(cont'd)

Check for updates

Ecological Applications, 30(7), 2020, e02149
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The importance of street trees to urban avifauna

Eric M. Wood,[1,3] and Sevan Esaian[1,2]

[1]*Department of Biological Sciences, California State University Los Angeles, 5151 State University Drive, Los Angeles, California 90032 USA*

[2]*Ecology, Evolution, and Marine Biology, University of California Santa Barbara, Santa Barbara, California 93106-9620 USA*

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Abstract. Street trees are public resources planted in a municipality's right-of-way and are a considerable component of urban forests throughout the world. Street trees provide numerous benefits to people. However, many metropolitan areas have a poor understanding of the value of street trees to wildlife, which presents a gap in our knowledge of conservation in urban ecosystems. Greater Los Angeles (LA) is a global city harboring one of the most diverse and extensive urban forests on the planet. The vast majority of the urban forest is nonnative in geographic origin, planted throughout LA following the influx of irrigated water in the early 1900s. In addition to its extensive urban forest, LA is home to a high diversity of birds, which utilize the metropolis throughout the annual cycle. The cover of the urban forest, and likely street trees, varies dramatically across a socioeconomic gradient. However, it is unknown how this variability influences avian communities. To understand the importance of street trees to urban avifauna, we documented foraging behavior by birds on native and nonnative street trees across a socioeconomic gradient throughout LA. Affluent communities harbored a unique composition of street trees, including denser and larger trees than lower-income communities, which in turn, attracted nearly five times the density of feeding birds. Foraging birds strongly preferred two native street-tree species as feeding substrates, the coast live oak (*Quercus agrifolia*) and the California sycamore (*Platanus racemosa*), and a handful of nonnative tree species, including the Chinese elm (*Ulmus parvifolia*), the carrotwood (*Cupaniopsis anacardioides*), and the southern live oak (*Quercus virginiana*), in greater proportion than their availability throughout the cityscape (two to three times their availability). Eighty-three percent of street-tree species (n = 108, total) were used in a lower proportion than their availability by feeding birds, and nearly all were nonnative in origin. Our findings highlight the positive influence of street trees on urban avifauna. In particular, our results suggest that improved street-tree management in lower-income communities would likely positively benefit birds. Further, our study provides support for the high value of native street-tree species and select nonnative species as important habitat for feeding birds.

Key words: bird; California; foraging behavior; Los Angeles; migratory; native vegetation; nonnative vegetation; socioeconomic; urban forest; wildlife.

Introduction

Urbanization, the process of converting a natural ecosystem to one dominated by human development, is one of the most pervasive and dominant forms of land use globally (Foley et al. 2005, Grimm et al. 2015). Urbanization is a crucial process for providing living and working conditions for humans. However, the radical transformation of the landscape, coupled with the excessive requirements of cities for resources from outside their boundaries, has profound and negative impacts on ecosystems (Rees 1992, Collins et al. 2003). The pace of urbanization has greatly intensified worldwide over the past half century, with cities from around the world experiencing explosive densification and growth (Grimm et al. 2015). There is no slowdown in sight as countries and cities modernize and continue to provide amenities attractive for human habitation and relocation (Angel et al. 2011, Seto et al. 2012). Thus, the ecological footprints of urban areas will likely continue to grow, which poses critical challenges for biodiversity conservation (McKinney 2002, Lepczyk et al. 2017a).

The United States illustrates an example of a country that has undergone rapid urbanization, where, following the industrial revolution, cities have sprung up and sprawled, consuming much of the rural landscape (Angel et al. 2011, Grimm et al. 2015). One U.S. city in particular that exemplifies this pattern of growth is Los Angeles, California. Since the late 1800s, Los Angeles has grown from sparse homesteads and ranches situated across dusty agricultural fields to a major global metropolis (Stein et al. 2007). With the diversion of water from

Manuscript received 13 August 2019; revised 16 January 2020; accepted 19 March 2020. Corresponding Editor: John M. Marzluff.
[3]E-mail: ericmwood@calstatela.edu

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LAA-19 (cont'd)

the Owens Valley in the early 20th century, Los Angeles boomed with people from across the United States and world moving to the California southland (Reisner 1987). A notable trend during the growth period in the early part of the 20th century and post-WWII was the settlement of the region by residents from the American Midwest and Northeast (Pierson Doti and Schweikart 1989). Stately homes and neighborhoods with lawns and lush vegetation were developed, and city planners designed tree-lined streets similar to what you would find in more mesic urban areas (Reisner 1987). Given the mild climate, the abundance of water from afar, and wealth, city planners created one of the most diverse and extensive urban forests in the world. We define "urban forest" as a collection of all trees within the boundaries of a metropolitan area (Nowak 2016). Estimates suggest there are well over a hundred tree species, with most being nonnative in geographic origin, planted throughout the entirety of Los Angeles (Clarke et al. 2013, Avolio et al. 2015).

One distinct component of urban forests throughout the world, including Los Angeles, are street trees (McPherson et al. 2016). Street trees are public resources and are therefore planted by municipalities in rights-of-way (e.g., sidewalk strips, Fig. 1; City Plants 2019). Street trees are planted for a variety of reasons and provide numerous functional services that benefit urban residents (McPherson et al. 2016). For example, street trees improve the aesthetical quality of cities (Southworth 2005), provide valuable environmental benefits (Livesley et al. 2016), and are positively associated with improved quality of life (Nowak et al., 2010). Further, street trees provide habitat for animals (Bhullar and Majer 2000, Shackleton 2016, Gray and van Heezik 2016) and thus likely provide a valuable role in urban biodiversity conservation (Nowak et al. 2010). Due to their importance, many cities have well-developed street-tree plans (City of Los Angeles 2004) and work to promote, maintain, and provide an inventory of trees within a city's boundary (McPhearson et al. 2010, 2011).

Street trees are prevalent throughout cities in California, accounting for approximately 10–20% of the trees within the state's urban forests (McPherson et al. 2015). Despite their commonness, the maintenance costs of street trees are likely high due to the excessive need for water to encourage growth in the arid environment (City Plants 2019). Further, while street trees are public resources, it is typically the responsibility of the property owner to maintain a tree adjacent to a residential unit (City Plants 2019). Because of the cost associated with maintaining street trees, lower-income communities in some cities harbor a lower density of street trees and less urban forest cover than affluent communities (Landry and Chakraborty 2009, Kuruneri-Chitepo and Shackleton 2011, Schroeter 2017). We define "street-tree density" as the total number of street trees over a given area (Nowak et al. 2001), and "urban forest cover" as the area covered by the tree canopy throughout an urban ecosystem (Walton et al. 2008). One hypothesis put forth to explain the disparity in urban forest cover along a socioeconomic gradient is the "luxury-effect hypothesis" (Leong et al. 2018), also termed the "inequity hypothesis" (Landry and Chakraborty 2009), which states that wealthy neighborhoods can withstand the financial costs of maintaining and caring for public and private trees while impoverished neighborhoods cannot. The luxury-effect pattern is consistent across many cities in the world in explaining urban forest cover (Schwarz et al. 2015, Aronson et al. 2017, Avolio et al. 2018, Leong et al. 2018).

FIG. 1. Street trees in a suburban neighborhood in Los Angeles County, California, USA (Photo credit, E. Wood).

Further, there is additional support for the luxury effect extending to street trees (Brooks et al. 2016). Illustrating this, in Tampa Bay, Florida, and New York City, New York, lower-income communities harbored less street-tree cover than affluent areas (Landry and Chakraborty 2009, Schroeter 2017). In the Eastern Cape of South Africa, street-tree diversity was higher in wealthy suburbs (Kuruneri-Chitepo and Shackleton 2011). While it is clear that patterns in urban forest and street-tree cover differ sharply across a socioeconomic gradient in many cities, it is unknown whether any apparent variability in street-tree composition, density, and size influences urban bird communities.

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LAA-19 (cont'd)

Los Angeles is home to a high diversity and abundance of birds (Higgins et al. 2019), which consists of hundreds of migratory and non-migratory species that utilize the urban ecosystem throughout the annual cycle (Garrett et al. 2012). One component of Los Angeles' avian community that is prevalent during the winter months are migratory forest-breeding birds (e.g., Yellow-rumped Warbler, *Setophaga coronata*), which spend upward of six months of the annual cycle feeding on tree and shrub surfaces as they prepare for the spring migration and summer breeding season (Garrett et al. 2012). The other dominant component of the southern California avian community are non-migratory birds, which are species that reside in natural habitats, such as chaparral, or urban environments throughout the year (Garrett et al. 2012, Higgins et al. 2019). While birds are seemingly ubiquitous throughout Los Angeles, their ecology in the urban ecosystem remains poorly understood, including their use of street trees. Providing wildlife habitat is a goal of many urban forest plans (Nowak and Dwyer 2000). However, there is no comprehensive assessment for the value of street trees to urban biodiversity in Los Angeles, or likely most cities around the world, which presents a critical gap in our understanding of conservation in urban ecosystems.

To understand the importance of street trees to wildlife, we designed a study where we measured and identified public street trees and documented foraging behavior of birds across two winters in residential communities situated across a socioeconomic gradient throughout Greater Los Angeles (hereafter LA). LA is an optimal place for studying the ecology of birds and street trees primarily because of the sheer extent and diversity of street trees within the urban forest as well as the stark differences in canopy cover throughout the metropolitan area. Further, birds are an optimal group for studying the importance of street trees to wildlife primarily because of their abundance and ability to reach nearly all areas of the urban ecosystem.

We had three objectives for our study. First, we documented patterns of street-tree composition, diversity, density, and size, as well as feeding bird composition, diversity, and density across a socioeconomic gradient. We predicted that there would be distinct street-tree communities across the socioeconomic gradient, with higher diversity and size of trees in more affluent areas, which is in line with the luxury-effect hypothesis (Landry and Chakraborty 2009, Kuruneri-Chitepo and Shackleton 2011, Brooks et al. 2016, Schroeter 2017). Further, we predicted that there would be distinct avian communities as well as more feeding birds in affluent areas, in part because of expected patterns of bird abundance in urban areas with higher vegetation cover (Blair 1996). Second, we quantified relationships between street-tree diversity, density, and size and feeding bird density. We predicted that feeding birds would be positively related to greater street-tree diversity, density, and size, primarily because of associations between birds and large and dense tree canopies in urban environments (DeGraaf and Wentworth 1986). Third, we evaluated whether there were patterns in foraging preferences of birds between native and nonnative street-tree species. We predicted that birds would prefer native rather than nonnative trees, as native vegetation in urban environments provides abundant food resources for birds (Narango et al. 2017).

Methods

Study area

We collected data on street-tree diversity, density, size, and avian foraging behavior across a socioeconomic gradient in 36 residential communities throughout LA (Fig. 2a). The LA County metropolitan area is a sprawling mosaic of large and medium-sized cities (e.g., Los Angeles, Long Beach, and Pasadena) and smaller municipalities (e.g., Culver City, Cerritos, and Montebello) that covers over 12,000 km^2 and has a population of over 10,000,000 people (U.S. Census Bureau 2019; Fig. 2a). Mountainous protected areas ring the metropolis on the northern and eastern fringes, and the Pacific Ocean forms the southern and western boundary. The climate of the region is Mediterranean, characterized by cool, wet winters and hot, dry summers. The growing period typically follows the winter rains, and the native vegetation of the valley bottoms, which have been nearly fully developed, is a mosaic of wetland, grassland, shrubland, and woodland environments (Stein et al. 2007). Vegetation in the urbanized areas experiences variable growing conditions throughout the year, depending on irrigation patterns, planting practices, and geographic position in the city. For example, there are over 1,000 species of nonnative plants throughout LA (Avolio et al. 2019), and each likely has unique phenological patterns that may influence bird-feeding behavior (Appendix S1). Patterns of precipitation and temperature are also highly variable throughout the region (yearly averages: 19°C/13°C high and low temperatures and 379 mm precipitation). In general, coastal communities have temperatures and precipitation patterns that are more moderate, whereas valley and mountain areas experience more extreme temperature ranges and periodic heavy precipitation that occasionally cause flooding in valleys.

The settlement history of LA created one of the most diverse and multicultural metropolises in the world (Pierson Doti and Schweikart 1989, Evanosky and Kos 2014). In addition to the multiculturalism of LA, the city contains a great range of wealth distribution (Fig. 2). Municipalities such as Beverly Hills and San Marino typify extreme opulence, whereas areas such as downtown LA's skid row and communities in southcentral LA experience poverty, based on the U.S. Census poverty thresholds for a family of four in 2015 (<US$24,257, U.S. Census Bureau poverty thresholds, Fig. 2). The patterns of tree cover throughout LA reflect patterns of the

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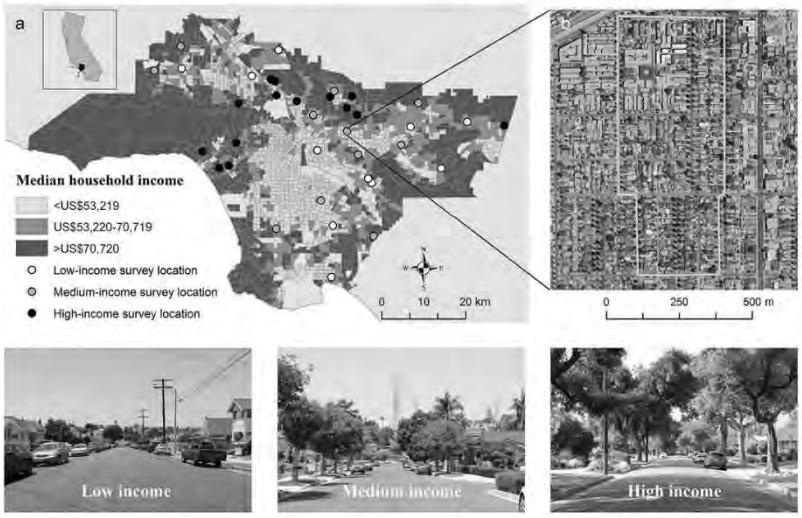

FIG. 2. (a) Sampling design depicting 36 survey locations distributed across a socioeconomic gradient throughout the Los Angeles basin and surrounding valleys and mountains, Los Angeles County, California. (b) Inset map highlights a walking route (yellow line), where observers documented bird-feeding behavior in street trees, twice during each of the 2016–2017 and 2017–2018 winter seasons. Further, observers identified, recorded location, and measured diameter at breast height for all street trees throughout each route. Photos highlight typical differences in street trees from low-, to medium-, to high-income areas of Greater Los Angeles (Photo credits, E. Wood).

income distribution, where lower-income communities have far less "tree" cover than affluent ones (Avolio et al. 2015, Fig. 2). The spatial distribution of wealth follows a pattern where affluent communities tend to be located in the foothills of mountainous protected areas and open spaces, the immediate coastal zones, and the southeastern border with Orange County (Fig. 2a). In contrast, lower-income communities are located surrounding downtown LA, East LA, southcentral LA, and central portions of the San Fernando Valley (Fig. 2a).

To address our study objectives, we established a survey design set in residential communities throughout LA. To identify residential communities along a socioeconomic gradient of survey interest, we used U.S. census tract data, combined with published records of median household income (Los Angeles Times 2015). To determine low-, medium-, and high-income census tracts, we gathered median household income values, tabulated by the 2010 census, for 265 neighborhoods that were located within our study boundaries of Los Angeles County (Los Angeles Times 2015; Fig. 2a). The median household income based on the 2010 U.S. Census tract data was US$62,932, which was comparable to the U.S. Department of Housing and Urban Development (2015) median family income calculations for 2015 in Los Angeles County (US$63,000, data available online).[4] From the 2010 U.S. Census tract data, we determined the lower 33% as "low" (<US$53,219), the middle 33% as "medium" (US$53,220 to US$70,719), and the upper 33% as "high" (>US$70,720). We initially considered 2163 census tracts for inclusion in our sampling design. One thousand and eighty one census tracts were in low-income communities (49.98% of the total), 470 in medium-income communities (21.73%), and 612 in high-income communities (28.29%, Fig. 2). Low-income census blocks covered approximately 25% of the available area for study, whereas medium- and high-income communities covered 19% and 56% of the available area for study, respectively (Fig. 2).

After categorizing census tracts based on socioeconomic levels, we used a spatially balanced random-tessellation approach (Stevens and Olsen 2004) in conjunction with ArcGIS software (ESRI 2016) to identify 60 census tracts with 20 in each of low-, medium-, and high-income brackets. We then used Google Earth combined with Google Street View (Google 2016) to identify residential areas within selected census tracts with streets bordered by sidewalks that separated private

[4] https://www.huduser.gov/portal/home.html

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front yards from street trees (Fig. 1). Some sections of LA, especially more affluent regions, lacked sidewalks, and we excluded those from our survey for safety precautions and because of the ambiguity over whether trees were considered public (i.e., a street tree) or private (i.e., a tree in a yard) due to no noticeable right-of-way separating private yards from streets. Further, we avoided streets with no discernable zone for street trees, areas where surveys were challenging due to pedestrian and vehicle traffic (e.g., major thoroughfare roads, freeway on/off ramps, commercial zones, and industrial areas), public spaces that were not residential (e.g., city parks), and sections of the city where safety was a concern. After further scrutiny of the 60 identified census tracts, we refined our initial selection based on our sampling requirements, leaving us with 36 survey locations, with 12 located in each of low-, medium-, and high-income census tracts. Within each of the 36 survey locations, we plotted walking routes using Google Earth software (Google 2016) that were approximately two and a half km in length (average, 2.49 km), which we used for all street-tree sampling and bird-foraging behavioral work (Fig. 2b). The boundary surrounding the extent of our survey locations encompassed an area of approximately 4,395 km^2 and included the foothills of major mountain ranges, the main valleys of LA, including the LA Basin, the San Fernando Valley, and the San Gabriel Valley, and the western portions of the Inland Empire (Fig. 2). The distance between the centroids of survey locations ranged from 1.08 to 12.67 km, with an average length of 5.10 km (Fig. 2). Our sampling design yielded independent data, which was necessary for statistical analyses (Appendix S1, Fig. S1).

Due to the rapidly shifting housing market in LA and our selection of routes that contained street trees and other amenities such as sidewalks that are likely associated with increased housing value, it was apparent that we misclassified some survey locations based on the 2010 census data. Thus, before our analysis, we further refined our socioeconomic classifications based on estimated housing values from the Redfin real estate website (Redfin 2018). During the fall of 2018, we gathered estimated real estate values for all single-unit homes, as well as values for single units within multi-unit residences (e.g., apartment complex) with frontage property on walking routes (n = 6,292) and calculated the range (US $59,000-US$26,100,000), the median (US$677,000), and the lower (<US$593,000 USD) and upper-third (>US $809,000 USD) percentiles. Further, we gathered data on the parcel size and the number of all single-unit residences on walking routes. We calculated the range (parcel size, 155.61-5053.83 m^2; single-unit homes per 1 km of walking route, 36-130), the median (parcel size, 668.81 m^2; single-unit homes per 1 km of walking route, 59), and the lower (parcel size <609.91; single-unit homes per 1 km of walking route, <51) and upper-third (parcel size >703.36; single-unit homes per 1 km of walking route, >65) percentiles. From the updated real estate values, we shifted one low-income neighborhood to medium income, and two medium-income neighborhoods to high income, leaving us with 11 survey locations in low-, 11 in medium-, and 14 in high-income residential areas (Fig. 2).

Public street-tree measurements

We measured diameter-at-breast-height (DBH) and recorded the tree species for each street tree along a walking route. To quantify street-tree species availability as foraging substrates for birds, we calculated density, dominance, and the importance value of each tree species (Holmes and Robinson 1981, Gabbe et al. 2002, Wood et al. 2012). DBH is a strong predictor of tree crown diameter and height in both forest (Gering and May 1995) and street-tree populations (Peper et al. 2001), and thus, we assumed is a surrogate for quantifying the availability of foraging substrate for arboreal feeding birds in our urban study system. Density represents the total number of a given tree species over a defined area, whereas dominance is a measure of the area covered by a street-tree species. To calculate dominance, we converted DBH values of a measured tree into a basal area (Gabbe et al. 2002, Wood et al. 2012). We standardized the total counts of trees and basal area to 1-km of walking route, which enabled us to calculate total tree density and total basal area in each survey location. We used the standardized total tree density and total tree basal area measurements of each survey location as independent variables in our objective one and two analyses. To calculate importance values for each tree species across all survey locations, we calculated the density and basal area for each street-tree species, computed the relative values of both, and summed those to obtain importance values. We then divided the summed importance value by two to express the importance values as relative values (Gabbe et al. 2002, Wood et al. 2012). We used the relative importance values of street trees in our objective three statistical analyses. We did not include frequency in our calculation of street-tree importance values as our survey was not based on plotless sampling within forest stands, which is necessary for calculating the frequency metric (Wood et al. 2012). Further, omitting frequency and instead focusing on density and size (dominance) of street trees, two variables that we predicted would influence feeding bird behavior (DeGraaf and Wentworth 1986), is an approach that has been employed by previous investigations of importance values of street-tree populations in urban systems (McPherson and Rowntree 1989).

Avian foraging observations

To characterize the foraging behavior of birds, we surveyed all street trees along walking routes for feeding birds, twice per winter, from October to March 2016-2017 and 2017-2018. We focused our surveys during the

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winter months to observe the diverse and abundant wintering migratory bird community (hereafter migratory birds). We conducted foraging observations 30 minutes following sunrise and ended within 4 h post-sunrise. Wintering birds tend to flock and move in search of food during the non-breeding period (Greenberg 2000). Therefore, we waited at least three weeks between visits within a season to allow for any possible turnover of birds that may have immigrated to or emigrated from a survey location to limit possible double counting of individual birds during repeat visits. Our protocol called for two observers to complete surveys, with one observer walking along one sidewalk on a street, and the other on the adjacent sidewalk, moving in concert throughout the survey. S. Esaian led all field surveys and was accompanied by E. Wood or trained student observers.

To quantify migratory bird-foraging behavior on public street trees, we selected five, primarily arboreal feeding, migratory species that are common during the winter months in the LA urban forest. These included the Ruby-crowned Kinglet (*Regulus calendula*), the Orange-crowned Warbler (*Oreothlypis celata*), the Yellow-rumped Warbler (*Setophaga coronata*), the Black-throated Gray Warbler (*Setophaga nigrescens*), and the Townsend's Warbler (*Setophaga townsendi*) (Appendix S1: Table S1). We selected these species because they represent a segment of the population of terrestrial Nearctic-Neotropical migratory birds that spend the winter in southern California, they breed in more northern forested ecosystems during the summer, and they frequently forage on tree surfaces and thus were commonly encountered during our surveys (Garrett et al. 2012). Additionally, their populations are generally in decline, highlighting the importance of understanding the role of street trees in urban forests for the conservation of migratory birds (Sauer et al. 2017).

When we detected one of the five migratory bird species actively feeding on the surface of a street tree, we recorded foraging behaviors for up to three minutes (average time = 47 s). Each observation included documenting the tree species along with the bird's foraging behavior, including all search efforts (walk and shuffles, hops, and flights) and attacks (a glean on the surface of leaves, bark, flowers, or seeds, or aerial maneuver; Remsen and Robinson 1990, Wood et al. 2012). To prevent pseudo-replication of foraging observations, we recorded feeding behavior only of individuals of the same species >100 m from where we ceased a previous observation unless there were apparent differences between male and female individuals. Our methodology to avoid pseudo-replication may have masked our ability to detect more feeding birds in areas with higher tree density. Nevertheless, we decided on our approach to prevent the double counting of bird observations as we walked along routes. We frequently observed individual migratory birds foraging in multiple street trees during observations. We recorded each new tree species in which we documented a bird feeding. A handful of tree species provided challenging conditions for observing foraging birds due to their dense canopy (e.g., the Canary Island pine [*Pinus canariensis*]). If a tree canopy was overly dense, and we detected a study bird, we observed the individual until we recorded a feeding observation, which was a documentation of "use". We then ceased the observation. If we did not detect a bird feeding after three minutes in challenging-to-observe trees, we resumed our survey of other trees along the walking route. The latter scenario occurred for < 1% of our total observations.

To understand patterns of street-tree use by a segment of the bird population that is prevalent in LA throughout the annual cycle, we focused on five species that regularly forage in trees. These included the Allen's Hummingbird (*Selasphorus sasin*), the Anna's Hummingbird (*Calypte anna*), the Bushtit (*Psaltriparus minimus*), the Lesser Goldfinch (*Spinus psaltria*), and the House Finch (*Haemorhous mexicanus*) (Appendix S1: Table S2). Segments of Allen's and Anna's Hummingbird populations migrate northward during the breeding season (Garrett et al. 2012, Greig et al. 2017). However, these two species are common in LA throughout the year (Allen et al. 2016, Clark 2017). The other three species are non-migratory. Therefore, we refer to this group as "year-round" birds.

In addition to feeding on the surfaces of trees, we selected these five year-round species as each has preferences for unique food resources that were present throughout the survey period. For example, the hummingbirds are often attracted to exuberant flowering, Bushtits to leaf surfaces, and the finch species to seeds (Allen et al. 2016). Therefore, studying these five species enabled us to understand how birds with different feeding behaviors and food needs interact with the high diversity of street trees and shifting phenophases throughout the winter season (Appendix S1). When we detected a year-round species feeding on a street tree, we again recorded use and the specific substrate in which we observed a feeding attempt (e.g., leaf, bark, flower, seed, or aerial maneuver). We did not collect detailed foraging behavior on year-round birds, because their foraging behavior was often stationary (e.g., a House Finch feeding on a seed capsule of an American Sweetgum, *Liquidambar styraciflua*). Similar to our observations of migratory birds, to prevent double counting of year-round birds, we collected foraging observations only of individuals of the same species >100 m from the last observation unless it was clear they were different individuals (e.g., visual differences between male and female House Finches).

We expected that additional factors other than the street tree in which we observed a feeding bird might influence foraging behavior. For example, affluent areas often have decadent yards, full of vegetation, which may attract feeding birds (Lerman and Warren 2011, Clarke et al. 2013). Additionally, some residential communities are near protected areas or open spaces and thus could provide easier access for birds that prefer more natural

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environments (Donnelly and Marzluff 2004). In a parallel study, we counted birds throughout LA and documented whether we observed birds using either public features, which included street trees or utility lines, or vegetation in private yards (E. M. Wood and S. Esaian, *unpublished data*). Further, in that study, we recorded distance from survey locations (centroid of survey routes) to the nearest federal protected area or open space. We observed 50.1% of detected birds ($n = 3{,}691$) in street trees (either feeding, vocalizing, or resting) or utility lines (primarily species of *Columbidae*), whereas the other 49.9% of observations ($n = 3{,}679$) were in private yards, flying over count locations, or in areas where we could not determine their usage (e.g., singing from an adjacent street). While we commonly observed birds maneuvering back and forth between vegetation in yards and street trees, it was equally as common to observe birds moving from street-tree to street tree as they fed. In low-income communities, nearly all feeding birds that we detected were foraging in street trees, as there is little yard vegetation (Fig. 2). Last, we found no correlations between the density of feeding birds and street-tree density and size with distance to protected area or open space (Spearman's rho, q = 0.01–0.27, $P = 0.10$–0.94). Therefore, we assumed that our study design and survey methodology likely characterized the foraging behavior of birds based on their ecology with a given street-tree species as opposed to external factors that may have influenced their feeding patterns.

Statistical analysis

To address our first objective of documenting patterns of street-tree composition, diversity, density, and size, as well as feeding bird composition, diversity, and density across the socioeconomic gradient, we completed two separate analyses for both trees and birds, respectively. First, to identify the degree of dissimilarity in street-tree communities across the socioeconomic gradient, we conducted a one-way analysis of similarities test (ANOSIM; Oksanen 2019), using the Bray-Curtis dissimilarity of the square-root transform of counts of street trees, grouped by socioeconomic classification. The ANOSIM analysis is a nonparametric test that uses Monte Carlo randomization of observed data to assess whether ranked dissimilarities within socioeconomic groups were more similar than among groups (Oksanen 2019). We used 999 Monte Carlo permutations to generate the random test statistic, R, which ranges from −1 to 1. An R value near zero indicates that the street-tree community does not differ among socioeconomic groups, whereas R values further from zero indicate increasing dissimilarity. As we made three comparisons among the three socioeconomic groups, we used a Bonferroni adjustment to the alpha value of $0.05/3 = 0.017$ to assess significance. We computed the ANOSIM analysis using the "vegan" package in R (Oksanen 2019).

In a secondary analysis, we explored differences in street-tree diversity, which we expressed as species richness and the Shannon diversity, density, and basal area across the socioeconomic gradient. As our walking routes within survey locations were all slightly different distances, we standardized our tree species richness data to one km of walking route, which was similar to our adjustments of tree density and basal area. We used either a one-way analysis of variance (ANOVA) or a Kruskal-Wallis test, depending on whether assumptions for parametric linear models were satisfied, with the socioeconomic group as the fixed, categorical factor. When ANOVA or Kruskal-Wallis tests were significant, we computed a multiple comparisons routine using either a parametric Tukey's HSD test or a nonparametric procedure, based on relative contrast effects (nparcomp package in R; Konietschke 2011). We evaluated pairwise comparisons among groups using a Bonferroni adjusted alpha value ($0.05/3 = 0.017$).

To quantify differences in feeding bird composition and foraging observations across the socioeconomic gradient, we again computed an ANOSIM analysis, and an ANOVA test, following a similar approach to the street-tree analysis. To compute our bird-foraging response variable, we determined an $n = 1$ as a unique feeding attempt of a bird on a tree substrate. If we detected a single bird feeding on multiple trees, we used only the foraging behavior and substrate of that bird on the first tree on which we observed it. For year-round birds, some species aggregated into large flocks while moving and feeding (e.g., Bushtits and House Finches). If we detected a large flock feeding on a similar tree species, we recorded each flock as one observation to avoid overinflating the ecological importance of a given tree on the movement and feeding patterns of a group of birds. If we detected a mixed-species flock feeding, we recorded an $n = 1$ for each year-round bird species represented within the flock. To determine whether we were underestimating effect sizes by our treatment of flock size, we calculated a Spearman's rho (q) correlation between our reduced measure of flocks with tallies of all individuals within flocks. We found both metrics to be highly correlated (Spearman's q = 0.81, $P < 0.01$). This analysis suggests our approach yielded data and results comparable to full flock tallies (Appendix S1). To quantify the number of feeding birds at each survey location, we summed the feeding observations for either the migratory or year-round birds at each survey location across the four visits. Similar to our street-tree richness, density, and size variables, we standardized our bird observation feeding data to one km of a walking route. We thus refer to our feeding observations as "feeding-bird density" measures.

To address our second objective of quantifying relationships between street-tree diversity, density, and size with feeding-bird density, we fit a series of nine single-variable generalized linear models (Table 2). We fit three model sets, in which each set consisted of one of three

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dependent variables, eight independent variables, and the intercept-only model. The dependent variables were (1) the number of observations of feeding migratory birds, standardized per 1 km of a walking route (migratory bird density); (2) the number of observations of feeding year-round birds, standardized per 1 km of a walking route (year-round bird density); and (3) the total number of observed feeding birds, standardized per one km of a walking route (total bird density). In general, we did not notice substantial differences in bird observations between years (Appendix S1: Tables S1, S2). Therefore, we combined avian observation data across the two winter seasons to understand relationships between feeding-bird density and street-tree attributes based on the four visits to each survey location.

We selected eight independent variables that captured both street-tree diversity (species richness and Shannon diversity), as well as the structural attributes of street-tree density and size that may influence bird behavior (DeGraaf and Wentworth 1986). Further, in addition to analyzing the density and size of all street trees, we grouped street trees, whether they were native or nonnative, to understand whether the geographic origin of a tree species influenced feeding-bird density (Appendix S1: Table S3). We considered trees native if they naturally occur in the LA basin, adjacent valleys, and surrounding foothills and nonnative if they naturally occur elsewhere, whether in California outside of the south coast portion of the state, in the United States outside California, or in a different country (Appendix S1: Tables S3). To determine the distribution of trees, we used range maps from the CalFlora database (CalFlora 2019). To assess the strength and directionality of the relationship of each independent variable with a dependent variable, we also fitted the intercept-only model to compare with the dependent variable mean of a model set.

Because our dependent data were density estimates derived from discrete observation variables, we approached our model fitting using Poisson generalized linear models (Zuur et al. 2011). When viewing initial scatterplots, we noticed the variance did not appear to equal the mean, an assumption of Poisson generalized linear models (Zuur et al. 2011). Instead, the variance typically appeared to broaden, depending on the level of the fitted relationship. Thus, to ensure an accurate characterization of the variance of the fitted relationship, we considered either a Poisson distribution or a negative-binomial distribution (both fit using a log-link function; Zuur et al. 2011). To determine whether to use a Poisson or a negative-binomial distribution for each model, we first fitted a Poisson generalized linear model for each relationship. We then assessed the fit of each model by calculating the Pearson v^2 statistic and evaluated the level of overdispersion by calculating the ratio of the residual deviance to the residual degrees of freedom (Zuur et al. 2011). In all cases, fitting a model using the Poisson generalized linear modeling approach yielded a substantial lack of fit, with clear evidence for overdispersion. Thus, we proceeded to fit models using a negative binomial distribution to account for the overdispersion evident in our data (Zuur et al. 2011). After fitting a negative binomial model, we again calculated the Pearson v^2 statistic and checked for overdispersion (Zuur et al. 2011). In all cases, negative binomial models were an adequate fit to the data, and thus, we used this distribution for all fitted models. We computed all generalized linear models using the MASS package in R (Venables and Ripley 2002).

Many relationships displayed hump shapes. In these cases, we fitted the generalized linear models with a quadratic term to account for the hump-shaped relationship. There were no further intricate shapes (e.g., third- or fourth-order polynomial) apparent between variables. To evaluate the fit of the models within each set relative to one another, we used Akaike's Information Criterion (AIC) and a model-selection framework.

To address our third objective of evaluating whether there were patterns in foraging preferences of birds among both native and nonnative street trees, we completed two analyses.

First, to determine whether birds fed on street trees species in differing proportions than they were available throughout the cityscape, we computed a v^2 goodness-of-fit test. To calculate the analysis, we compared observed feeding vs. expected feeding frequencies for migratory, year-round, and total-feeding observations for seven of the 10 study bird species for which we had sufficient observations ($n \geq 30$ feeding observations). We used 21 street-tree species, all of which had an importance value percentage >1.5% as we assumed birds rarely used uncommon street-tree species.

Second, to estimate the selectivity of migratory birds for street-tree species, we calculated preference and aversion values (Holmes and Robinson 1981, Wood et al. 2012). Preference and aversion values are the difference between relative importance values of each street-tree species with that of observed feeding proportions of birds (Gabbe et al. 2002, Wood et al. 2012). Preference and aversion values do not determine resource selection, which requires equal abundance of available resources, but they may represent a bird's preference (positive values) and aversion (negative values) of foraging substrates. We calculated preference and aversion values for the same bird groups and species as the v^2 goodness-of-fit analysis. We used the R statistical software for all analyses and graph creation (R Core Team 2017).

Results

Throughout the two winter field seasons, we surveyed approximately 90 km of street on four occasions, over which we identified, measured, and recorded the position of 7,637 street trees of 85 species (Appendix S1: Table S3). Five tree species were native, and the remaining 80 were nonnative, accounting for 5.46% and 80.51%

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of the total street-tree importance, respectively. Further, in addition to the 85 tree species, we encountered 23 tree families, which were composed of challenging to identify street trees belonging to the same family (e.g., *Fraxinus* spp., Appendix S1: Table S3). These families were most likely comprised of nonnative trees and accounted for 11.50% of the total street-tree importance. Last, we encountered 257 individual nonnative trees that we were unable to identify to species or family. The unknown nonnative group made up the remaining 2.53% of street-tree importance (Appendix S1: Table S3).

Of the native tree species, the coast live oak (*Quercus agrifolia*) and the California sycamore (*Platanus racemosa*) were the only commonly encountered tree species throughout LA (Appendix S1: Table S3). We measured 236 coast live oaks and 79 California sycamore trees, and the average DBH of each species was 76.01 cm and 94.85 cm, respectively (Appendix S1: Table S3). The most commonly encountered street trees of our study were nonnative, with the southern magnolia (*Magnolia grandiflora*), common crape myrtle (*Lagerstroemia indica*), American sweetgum, camphor tree (*Cinnamomum camphora*), and Chinese elm (*Ulmus parvifolia*) being the most abundant (n = 700, 592, 546, 530, and 499 individuals, respectively, Appendix S1: Table S3). The street-tree species covering the greatest area were the camphor tree (n = 404.18 m^2 basal area/km), Italian stone pine (n = 384.74 m^2/km), and Chinese elm (n = 330.67 m^2/km, Appendix S1: Table S3).

We recorded 938 observations of feeding birds, totaling over 10 h of observation time. We documented 587 observations of migratory birds and 351 of year-round birds (Appendix S1: Tables S1 and S2). The most commonly encountered migratory bird was the Yellow-rumped Warbler (n = 348 feeding observations), followed by the Ruby-crowned Kinglet (n = 136 observations), the Townsend's Warbler (n = 69 observations), the Orange-crowned Warbler (n = 23 observations) and the Black-throated Gray Warbler (n = 10 observations, Appendix S1: Table S1). The most commonly encountered year-round bird was the Bushtit (n = 141), followed by the House Finch (n = 96), the Lesser Goldfinch (n = 61), the Anna's Hummingbird (n = 30), and the Allen's Hummingbird (n = 23, Appendix S1: Table S2). Overall, there was little variability between field seasons in observations of migratory and year-round birds (Appendix S1: Tables S1, S2). The only notable differences were for Yellow-rumped Warblers (n = 203, 145), Townsend's Warblers (n = 23, 46), Allen's Hummingbirds (n = 15, 8), and House Finches (n = 64, 32) (Appendix S1: Tables S1, S2).

Objective #1: street-tree and bird composition, diversity, and density

Street-tree and feeding bird composition were significantly dissimilar among low-, medium-, and high-income areas (street-tree ANOSIM $R = 0.13$, $P < 0.01$; feeding bird ANOSIM $R = 0.28$, $P < 0.01$). For both street trees and birds, low- and high-income areas were most dissimilar (street-tree ANOSIM $R = 0.20$, $P < 0.01$; feeding bird ANOSIM $R = 0.55$, $P < 0.01$), followed by medium- and high-income areas (street-tree ANOSIM $R = 0.14$, $P = 0.02$; feeding bird ANOSIM $R = 0.24$, $P < 0.01$), and low- and medium-income areas, which were not significantly dissimilar (street-tree ANOSIM $R = 0.02$, $P = 0.32$; feeding bird ANOSIM $R = 0.01$, $P = 0.33$).

Migratory and year-round birds were five and two times denser, respectively, in high- compared with low-income survey areas, and approximately two times as dense in high- compared with medium-income survey areas, and medium- compared with low-income areas ($F_{2,38}$ = 15.63 and 5.18, $P \leq 0.01$, Table 1, Fig. 3). Tree species richness was similar across the socioeconomic gradient ($F_{2,33}$ = 0.75, P = 0.48, Table 1). However, lower-income communities had a higher Shannon diversity than medium and high-income regions of the city ($F_{2,33}$ = 3.20, P = 0.05, Table 1). Street trees were twice as dense and nearly five times greater in size in high-income areas compared with low-income areas (Kruskal-Wallis χ^2 = 7.31 and 13.54, $P < 0.03$, Table 1, Fig. 3). High-income areas were also significantly different in tree density and size compared with medium-income areas, while medium- and low-income areas were similar (Table 1). Nonnative trees followed a similar pattern (Kruskal-Wallis χ^2 = 13.21 & 11.99, $P < 0.01$, Table 1). Due to low sample sizes, we did not detect significant differences in native tree density and size across the socioeconomic gradient (Table 1). However, native trees in high-income areas were 14 times as dense and covered nearly ten times the area compared with low-income residential areas.

Objective #2: relationships between street trees and feeding bird density

The top-fitting independent variable describing migratory bird density was total street-tree density, which had a ΔAIC value of 2.66 less than the second-best model. The ΔAIC value for the intercept-only model was 27.79, suggesting strong support that total street-tree density best explained migratory bird-feeding density throughout our LA study area (Table 2, Fig. 4). The overall relationship was quadratic, where, in low-income areas, there was a positive relationship between street-tree density and feeding migratory birds (Table 2, Fig. 4). However, as street-tree density increased, the relationship changed to a negative slope (Fig. 4).

The top-fitting model describing year-round feeding bird density was the total-tree basal area (Table 2, Fig. 4). This model was competitive with the nonnative tree basal area (ΔAIC = 1.82, Table 2), but was superior to the intercept-only model (ΔAIC = 7.79, Table 2). Similar to the relationship with street-tree density, the relationship was quadratic (Fig. 4). In low-income areas,

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TABLE 1. Summaries of feeding bird density, street-tree diversity, and street-tree density and size variables, standardized per 1 km of survey route, across a socioeconomic gradient of low- (<US$53,219, median household income), medium- (US$53,220-US $70,719), and high-income residential communities (>US$70,720) throughout the Los Angeles (California, USA) metropolitan area.

Parameter	Low	Medium	High
Feeding bird density			
Migratory birds	$2.29^{A} \pm 0.22$	$5.31^{A} \pm 0.62$	$10.66^{B} \pm 0.83$
Year-round birds	$2.37^{A} \pm 0.19$	$3.53^{A} \pm 0.53$	$5.17^{B} \pm 0.30$
All feeding birds	$4.66^{A} \pm 0.31$	$8.83^{A} \pm 1.06$	$15.83^{B} \pm 0.97$
Street-tree diversity			
Street-tree species richness	9.06 ± 0.52	9.08 ± 0.65	7.68 ± 0.50
Street-tree Shannon diversity†	$2.46^{A} \pm 0.09$	$2.25^{A} \pm 0.09$	$1.87^{B} \pm 0.11$
Street-tree density and size			
Total street-tree *n*	$54.10^{A} \pm 5.25$	$80.47^{A} \pm 5.49$	$112.84^{B} \pm 4.12$
Native street-tree *n*	0.54 ± 0.13	1.07 ± 0.30	7.85 ± 1.67
Nonnative street-tree *n*	$53.56^{A} \pm 4.05$	$79.40^{AB} \pm 5.19$	$104.98^{B} \pm 5.28$
Total street-tree basal area (m^2)	$16.79^{A} \pm 2.15$	$29.16^{A} \pm 3.23$	$79.67^{B} \pm 10.80$
Native street-tree basal area (m^2)	0.70 ± 0.30	0.35 ± 0.11	6.42 ± 1.92
Nonnative street-tree basal area (m^2)	$16.09^{A} \pm 2.68$	$28.81^{A} \pm 4.80$	$73.25^{B} \pm 10.47$

Notes: Variables with the same superscript letter do not differ significantly among socioeconomic groups based on a one-way ANOVA with Tukey HSD test or Kruskal-Wallis test with nonparametric multiple comparisons procedure, with Bonferroni adjusted *P* value: 0.05/3 = 0.02. Values are mean ± SE.

†Not standardized to 1 km of walking route.

there was a positive relationship between the street-tree basal area and year-round feeding birds. Conversely, in affluent communities, the relationship shifted to negative as street trees covered more area (Fig. 4).

When relating all feeding birds (i.e., migratory and year-round species combined) to street-tree attributes, street-tree density was again the top predictor variable (Table 2, Fig. 4). The change in the AIC value from the best-fitting model to the second-best model was 2.68, and the ΔAIC to the intercept-only model was 19.81 (Table 2, Fig. 4). Further, the relationship was quadratic and nearly identical to the relationship between migratory birds and street-tree density (Fig. 4). We did not find support that native street-tree density or size were related to feeding-bird density at the extent of our walking routes within LA neighborhoods (Table 2).

Objective #3: foraging preferences of birds among both native and nonnative street trees

Both migratory and year-round birds foraged on particular street trees in unequal proportions than they were available throughout the cityscape ($v^2 = 34.44$, $P = 0.05$ and $v^2 = 46.59$, $P = 0.01$, respectively). The most selective foraging migratory bird species were the Townsend's Warbler ($v^2 = 67.23$, $P < 0.01$) and the Ruby-crowned Kinglet ($v^2 = 61.06$, $P < 0.01$), whereas the most selective foraging year-round bird species were the Lesser Goldfinch ($v^2 = 94.58$, $P < 0.01$), the Anna's Hummingbird ($v^2 = 82.64$, $P < 0.01$), the House Finch ($v^2 = 72.59$, $P < 0.01$), and the Bushtit ($v^2 = 70.04$, $P < 0.01$). Of the seven species in which we had enough data for analysis, only the Yellow-rumped Warbler foraged on street-tree species in similar proportions to their availability, suggesting this species displays a wide breadth of foraging plasticity throughout the LA urban ecosystem during the winter months ($v^2 = 25.79$, $P = 0.21$).

In general, we observed differences in foraging preference and aversion when comparing feeding patterns by birds on native and nonnative street trees (Table 3, Fig. 5a). Migratory and year-round birds preferred foraging on native trees (preference index [PI] = 11.60 and 8.51, respectively) while avoiding nonnative trees (PI = −11.03 and −8.22, respectively, Table 3, Fig. 5b). The observed patterns of feeding preference equated to migratory and year-round birds using native street trees, represented by the coast live oak and the California sycamore, 312% and 255% more than their availability throughout the cityscape (Table 3, Fig. 5b). Building on this finding, the coast live oak had one of the highest preference values by migratory and year-round birds (PI = 8.92 and 6.94, respectively), whereas the California sycamore was lower (PI = 2.83 and 1.70, respectively, Table 3). When comparing patterns of use vs. availability of the two native tree species, individually, migratory and year-round birds used both the coast live oak and the California sycamore in higher proportions (>200%) than their availability (Appendix S1: Table S4, Fig. 5). Migratory or year-round birds did not use the three other native street-tree species that we encountered (Appendix S1: Table S4).

In contrast, migratory and year-round birds used the most common 19 nonnative street trees as foraging substrates 12% and 9% less than their availability, respectively (Fig. 5b). Nevertheless, our analysis did indicate a preference of birds to select nonnative street trees (Table 3, Fig. 5, Appendix S1: Table S4). The Chinese

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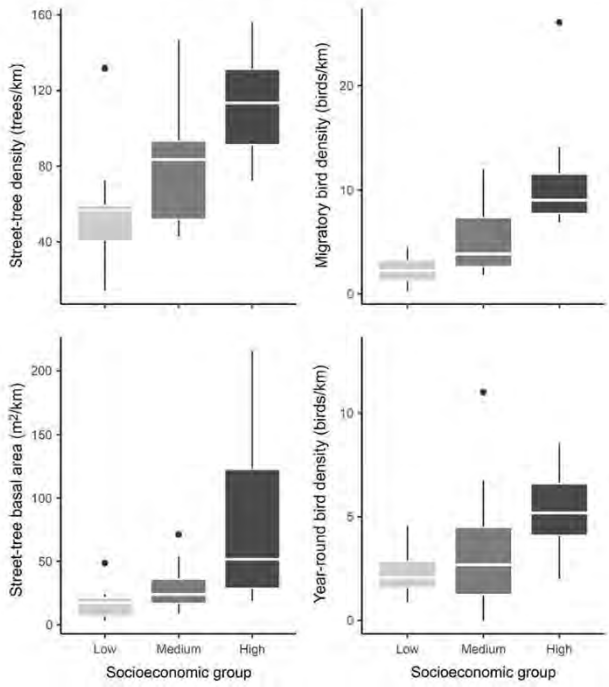

FIG. 3. Box-plot summaries of street-tree density (number of street trees per 1 km of survey route), total street-tree basal area (m^2) per km, and migratory and year-round feeding bird density within 36 residential communities situated across a socioeconomic gradient of low (<US$53,219, median household income), medium (US$53,220–US$70,719), and high-income residential communities (>US$70,720) throughout Greater Los Angeles. In all cases, high-income residential communities harbored significantly greater tree density, tree basal area, and density of migratory and year-round feeding birds than medium and low-income residential communities based on a one-way ANOVA or Kruskal-Wallis analysis followed by a multiple comparisons analysis. The boxplot figures display the median values, the first and third quartile, and the minimum and maximum values, while circles denote outliers.

elm had the highest PI of all street trees by both migratory and year-round birds (PI = 11.52 and 15.09), followed by the carrotwood (*Cupaniopsis anacardioides*, PI = 5.80 and 5.93), southern live oak (*Quercus virginiana*, PI = 3.91 and 0.90), and holly oak (*Quercus ilex*, PI = 1.98 and 0.62, Table 3).

Overall, migratory and year-round birds used seven and six nonnative street-tree species, respectively, in higher proportion than their availability (Appendix S1: Table S4, Fig. 5). All other nonnative street trees, which included approximately 90 species, family groups, or unknown individuals, were generally avoided by feeding birds (Appendix S1: Table S4). The highest proportional use of nonnative street trees by migratory birds was the Chinese elm (255% more than it was available), followed by the carrotwood (254%), southern live oak (227%), and holly oak (202%; Fig. 5, Appendix S1: Table S4). Year-round birds used the Chinese elm and carrotwood in higher proportion than they were available throughout the cityscape (303% and 258%, respectively), followed by American sweetgum (205%), and *Fraxinus* spp. (180%; Fig. 5, Appendix S1: Table S4).

DISCUSSION

Given the pace and dominance of urbanization throughout the globe, understanding how to best manage and conserve biodiversity within city limits is a paramount challenge (Aronson et al. 2017, Lepczyk et al. 2017a). While there are initiatives in metropolises throughout the world to improve environmental quality within cities, understanding the ecology of street trees

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TABLE 2. Model-selection results of three model sets relating migratory, year-round, or total-feeding bird density (dependent variables) to eight street-tree diversity, density, or size attribute variables (independent variables), standardized per 1 km of survey route, within 36 residential communities throughout Los Angeles.

	Migratory			Year-round			Total		
Parameter	ΔAIC	b	b²	ΔAIC	b	b²	ΔAIC	b	b²
Intercept	27.79	6.49		7.79	3.82		19.81	10.31	
Street-tree diversity									
Street-tree species richness	29.03	1.09	1.01	4.80	1.40†	0.98	20.72	1.04	0.99
Street-tree Shannon diversity‡	20.88	3.94†	0.61	9.79	1		18.88	0.72†	
Street-tree density and size									
Total street-tree *n*	0	1.07†	0.99†	4.63	1.03†	0.99	0	1.04†	0.99†
Native street-tree *n*	22.84	1.09†	1	7.18	1.06†	0.99	15.02	1.08	0.99
Nonnative street-tree *n*	2.66	1.08†	1†	5.69	1.03†	1	2.68	1.05†	0.99†
Total street-tree basal area (m²)	14.12	1.02†	1	0	1.02†	0.99†	5.46	1.02†	0.99
Native street-tree basal area (m²)	22.14	1.04	0.99	6.91	1.06	0.99	14.74	1.05†	0.99
Nonnative street-tree basal area (m²)	16.45	1.02†	0.99	1.82	1.02†	0.99†	7.92	1.02†	0.99†

Notes: In addition to modeling all street trees combined within survey locations (total), we grouped tree density and size variables depending on whether street trees were native or nonnative to explore whether tree origin was an important predictor of feeding bird density. We fitted all models using a generalized linear modeling framework with a negative-binomial error distribution, and we ranked models using Akaike's Information Criterion (AIC). A ΔAIC of zero indicated the best-supported model within a set, whereas values >2 suggested less support. We fitted all models, except for the intercept-only model and the Shannon diversity for year-round and total birds, using a quadratic term to account for hump-shaped relationships prevalent in our data. We display the coefficient estimate (b) for both the fitted variable and its quadratic term and indicate the significance of a coefficient estimate with the dagger symbol (†). Further, as the negative-binomial error distribution requires a log-link transformation to estimate parameters, we display the b estimates on the original scale (i.e., exponentiated) for better interpretability. b estimates < 1 indicate negative relationships. The b estimate for the intercept represents the mean of the response variable, whereas the other coefficient estimates can be interpreted as follows; an increase in the independent variable by one unit would result in an increase (or decrease, note the quadratic formula required) of the response variable by a factor of the coefficient value.

‡ Not standardized to 1 km of walking route.

and birds has mostly been overlooked (with exceptions, see Tzilkowski et al. 1986, Young et al. 2007, and Shackleton 2016). Our results provide strong support that street trees have clear and positive value as foraging habitat to birds and thus are a critical resource for promoting urban avifauna. We found that across a socioeconomic gradient throughout LA, feeding bird density was positively associated with increases in density and size of street trees, especially in low- and medium-income communities. Further, our study provided clear evidence for the positive benefit of two commonly planted native street-tree species and a few nonnative tree species as foraging substrates for feeding birds. LA is located within a biodiverse region with avifauna abundant at the edges of the metropolis (Higgins et al. 2019). However, it is likely far more difficult for birds to persist in the most urbanized portions of the city (Blair 1996, McKinney 2006). Our findings indicate that planting and maintaining street trees within the boundaries of the metropolis will likely provide a substantial benefit to feeding birds.

Studies in other areas of the world have also indicated the importance of street trees to avian communities in urban ecosystems (Tzilkowski et al. 1986, Fernandez-Juricic 2009, Shackleton 2016, De Castro Pena et al. 2017). For example, in the cities of Belo Horizonte, Brazil, and Madrid, Spain, bird species diversity was positively related to a diverse and dense street-tree population (Fernandez-Juricic 2009, De Castro Pena et al. 2017). In the towns of Amherst, Massachusetts, and Grahamstown, South Africa, the diversity of bird species occurring on streets increased with both the size (DeGraaf and Wentworth 1986) and the number of street-tree species (Shackleton 2016). In contrast to the studies in Brazil and South Africa, we did not find associations between street-tree richness and diversity and the bird response variables of our study. However, our research uncovered clear relationships with street-tree density and size and feeding-bird density, which supports findings from Spain (Fernandez-Juricic 2009) and New England (DeGraaf and Wentworth 1986). A notable pattern of our results was the consistent humped-shaped relationship between feeding-bird density and street-tree density and size. We found support that increases in street-tree density and size in low-income communities positively benefits feeding birds. However, the relationship shifted to negative in affluent areas. Affluent zones of our study system had far more vegetation in private yards than low-income areas, which is a similar pattern to other studies in LA (Clarke et al.

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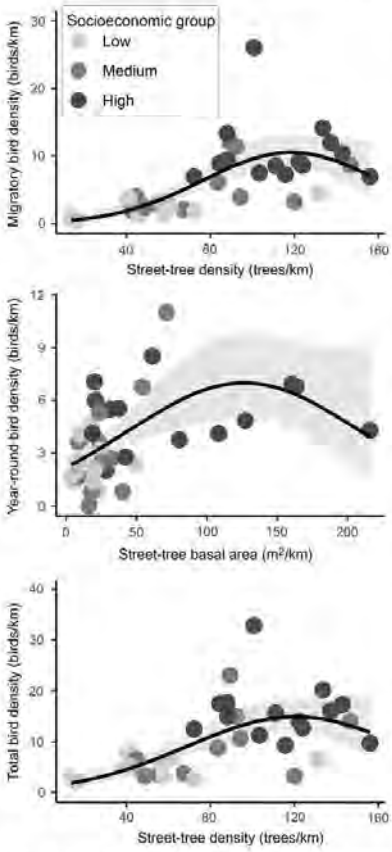

FIG. 4. Scatterplots depicting the relationships between density of feeding migratory, year-round, and total birds (migratory and year-round feeding birds combined) with street-tree density and street-tree size. We derived the fitted smoothed line and estimated prediction intervals from a generalized linear model analysis using a negative binomial error distribution. The color scheme represents survey areas located in 36 residential communities situated across a socioeconomic gradient of low (<US$53,219, median household income), medium (US$53,220–US$70,719), and high-income residential communities (>US$70,720) throughout Greater Los Angeles.

2013). The abundance of vegetation in private yards may have provided additional habitat that attracted feeding birds from street trees (Lerman and Warren 2011, Belaire et al. 2014). Nevertheless, our findings underscore the critical importance to birds of planting and maintaining street trees in sections of the city that are lacking.

Throughout LA, we found that street trees and feeding-bird density were far less in lower-income than affluent communities. Our finding reaffirms support for the luxury-effect hypotheses, which was apparent in our system in low- and medium-income communities (Landry and Chakraborty 2009, Clarke et al. 2013). In LA, Clarke et al. (2013) studied vegetation cover and diversity in a variety of land-use types throughout the residential areas of the city. Their study found that herbaceous and perennial vegetation was positively associated with income. However, they did not find support that tree diversity followed a similar pattern. Instead, the age of building development was the strongest predictor, with older developments having higher tree diversity (Clarke et al. 2013). Similar to Clarke et al. (2013), we did not find differences in the richness of street trees planted in low- and high-income communities. However, our study revealed apparent differences in the density and size of street trees, which is similar to patterns seen in other cities (e.g., Tampa Bay [Landry and Chakraborty 2009], the Eastern Cape of South Africa [Kuruneri-Chitepo and Shackleton 2011], and New York City [Schroeter 2017]). Further, we found that the differences in street-tree density and basal area throughout LA also influenced the density of feeding birds. In addition to fewer and smaller street trees, our study indicated that low-income residential communities of LA harbor a depauperate bird community, which is similar to patterns from other large cities (e.g., Phoenix, Arizona; Lerman and Warren 2011).

While our findings point out deficiencies in urban conservation throughout LA, our results also provide clear evidence for potential improvement. In lower-income communities, we found that even small increases in the density and size of street trees is positively associated with a higher density of feeding birds. These results also hold for locations in LA far from protected areas, suggesting that street trees and birds are a viable target for improving conservation within urban ecosystems. Thus, initiatives to continue promoting trees in areas of a city lacking in street-tree cover will likely have the most significant benefit to urban biodiversity conservation. One such effort, the Million Trees Initiative, has worked to plant trees in locations of LA with low tree density (McPherson et al. 2011). While such initiatives are designed to continue planting and maintaining street trees, tracking the success and long-term viability of planted trees remains a challenge (Dudek 2018). Nevertheless, our results add an extension to the importance of supporting work such as the Million Trees Initiative as well as municipal urban forest programs, including up-to-date inventory and detailed information on tree planting needs.

In addition to the importance of street-tree density and size as predictors of feeding bird density, our study

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TABLE 3. Street-tree species preference (positive) and aversion (negative) values for year-round, migratory, total (year-round and migratory combined), and seven bird species throughout the Los Angeles urban forest.

Tree species	Year-round	Migratory	Total	RCKI	TOWA	YRWA	ANHU	BUSH	HOFI	LEGO
Native										
Coast live oak	6.94	8.92	8.18	15.52	9.16	6.67	16.12	15.27	−1.80	−3.88
California sycamore	1.70	2.83	2.40	2.29	5.81	2.67	−1.44	2.82	0.65	3.48
Nonnative										
Southern magnolia	−7.90	-7.39	−7.58	−8.75	-8.75	−6.41	−8.75	−8.75	−5.63	−8.75
Camphor tree	−4.56	−2.92	−3.53	−4.82	−1.30	−2.10	−5.22	−4.29	−5.42	−3.63
Chinese elm	15.09	11.52	12.86	13.47	23.01	6.95	−7.42	12.44	22.79	25.36
American sweetgum	7.75	−4.79	−0.10	−7.35	−7.35	−2.95	−4.02	−5.94	18.69	33.63
Italian stone pine	−4.58	−3.38	−3.83	−1.70	−1.08	−4.26	−2.10	−5.43	−3.35	−5.43
Common crape myrtle	−3.23	−3.69	−3.52	−4.37	−4.37	−3.20	−4.37	−2.24	−4.37	−4.37
Carrotwood	5.93	5.80	5.85	4.45	3.49	6.80	22.91	11.85	−3.76	−3.76
Mexican fan palm	−3.30	1.54	−0.28	−3.58	−3.58	5.21	−3.58	−3.58	−2.54	−3.58
London plane tree	−3.54	−1.32	−2.15	−2.05	−2.09	−0.61	−3.54	−3.54	−3.54	−3.54
Southern live oak	0.90	3.91	2.79	9.60	4.16	1.31	−3.08	4.72	−3.08	0.19
Brisbane box	−2.70	0.03	−1.00	−1.21	−2.70	0.52	−2.70	−2.70	−2.70	−2.70
Deodar cedar	−1.15	0.83	0.09	2.65	7.57	−0.82	−2.58	0.97	−2.58	−2.58
Brachychiton spp.	−1.82	−1.19	−1.43	−1.64	−2.39	−0.63	0.95	−2.39	−1.35	−2.39
Indian laurel fig	−1.62	−1.68	−1.66	−1.45	−2.19	−1.90	−2.19	−1.48	−2.19	−2.19
Carob	−1.83	−1.09	−1.36	−2.11	−2.11	−0.94	−2.11	−2.11	−2.11	−2.11
Holly oak	0.62	1.98	1.48	3.28	2.41	1.29	−1.94	4.44	−1.94	−1.94
Canary Island date palm	−1.87	−1.70	−1.76	−1.87	−1.87	−1.58	−1.87	−1.87	−1.87	−1.87
Fraxinus spp.	1.26	−0.56	0.12	−0.84	1.31	−0.71	−1.59	−1.59	8.83	−1.59
Jacaranda	−0.95	−0.32	−0.55	0.72	−0.07	−0.64	5.15	−1.51	−1.51	−1.51

Note: RCKI, Ruby-crowned Kinglet; TOWA, Townsend's Warbler; YRWA, Yellow-rumped Warbler; ANHU, Anna's Hummingbird; BUSH, Bushtit; HOFI, House Finch; and LEGO, Lesser Goldfinch.

provided an assessment of the value of over 100 street-tree species (or family groups) to feeding birds throughout LA. We infrequently encountered nearly 80% of tree species in surveys (<1.5% IV), and thus, we treat assessments of the value of the uncommon species with caution. Nevertheless, the most important trees for feeding birds in our study system were a mixture of native and nonnative trees. While other studies have documented the importance of native and nonnative vegetation in urban areas to birds (e.g., Shackleton 2016, Narango et al. 2017, 2018), there were a few notable patterns within our system, including the role of trees in the genus *Quercus*. Oak trees of our study, one native and two nonnatives,- were nearly unparalleled in their use by feeding birds. Throughout the world, trees in the genus *Quercus* are valuable in providing numerous resources for wildlife, including as feeding substrate (Graber and Graber 1983, Rodewald and Abrams 2002) and breeding habitat (Parmain and Bouget 2018). Further, in eastern North America, oaks have some of the highest diversity and abundance of insects when compared with other common trees (Tallamy and Shropshire 2009).

Indeed, the importance of insect prey to feeding birds is becoming apparent in urban ecosystems. In the suburbs of Washington, D.C, plants with high insect food abundance positively benefited foraging and nesting success for the Carolina Chickadee (*Poecile carolinensis* Narango et al. 2017, 2018), while in Dunedin, New Zealand, the native Silvereye (*Zosterops lateralis*) foraged on trees with higher arthropod prey availability (Waite et al. 2013). Local (or native) tree species to a region that are planted in a cityscape have been suggested to harbor higher levels of invertebrate prey available to birds than nonindigenous species (Bhullar and Majer 2000). We did not measure food availability of street trees in our system. Further, our foraging behavioral data indicated similar foraging success among tree species (Appendix S1: Table S5). Nevertheless, our findings of the exceptionally high use of oaks by feeding birds may be due to the important role of oaks in urban ecosystems in structuring a diverse food web. Further, our findings suggest potentially an important functional similarity between native and nonnative oaks to feeding birds in urban ecosystems.

Other important tree species of our study for feeding birds included a sycamore (genus: *Platanus*), an elm (genus: *Ulmus*), and ash (genus: *Fraxinus*). Elsewhere in the world, elm and ash trees are valuable resources to feeding migratory birds (Wood et al. 2012), while sycamore trees provide valuable habitat for birds and other animals (Gabbe et al. 2002, Cudworth and Koprowski 2011). Our initial predictions were that native trees would be superior to nonnatives, and we did find strong support for this for the two most common native tree species of our study. However, we were surprised to find birds preferred a handful of nonnative species, even

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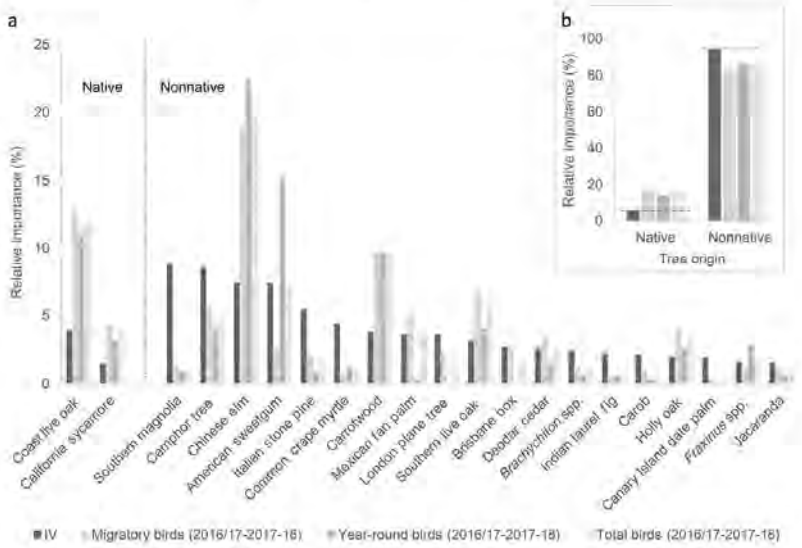

FIG. 5. (a) Relative importance values of common street-tree species (IV), grouped by whether they were native or nonnative in geographic origin, and the proportional use of native and nonnative trees by migratory, year-round, and total birds (five migratory and five year-round species combined) during the 2016–2017 and 2017–2018 winter field seasons throughout Los Angeles. (b) Inset figure depicts the relative importance values of grouped native and nonnative street-tree species, and the proportional use of native and nonnative trees species by migratory, year-round, and total birds. The street-tree importance values represent a tree species' or tree group's availability as a foraging substrate to birds. Bars depicting bird-foraging proportion that are greater than street-tree importance values (horizontal dashed lines provided for reference in inset) suggest bird-feeding preference, whereas bars below street-tree importance values suggest bird-feeding avoidance.

though studies in other urban areas have documented similar patterns (Gray and van Heezik 2016, Shackleton 2016).

Throughout the world, there has been considerable interest and debate about whether to promote native or nonnative trees in urban forests (Kendle and Rose 2000). Some studies illustrate the clear positive benefit of native plants to wildlife (e.g., Ikin et al. 2013, Narango et al. 2017, 2018), while others highlight the value of nonnative vegetation to urban biodiversity (e.g., DeGraaf 2002, Gray and van Heezik 2016, Shackleton 2016). For example, in South Africa, Shackleton (2016) found that nesting birds were more common in native than nonnative street trees. However, the study also noted the importance of nonnative street trees to native misdetoe (Shackleton 2016). In Dunedin, New Zealand, native and exotic birds fed on both native and nonnative trees (Gray and van Heezik 2016). Further, Gray and van Heezik (2016) found that nonnative trees provide food resources outside of the typical timing of native tree phenological events (e.g., berry and seed production). This finding suggests urban areas with nonnative vegetation may provide food resources outside of the typical seasonal pattern of adjacent natural areas. We also found that birds fed on a variety of native and nonnative tree substrates, including leaf surfaces, flowers, and fruits (Appendix S1). Having a variety of food resources available to birds in urban ecosystems throughout the annual cycle may be necessary when considering the effects of climate change on plant and food resource phenology, which in turn may influence bird utilization of a habitat (Wood and Pidgeon 2015).

Our results suggest that if promoting street trees to attract birds is a goal, there are likely numerous factors, in addition to geographical origin, to consider when making decisions about which trees to plant and promote (Kendle and Rose 2000, Sjo€man et al. 2016). For example, LA is situated in an arid biome, and few native trees naturally occur in the region that would be suitable for planting along a street. LA has two of the most common native species of our study, the coast live oak and the California sycamore, planted throughout a handful of sections of the metropolis. However, over-planting each tree could lead to problems. For example, the

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fungal pathogen Dutch elm disease decimated mature elm trees in many cities throughout the United States (Schlarbaum et al. 1997). Currently, the emerald ash borer beetle (*Agrilus planipennis*) is devastating ash trees throughout the midwestern and eastern United States (Poland and McCullough 2006), and in southern California, the South American palm weevil (*Rhynchophorus palmarum*) is currently infesting palm trees (Arecaceae) throughout the region (Hoddle 2019). There are current and potential threats already in the LA area, such as the invasive polyphagous shot-hole borer beetle (*Euwallacea* spp.) and the gold-spotted oak borer beetle (*Agrilus auroguttatus*), which can infest and kill coast live oak and California sycamore trees (Coleman et al. 2011, Kallstrand 2016). Such threats are behind the justification for the 10-20-30 rule, which states that urban tree populations should be no more than 10% of a particular species, 20% of a particular genus, or 30% of a particular family (Santamour 1990). While the 10-20-30 rule has been critiqued (Richards 1993, Raupp et al. 2006), having a diverse street-tree canopy has been the target of many urban areas for providing resilience in the face of potential threats (Kendal et al. 2014, McPherson et al. 2016). Thus, lining streets with the two common native species of the LA region in a homogenous fashion likely raises the risk of possible threats. While there were three other native tree species that we encountered in our study, we could not accurately ascertain their value to feeding birds because these trees were so uncommon.

In more mesic portions of the world, where native tree diversity is higher in locations adjacent to cities, relying more on native tree species that are suitable for urban environments (e.g., tolerance to air pollution; Grote et al. 2016) may be an appropriate strategy when considering planting street trees (Jenerette et al. 2016). However, this may not be optimal for a city such as LA, or other cities in arid regions of the world with relatively poor tree diversity in lowland areas outside the city boundaries (Avolio et al. 2019). Thus, for many municipalities, nonnative street-tree species likely need to be considered when thinking about a resilient urban forest canopy, which is a similar conclusion for cities elsewhere in the world (Sjo€man et al. 2016). Extending this, there are numerous obstacles urban planners must contend with when considering the longevity of urban forests (Pretzsch et al. 2017). For example, when focusing on climate change, climate-adapted trees may be a suitable strategy when weighing the needs of urban residents and wildlife (Jenerette et al. 2016, Lanza and Stone 2016). Our findings suggest that while there are indeed select nonnative street-tree species that provide apparent benefits to feeding birds, many appear to be poor habitat. Thus, careful study of the value of a street-tree species to feeding birds, or other wildlife (e.g., Bhullar and Majer 2000), and considering the other benefits a tree species provides to a city, is necessary for choosing optimal species to promote, especially if conservation is a goal.

Considering our research, we offer the following suggestions for managing street trees to benefit urban avifauna:

(1) *Plantings*: cities must identify critical zones that are lacking in street-tree density. While numerous factors may contribute to a lack of street-tree density, our results, and those of others, suggest this will likely occur in lower-income communities (Landry and Chakraborty 2009, Schroeter 2017).
(2) *Incentivize maintenance*: once cities identify zones that are lacking in street-tree density, promoting, planting, and maintaining street trees should be a goal. Many municipalities are already well-aware of #1 and working to address #2 (e.g., Pincetl 2010). However, this is a difficult task since many units in lower-income communities are often not owner-occupied. Thus, there may be less of an incentive to encourage the growth of a street tree in front of the property (Landry and Chakraborty 2009). In these cases, cities should work to incentivize street-tree care to the property owners or renters or provide public resources to promote the longevity of planted street trees.
(3) *Street-tree density targets*: If cities plant and maintain trees, our results suggest a target of approximately 40-120 street trees/1 km of street will likely attract feeding birds. We note that, in our system, there were few residential study areas with <40 trees/1 km. Thus, our confidence in estimates at these ranges is low. The 40-120 numbers refer to trees on both sides of a street and can likely be halved if only considering one side of a street. Some municipalities may have zones where this is not feasible. If so, our study suggests that even modest increases in street-tree density - coupled with careful consideration of tree species - will likely provide valuable habitat to feeding birds.
(4) *Long-term maintenance*: long-term maintenance of street trees and the encouragement of their growth is imperative to maximize the benefit to urban avifauna. Our results suggest that targeting up to approximately 125 m^2 of the area covered by street trees per 1 km will likely attract feeding birds.
(5) *Inventory*: many municipalities have inventories in place detailing information such as the location, size, date planted, health, and species of tree, for all street trees within city boundaries. Having a detailed street-tree inventory is a critical step for municipalities to understand how to manage street trees based on a city's needs, including providing assessments (the current study) and services to aid biodiversity (Dudek 2018). Further, detailed inventories allow for appropriate planning of diversity targets for street trees (Santamour 1990, McPherson et al. 2016).
(6) *Native and nonnative trees*: our study indicates that the common native trees of our region, along with a

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handful of nonnative street trees can be beneficial to feeding birds. We do stress that the vast majority of nonnative trees in LA appear to provide little apparent benefit to the feeding birds of our study. Thus, our work suggests that careful consideration is required to determine the best street trees to plant and maintain if providing habitat for birds is a goal. If possible, municipalities should use available information (e.g., National Audubon Society 2019) coupled with careful study to identify which trees will provide essential services to both humans and birds.

(7) *Value of studying feeding birds*: while there are numerous taxa of wildlife found in cities that likely utilize street trees (e.g., insects, birds, mammals), we suggest focusing attention on feeding birds. Birds are one of the most abundant and diverse wildlife taxa in most cities throughout the world (Lepczyk et al. 2017b). Further, they are relatively easy to study compared with other abundant taxa (e.g., insects; Bhullar and Majer 2000). A bird feeding on a tree substrate is an intricate and detailed ecological process that yields great information about which trees are beneficial to birds, and possibly other wildlife (Holmes and Robinson 1981, Gabbe et al. 2002, Wood et al. 2012). If municipalities already have tree inventories in place (see #5), a study needs to only focus on observing feeding birds on street trees in a given area over a given period, which can then be compared with the detailed street-tree data similarly as this study. A unique component of LA's avifauna are wintering migratory birds. In different urbanized locations of the world, a study such as ours could consider *en-route* migratory birds (e.g., urban stopover locations, Amaya-Espinel and Hostetler 2019) or breeding species (DeGraaf and Wentworth 1986). City personnel, arborists, students, volunteers, or citizen-science initiatives can accomplish a study detailing the behavior of feeding birds on street trees.

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Fax (+49) 228 815 2445
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Foreword

Life on Earth has evolved over billions of years under cycles of natural light and darkness that vary diurnally and annually. Artificial light at night (ALAN), and sometimes also at daytime, can cause deviations from these natural patterns of darkness and may thus interfere with natural physiological and ecological rhythms (Longcore & Rich 2004, Holker *et al.* 2010a, Gaston *et al.* 2013, 2015). In mammals, physiological features such as sleep, food digestion, immune response and body temperature are tightly adjusted to the diurnal light cycle (Arendt 1998). ALAN may disrupt these physiological processes and may further interfere with orientation and navigation, with severe consequences for individual behaviour, local animal populations and whole ecosystems (Rich & Longcore 2006; Gaston *et al.* 2015).

Among vertebrates, bats are almost exclusively nocturnal and extremely sensitive to ALAN, (Holker *et al.* 2010a, Speakman 1995, Voigt & Lewanzik 2011, Bennie *et al.* 2014a). The information we have on the impact of ALAN on bats is gradually expanding, and helps us formulate management recommendations to mitigate the impact of old and new lighting schemes. The information currently available is a combination of scientific studies, case-reports, and the extensive experience of bat workers. An integration of this information forms the basis of these EUROBATS guidelines. However, it is important to measure the degree of success of the mitigation strategies described in this document, and determine whether they achieve local and landscape-scale benefits for bats. Further, it is important to investigate how these measures can be improved. In addition, quantitative assessments of the effectiveness of mitigation – vital to refine and improve strategies for the future – can only be achieved if structured data are collated from multiple sites.

In these guidelines, we tried to compile available evidence related to the effect of ALAN on bats, a field of research that is very dynamic. Using the current state of knowledge, solutions are formulated on how to avoid, mitigate or compensate the adverse effects which ALAN has on bats in their network of functional habitats, consisting of roosts (maternity, summer, transient, feeding, mating and/or hibernation), ***commuting routes*** and ***migratory*** corridors, ***foraging areas*** and ***swarming sites*** (hereafter, terms highlighted in bold and italics are included in the Glossary).

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1 Introduction

All European bat species are protected by several international and European binding treaties, (*e.g.* by the ***EU Habitats Directive***). The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or Bonn Convention) aims to conserve terrestrial, aquatic and avian migratory species throughout their range. It is an intergovernmental treaty concluded under the aegis of the United Nations Environment Programme (UNEP). Migratory species threatened with extinction are listed in the Appendix I to the Convention whereas migratory species that need or would significantly benefit from international co-operation (including all European bat species) are listed in the Appendix II. The Agreement on the Conservation of Populations of European Bats (EUROBATS) was set up under the Bonn Convention and aims to protect all European bat populations through legislation, education, conservation measures and international co-operation. According to the fundamental obligations, each EUROBATS Party shall identify important roosting sites and ***feeding areas*** for bats and protect such sites and areas from damage or disturbance such as ALAN.

The Habitats Directive requires that Member States do more than simply prevent the further decline of populations of the listed species. For the priority bat species, included in Annex II, they must also undertake positive conservation measures to ensure that populations are maintained and restored to a favourable conservation status throughout their natural range within the EU. Consequently, responsible authorities in all European countries shall ensure that bat populations are protected also from disturbance caused by light pollution.

A nocturnal lifestyle is inherent to all bats. They usually hide in roosts during the daytime, while fly to ***feeding areas*** or drinking sites using ***commuting routes*** during the night. On the annual scale, bats of the temperate zone aggregate in late summer and autumn for ***swarming*** and later spend the winter in hibernacula. Many bat species move between different roosts and habitats, whereas other perform long-distance ***migrations*** between reproduction and hibernation areas in different parts of Europe (Hutterer *et al.* 2005). In all situations, ALAN may significantly change their natural behaviour (Stone *et al.* 2015a; Rowse *et al.* 2016). A hypothetical case is presented in Figure 1.1. Overlap of illuminated patches with ***foraging areas*** and ***commuting routes*** results in a potential conflict between ALAN and bat conservation. *Plecotus auritus* would stop to use the lit side of the church for emergence; illuminated patches may disrupt flight paths of the bats and affect their foraging areas: tree lines and shores (*Pipistrellus pipistrellus* and *Plecotus auritus*) and waterbodies (*Myotis daubentonii*).

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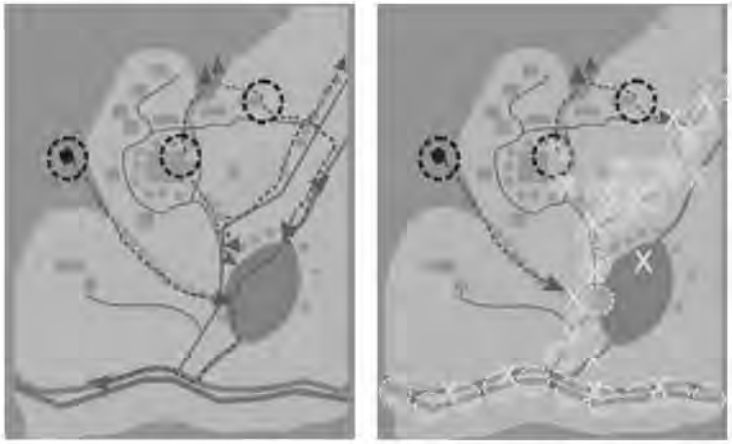

Figure 1.1. Schematic network of roosts, commuting routes and foraging areas of 3 bat species in a situation without ALAN (left picture) and with ALAN (right picture). Red rectangles denote buildings in a village, surrounded by forest (dark green); green circles - individual trees; blue areas - water bodies; grey lines - roads; green rectangles - stadiums. Roosts are encircled by dark blue dashed lines: M. daubentonii roosting in a tree in the forest, long-eared bats roosting in the church attic (large red rectangle in the village centre) and P. pipistrellus roosting in a house. Commuting and foraging areas - red dashed lines with arrows. Illuminated areas are surrounded by yellow dashed lines. Crosses indicate places where the movement through the landscape is blocked by ALAN or the habitat is no longer functional.

Bats are naturally exposed only to very low lighting levels produced by moonlight, starlight and low intensity twilight (Fig. 1.2). There are rare exceptions of daylight flight activity, such as in *Nyctalus azoreum*, a noctule species from the Azores (Speakman 1995), and in bats at northern latitudes that forage in daylight when nights are shortest (Speakman *et al.* 2000). In general, bat eyes are specialised for low light levels (Shen *et al.* 2010). Light levels as low as typical full moon levels, *i.e.* around 0.1 lx, are known to alter the flight activity of bats. It is important to note that the unit **lux** (symbol lx) is defined according to human spectral sensitivity and determining its relevance for animals with different spectral sensitivities can be problematic. We refer to this unit below, since it may facilitate interdisciplinary communication between biologists, the lighting community and developers.

Any level of artificial light above that of moonlight masks the natural rhythms of lunar sky brightness and, thus, can disrupt patterns of foraging and mating and might, for instance, interfere with entrainment of the circadian system (Fig. 1.3 and 1.4). In

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Figure 1.2. Two Plecotus auritus with rising full moon in the background (© J. RYDELL).

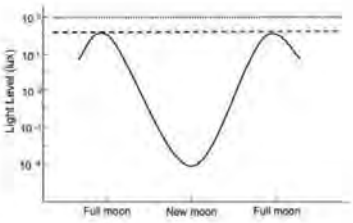

Figure 1.3. Skyglow can mask natural rhythms of lunar sky brightness. The solid line depicts full moon light levels in a temperate habitat without light pollution. The dashed and dotted lines indicate skyglow light levels under clear and cloudy skies respectively, as measured in the centre of Berlin. Figure from PERKIN et al. (2011).

the lab, even ***illuminance*** as low as 10^{-5} lx was sufficient for the entrainment of circadian rhythm of the Pallas's Mastiff Bat (*Molossus molossus*), the lowest threshold value observed for photic entrainment in vertebrates (ERKERT 2004). Consequently, ALAN that may affect bats negatively can be of very low intensity: some bat species are repelled by very low light levels of only 4.5 lx (LEWANZIK & VOIGT 2016), 3.6 lx (STONE *et al.* 2012), 3.2 lx (KUIJPER *et al.* 2008) and 1.9 lx (LACOEUILHE *et al.* 2014). In comparison, those levels are all lower than the ***illuminance*** level of residential side streets, which is on average about 5 lx at street level, but which often is higher than this (GASTON *et al.* 2012, AZAM *et al.* 2015).

Bats possess colour vision (MÜLLER & PEICHL 2005), including the ability to perceive UV (WINTER *et al.* 2003, MÜLLER *et al.* 2009, GORRESEN *et al.* 2015), though UV sensitivity has been lost in some species, including horseshoe bats (ZHAO *et al.* 2009). The general sensitivity of bats to light is obvious. Some species adjust their activity in response to the lunar cycle (*e.g.* lunar phobia), a response that is especially pronounced in species that forage over water and in the forest canopy, and live in tropical areas (SALDAÑA-VÁZQUEZ & MUNGUÍA-ROSAS 2013; RODELKE *et al.* 2018). Polarised light at sunset seems to be important for orientation, *e.g.* for calibrating the magnetic compass of some bats (GREIF *et al.* 2014). However, migratory species may represent an exception (LINDECKE *et al.* 2015). Bats may also obtain cues from city lights for

Figure 1.4. Skyglow outshining stars and the Milky Way in Cazorla City, Spain (© JENS RYDELL).

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homing (TSOAR *et al.* 2011) and possess the visual acuity to use information from stars for navigation (CHILDS & BUCHLER 1981, EKLÖF *et al.* 2014). Bats may demonstrate reduced homing performance, if deprived of visual cues (DAVIS & BARBOUR, 1970). Thus, ALAN has the potential to seriously interfere with the vision and behaviour of bats.

ALAN is produced in a variety of ways, for example by street lights, illuminated buildings, lit advertisements, security and domestic lights, lights on vehicles, gas flares and stadiums (KYBA *et al.* 2015, SCHOEMAN 2015; Fig. 1.5). An in-depth remote sensing study of Berlin showed that almost a third of the emitted light came from streets, with considerable amounts of light also originating from industrial areas (16%), public service areas (10%), block buildings (8%), city centre (6%), airfields (4%) and supply and disposal facilities (4%) (KUECHLY *et al.* 2012). Direct lighting

Figure 1.5. Artificial light at night from various sources such as streetlamps, illuminated buildings, lit advertisements, domestic lights, lights from vehicles, resulting in bright skyglow over Israel in the background. The image was captured from the West Bank, which is much darker and with less skyglow (© J. RYDELL).

is affected by physical features of the atmosphere and terrain; it can also be scattered by atmospheric molecules or aerosols, especially under cloudy conditions (ALBE 2015, KYBA *et al.* 2015). Although the scattered artificial light (see ***skyglow***) is relatively dim and homogenous compared with point sources such as street lights, it is still bright compared to natural light sources, such as stars, and spreads over vast areas (KYBA & HÖLKER 2013, FALCHI *et al.* 2016).

The spectral content of light can differ depending on the source (Fig. 1.6, Table 1.1), and many animals (including bats and insects) are able to perceive wavelengths beyond the range that humans can. For street lights, high-pressure mercury vapour (HPMV) lamps emit what humans recognize as blue-white light containing considerable amounts of UV. Low-pressure sodium (LPS) lamps emit monochromatic orange light, while high-pressure sodium (HPS) lamps emit a broader spectrum of mainly orange-yellow wavelengths. New technologies include light-emitting diodes (LEDs) and metal halide lamps. LEDs are available in 'warm white' and 'cold white' varieties, and typically do not emit UV. Metal halide lights emit UV, similar to HPMV lamps. Domestic lighting traditionally included many tungsten filament lamps that heat up to produce visible light (by incandescence). These lamps are being replaced by compact florescent lamps (that emit some UV), and especially by LEDs. The UV component of lamps seems to be especially important in determining how attractive lamps are to insects: lamps that emit UV attract more

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insects (EISENBEIS & EICK 2011; WAKEFIELD *et al.* 2016; 2018), and it has been shown that blue wavelengths attracted considerable more moths than lights of longer wavelengths (VEROVNIK *et al.* 2015). The dense concentrations of insects around these light sources may attract hunting bats of some species (*e.g.* RYDELL 1991).

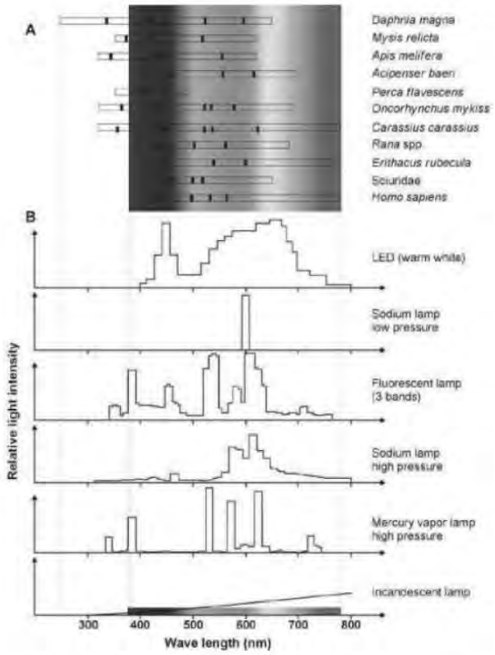

Figure 1.6. (A) The light sensitivities various animals displayed against a background of wavelengths that humans perceive as visible light. The dashed vertical lines cover the range of wavelengths, which the listed animals can perceive. Black marks in bars represent peak sensitivities of visual pigments for small crustaceans: Daphnia magna *and* Mysis relicta; *insect* Apis mellifera *(honeybee); fish* Acipenser baeri *(sturgeon),* Perca flavescens *(perch),* Onchorhychus mykiss *(trout) and* Carassius carassius *(carp); amphibians* Rana spp. *(frogs); bird* Erithacus rubecula *(robin) and mammals* Sciuridae *(squirrels) and* Homo sapience *(human). Figure (B) shows the wavelengths of light emitted from a range of artificial light sources. Some lamps emit light in the UV, and the spectral width varies among lamp types considerably.* © PERKIN *et al. (2011).*

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Spectrum	Types of lamps	% sales	Colour	UV	CCT	LE	CRI
Narrow	Low Pressure Sodium	37	Orange	0	1807	80-150	NA
Broad	High Pressure Sodium		Orange-yellow	+	2005-2108	45-110	22-80
Broad	High/low Pressure Mercury	27	White	++	2766-5193	25-52	22-43
Broad	Metal Halide	36	White	++	2874-4160	45-150	65-95
Broad	Light Emitting Diode	NA	White	0	1739-8357	160	>90

Table 1.1. Percentage of most common lamps sold in the EU from 2004 to 2007 (EUROPEAN COMMISSION 2011) as well as their physical characteristics extracted from GASTON et al. (2012) and from personal data of Georges Ziksis. CCT refers to Correlated Colour Temperature (Kelvin); LE refers to Luminous Efficacy (lumens/W); CRI refers to Colour Rendering Index; NA - data are not available.

The growth of the human population and associated processes of urbanisation have resulted in further increases of ALAN at a rate of about 2–6% per year, resulting in ALAN being identified as an important threat to biodiversity (HÖLKER *et al.* 2010a; KYBA *et al.* 2017). Further, the switch to cost-effectiveness of LEDs has led to a so-called rebound effect, which describes the phenomenon that the increasing use of inexpensive LED outdoor lighting has further accelerated the spread of ALAN worldwide (KYBA *et al.* 2017).

Eighty percent of the world's population now lives under light polluted skies, and the Milky Way is no longer visible to more than a third of humanity (FALCHI *et al.* 2016). The rate by which ALAN increases is faster than the rise in human population and economic growth (HÖLKER *et al.* 2010b). Although European directives have resulted in HPMV lamps being phased out, changes in and implementation of ALAN is unregulated across much of the EU, either generally, or specifically for bats.

Not only the amount of ALAN is increasing, the spectral content of light is changing too. In 2015, HPMV lamps were banned from new lighting installations in the EU in order to reduce costs and CO_2 emissions. In addition, street lighting is rapidly becoming whiter with many sodium lamps being replaced by LEDs, and to some extent by metal halide lamps both of which provide better colour rendition for humans. But, they still include light spectra (UV, blue light) with negative impacts on insects, bats main prey. There are potential benefits to these changes: new technology street lights are programmable from a central control centre, so their light intensity and timing of operation can be modified quickly and over large spatial scales.

In summary, the nightscape is changing as ALAN becomes more prevalent, and it also changes with technological advances that change lighting spectra. The effects of ALAN in general and of specific lighting schemes in particular on biodiversity, including bats, are currently poorly understood. Yet, it is agreed on by all specialists that bats, being nocturnal, are especially affected by ALAN. In the following chapter, we will summarize the state of knowledge with respect to how bats respond to ALAN.

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2 Response of bats to artificial light at night

Early observations by *e.g.* GRIFFIN (1958) and ROEDER (1967) of bats chasing moths at street lights, which at that time usually were of the light-bulb type, suggests that bats coming near artificial lights to feed is as old as the use of such lights, *i.e.* approximately since the 1920's. A first quantitative study on the impact of increased levels of natural light on bats was made by NYHOLM (1965). He recorded that *Myotis daubentonii* and *M. mystacinus/M. brandtii* consistently avoided their preferred habitats, *i.e.* lakes and forest gaps, in response to the brightness of the Nordic midsummer nights. However, his observations did not include areas illuminated by artificial light, which were still few at that time, but highlighted the relevance of light for the overall activity and habitat use of bats. Soon naturalists and bat biologists observed differences in the way bat species responded to ALAN, and these behavioural differences were most often related to specific flight styles, *i.e.* fast-flying species were found to be more opportunistic to ALAN than slow-flying and hovering species. These differences were explained by the specific capability of species to avoid visually-oriented predators such as birds of prey (RYDELL *et al.* 1996). Some bat species were also observed being attracted to ALAN because they feed on insects lured by the artificial light source (RYDELL 1991). Following this attraction and avoidance scheme, bat species have been grouped into classes of species which are "sensitive to light" and those which are "tolerant to light" or even "attracted to light". However, ROWSE *et al.* (2016a) recently suggested a reconsideration of this simplistic categorization. For a proper assessment of the impact of ALAN on bats in specific situations, several other factors must be considered.

Bats have evolved in darkness or dim light throughout their history and have become adapted to a nocturnal life over millions of years (RYDELL & SPEAKMAN 1995; VOIGT & LEWANZIK 2011). Darkness is the principal protection against predation for bats in most situations. A comprehensive review of predation on bats at roosts and elsewhere was recently provided by MIKULA *et al.* (2016). Bats are preyed on by various predators under many different conditions, both inside roosts and in flight. The activity patterns of bats and eventually their survival and reproduction rates are often constrained by predation (SPEAKMAN 1991). Emergence and foraging behaviour of individual bats are most likely governed by simple rules of optimality, such as the trade-off between the expected costs, including energetic costs of locomotion and predation risk, and the likely benefits of foraging such as energy intake. Yet, this relationship is far more complex, since it depends on various circumstances. First, the response of a bat

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to ALAN depends on its nutritional status, which in turn is influenced by *e.g.* reproductive state, sex and age. According to a study on emergence time in three European species, bats emerge relatively early, and hence take higher risks, when being under nutritional stress due to persistent low ambient temperatures, during pregnancy, or when body reserves were low (DUVERGÉ *et al.* 2000). Second, the responses to ALAN also depend on the specific location of bats and the specific motivation of bats for their presence in a habitat, *i.e.* the quality and functional relevance of a habitat. Third, natural or artificial light at any particular location may affect insect availability, as well as the presence of competitors and predators, and these factors influence the presence of bats (RYDELL *et al.* 1996). Finally, wavelength, intensity and directionality of the light may be important as well (MATHEWS *et al.* 2015). In summary, the effect of ALAN on bats depends both on species and context (Fig. 2.1).

ALAN may make a location less attractive for one species, but more attractive for another, supposedly even resulting in competitive exclusion of some light-averse species (ARLETTAZ *et al.* 2000). On a larger scale, extensive use of ALAN along

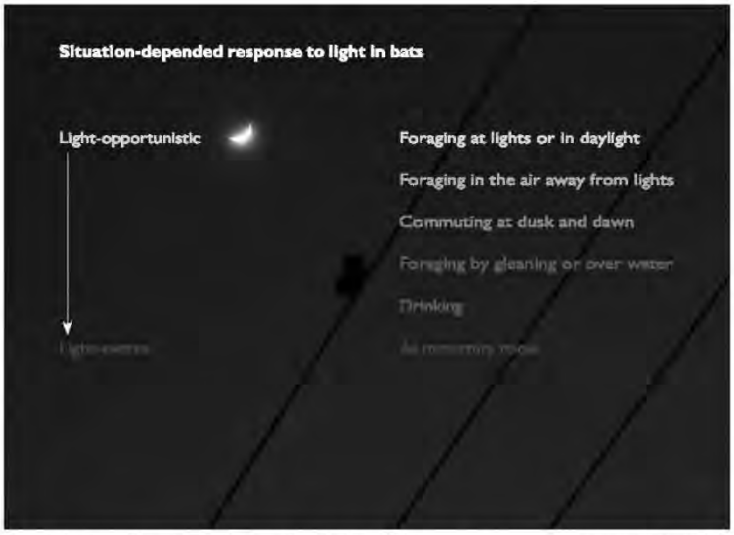

Figure 2.1. A hypothetical example illustrates the context-dependent response of opportunistic and light-averse bats. Note that a single species may display all responses and that these responses may vary seasonally because of factors such as reproduction, migration and hibernation (© J. RYDELL).

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with urbanisation in general may change bat species composition dramatically over large areas. Consequently, the relatively species-rich communities in unlit areas may be replaced by species-poor communities of opportunistic species that increase in abundance in relation to the intensity of ALAN, resulting in a simplification of the local bat fauna (*e.g.* Gaisler *et al.* 1998; Schoeman 2015; Russo & Ancillotto 2015; Lewanzik & Voigt 2016).

2.1 Impacts of ALAN on insects

European bats in general depend on insects for food and in order to understand the response of bats to ALAN, it is important to know how nocturnal insects respond to ALAN. Most nocturnal insects show phototaxis, that often involves considerable attraction towards and trapping of individuals at artificial light sources (Altermatt *et al.* 2009; Perkin *et al.* 2014; van Grunsven *et al.* 2014; Verovnik *et al.* 2015). Short wavelength emissions in the blue (< 490nm) and UV ranges (< 380nm) are responsible for this "flight-to-light" behaviour because most nocturnal insects have a peak of visual sensitivity in the UV, green and blue portion of the wavelengths spectrum (van Langevelde *et al.* 2011; Somers-Yeates *et al.* 2013; Pawson & Bader 2014). Hence, UV-emitting lamps such as HPMV, metal-halides and compact fluorescent lamps, attract significantly more insects than LED and HPS lamps, which emit less UV (Somers-Yeates *et al.* 2013; van Grunsven *et al.* 2014; Wakefield *et al.* 2016; 2018). Nevertheless, LED and HPS lamps have broad spectrum emissions including wavelengths in the blue range. Blue range has been shown to attract significantly more insects than yellow range light (Verovnik *et al.* 2015). In one study, both "cold" and "warm-white" LEDs attracted significantly more insects than HPS lamps (Pawson & Bader 2014). But, Eisenbeis (2013) found that LEDs attracted fewer insects than HPS and another study (Wakefield *et al.* 2018) reported no difference in the attraction of flying insects to LED and HPS lamps (though LEDs attracted more insect families).

The attraction effect of HPS lamps has been reported to work up to 23m from street lights for moths and 40m for aquatic insects (Perkin *et al.* 2014; Degen *et al.* 2016). Because the typical distance of municipal street lights for roads in the EU ranges between 20 and 45m, it is likely that moths crossing an urban road will be trapped in the zone of street light interference, which causes a further fragmentation of the night habitat, and may reduce landscape connectivity (Degen *et al.* 2016). Overall, ALAN appears to generate an accumulation of insect biomass in illuminated patches and may induce a depletion of insects in dark areas near street lights or other outdoor luminaries, a so called "vacuum cleaner effect of illumination" (Eisenbeis 2006, Verovnik *et al.* 2015). This shift in the spatial distribution of insects induced by ALAN likely triggers cascading impacts on their predators including bats, as it generates high quality foraging patches for opportunistic species, while decreasing the size and quality of dark areas for light-sensitive species (*e.g.* Manfrin *et al.* 2018).

The attraction effect of ALAN to insects likely causes massive mortality as individual insects can be killed directly by the

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heat of lamps, or they may circle the light until exhaustion, or until being caught by predators (Eisenbeis 2006). In particular, natural as well as artificial light inhibits the evasive flight response of tympanate moths to bat echolocation calls, leading to an increase in the predation success of bats at *e.g.* street lights (Svensson & Rydell 1998; Svensson *et al.* 2003; Wakefield *et al.* 2015).

Additionally, ALAN probably reduces the reproduction success of exposed insect populations as it reduces sex pheromone production and inhibits mating in moths (van Geffen *et al.* 2015a, 2015b). These adverse impacts on moth reproduction occurred regardless of the wavelength spectrum of the lamp, suggesting a negative effect of ***illuminance*** on moth populations (van Geffen *et al.* 2015b). Furthermore, exposure of moth caterpillars to green and white lights probably decreases individual fitness by inducing a lower body mass of caterpillars and pupae and an advance in the date of pupation compared to conspecifics from red light and dark conditions (van Geffen *et al.* 2014).

Finally, many arthropods use celestial cues such as the moon, stars or skyline, for orientation (Dacke *et al.* 2013; Schultheiss *et al.* 2016). Hence, ALAN, including ***skyglow*** above cities, may negatively impact the dispersal movements of populations by masking natural lighting signals at night, with important implications for metapopulation dynamics and gene flow (Baguette *et al.* 2013; Kyba & Hölker 2013). Further, ALAN may also impact the fitness, mortality, and reproduction of insects which may ultimately induce long-term population declines in illuminated areas. Common macromoths in the UK have experienced major declines in recent decades (Conrad *et al.* 2006), and it has been hypothesized that urban areas and their associated ***skyglow*** may act as ecological sinks, depleting the surrounding landscapes of moth species (Bates *et al.* 2014). Thus, the widespread use of ALAN may induce a landscape-scale depletion of insect biomass, which in turn may negatively affect bat population trends by decreasing the amount of foraging resources (Azam *et al.* 2016).

Artificial lights may also inhibit the entire flight activity of nocturnal moths and other insects, because the conditions near the light source may simulate daylight or strong moonlight, both of which normally lead to inactivity in nocturnal moths (Williams 1936). If lit conditions persist continuously in an area, nocturnal insect activity may be expected to decline for this reason alone. In addition, bats prey upon such inactive moths sitting directly in the illuminated building walls (Verlovnik *et al.* 2015).

The long-term impact of ALAN on insect populations is largely unknown, however, but recent evidence of dramatic declines in moths and other insects in Western Europe are quite alarming and suggest that the effect is already serious (Conrad *et al.* 2006; Hallman *et al.* 2017). Part of the observed decline can be linked to the increasing use of ALAN because larger moths and other phototactic insects are affected more seriously than others (*e.g.* diurnal or non-phototactic) insects (van Langevelde *et al.* 2018). Ecosystem services such as pollination provided by nocturnal insects are

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disrupted seriously in lit areas but not in nearby unlit control areas (MACGREGOR ***et al.*** 2016) and may even have knock-on consequences for diurnal pollination interactions (KNOP ***et al.*** 2017). In the long run, general decline in insect populations will obviously have negative effects on bats as well as on many other animals and perhaps on entire ecosystems.

2.2 Light averse and opportunistic bat species

Overall, European bats are all well adapted to nocturnal conditions, including a need for protective cover provided by darkness, and it can be expected that ALAN affects them in most situations (RYDELL & SPEAKMAN 1995).

At the genus level, European bats can roughly be categorized according to the way they respond to ALAN (Table 2.1). This taxonomic simplification seems acceptable, because species of the same genus appear to show a similar response to ALAN, probably owing to similar wing morphology, habitat requirements and life history features. We distinguish between averse, neutral and opportunistic responses. An averse response means that the bat would normally avoid ALAN. A neutral response means that ALAN would not influence the spatial distribution and activity of a bat. An opportunistic response means that the bat turns towards locations with ALAN under certain conditions, for example for feeding, as the expected benefit due to higher insect density near artificial lights may outweigh the potentially increased predation risk. Such species may dominate at illuminated places. We avoid applying the terms "light-tolerant" or "light-exploiting" to bats, because they overlook the fact that the reaction of a species can be different, depending on multiple factors. Even species that readily forage on insect aggregations around street lights might avoid artificial light when commuting (HALE ***et al.*** 2015) or close to their roost (DOWNS ***et al.*** 2003).

Bats of some genera (*Nyctalus*, *Vespertilio*, *Miniopterus* and *Tadarida* spp.) typically feed and commute in the open space above vegetation and buildings and may only sometimes fly under or near street lights or floodlights. We have denoted these bats with n.a. (not applicable), although we acknowledge that they may still exploit insects attracted to ALAN by feeding above lit urban areas or illuminated infrastructure elements, ***e.g.*** at floodlights on airports, train stations and stadiums (***e.g.*** KRONWITTER 1988, RYDELL 1992, RUSSO & PARADOTOU 2014). Hence, they may be considered as "opportunistic", like the pipistrelles and the species of the genus *Eptesicus*, although their behaviour usually is less obvious when observed from the ground. They usually fly at heights above the directly lit zone but within the area influenced by ***skyglow***. Information concerning response to ALAN during long distance ***migrations*** is available only for a few species of the genus *Pipistrellus* (VOIGT ***et al.*** 2017), therefore we did not include migratory behaviour in Table 2.1. We consider maternity roosts, mating roosts and ***swarming*** sites as "roosts", but temporary night roosts used by single or only a few individuals are excluded, since there are no quantitative studies estimating the effect of ALAN at night roosts.

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Genera	Daytime Roosts	Commuting	Foraging	Drinking	Hibernacula
Rousettus	Averse	Neutral	Neutral	Averse	Averse
Rhinopoma	Averse	DD	DD	Averse	Averse
Rhinolophus	Averse	Averse	Averse	Averse	Averse
Barbastella	Averse	Averse	Averse	Averse	Averse
Eptesicus	Averse	Averse	Opportunistic	Averse	Averse
Pipistrellus and *Hypsugo*	Averse	Neutral/ opportunistic	Opportunistic	Averse	Averse
Myotis	Averse	Averse	Averse	Averse	Averse
Plecotus	Averse	Averse	Averse	Averse	Averse
Vespertilio	Averse	DD	n.a./opportunistic	Averse	Averse
Nyctalus	Averse	DD	n.a./opportunistic	Averse	Averse
Miniopterus	Averse	DD	n.a./opportunistic	Averse	Averse
Tadarida	Averse	DD	n.a./opportunistic	Averse	Averse

Table 2.1. The likely taxon-specific response of bats to ALAN in relation to specific situations. The table is based on available literature and personal observations of the authors. Note that Nyctalus azoreum, *as well as* Eptesicus nilssonii *in the far north, may fly in broad daylight. N.a. = not applicable, DD = data deficient. Averse, neutral and opportunistic are defined in the text.*

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2.3 Two illustrative cases of bat responses to ALAN

The complex response of bats to ALAN may be illustrated by the behaviour of two species that have been studied in detail, the notch-eared bat *Myotis emarginatus* and the northern bat *Eptesicus nilssonii*.

Although *M. emarginatus* belongs to the light-averse group, it occasionally forms maternity colonies in barns and attics that are sometimes brightly illuminated (Fig. 2.2). Nevertheless, when entrances to such maternity roosts are illuminated, notch-eared bats may emerge later than usual (Moermans 2000), which may reduce the total time available for foraging per night. This can lead to a slower growth of the young (Boldogh *et al.* 2007). In the Netherlands, radio-tagged *M. emarginatus* commuted in or above the canopy, thus avoiding lit areas, but can be seen foraging inside both lit and unlit stables (Dekker *et al.* 2013). Presumably, this dualism in response depends on the trade-off between feeding success and either real or perceived predation risk for various habitats. For *M. emarginatus*, the perceived predation risk is probably lower inside than outside stables.

Considered as relatively light-opportunistic, *E. nilssonii* often forages along rows of street lights (patrolling), where individuals sometimes establish and defend feeding territories (Fig. 2.3). However, they only occasionally dive into the light cone in pursuit of an insect. Such dives are short (less than one second) and unpredictable to a

Figure 2.2. Cluster of notch-eared bats Myotis emarginatus *in a maternity roost in the Netherlands, 2016 (© J. Dekker).*

Figure 2.3. The northern bat Eptesicus nilssonii *diving into the light cone of a mercury vapour streetlamp in Sweden (© J. Rydell).*

human observer. While patrolling, northern bats typically fly away from the lights, being very difficult to spot from any direction and hidden from predators. Hence, even this presumably light-opportunistic species may avoid unnecessary exposure to bright illumination (Rydell 1986, 1991).

2.4 Impact of exterior illumination on bat roosts in buildings

Aesthetic illumination of buildings has increased dramatically in Europe over the last 25 years. This is particularly true for churches, monasteries, castles, but also for old bridges, fortresses, towers and monuments (Fig. 2.4). Recently, the lighting of private houses, factories and other buildings has become a widespread practice. Conflicts between the human demand to illuminate such buildings and the protection of bat roosts are already apparent and expected to increase in future.

Numerous studies have reported negative effects of illumination on the persistence of bats inside the roost, on emergence timing, behaviour, foraging activity and on juvenile growth rates have been detected (Boldogh *et al.* 2007; Fuszara & Fuszara 2011; Zagmajster 2014; Kosor 2016; Kotnik 2016; Zeale *et al.* 2016).

Figure 2.4. Illumination of historical buildings repels bats from roosting in large attics. Wroclaw Historical Centre, Poland 2017 (© J. Rydell).

Regardless of bat species, maintenance of dark areas is particularly important around the entrances to maternity roosts, because these places are used consistently by many individuals over the critical peri-

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ods of pregnancy, parturition and lactation. Maternity roosts are also places where the young learn to fly and where sit-and-wait predators such as owls or cats may pose a serious threat to bats (Downs *et al.* 2003). Therefore, special attention should be given to buildings with maternity roosts.

Short term effects. The effect of illumination on bat roosts has been studied for churches in several countries, ranging from Slovenia to Sweden and from the United Kingdom to Hungary. Although comparable studies for other types of buildings are missing, similar effects can be expected for constructions akin to churches.

Illumination of buildings with roosts exposes bats to increased predation risk, which in turn disrupts their emergence activity and results in deteriorating foraging opportunities. This applies especially to light-averse species such as *Rhinolophus* spp. and *Myotis* spp. (Boldogh *et al.* 2007; Zagmajster 2014; Kosor 2016; Kotnik 2016; Zeale *et al.* 2016), but also to bats of the genus *Pipistrellus* and *Eptesicus* that often feed opportunistically at lights (Downs *et al.* 2003; Fukzaka & Fukzaka 2011). However, the effects of ALAN on the emergence and activity patterns are also influenced by the presence of surrounding protective trees as well as the intensity, shading, direction and colour of the light close to the roost (Downs *et al.* 2003; Zagmajster 2014; Kosor 2016). When a colony may use several exits, illumination may affect bats differently. Overall, the magnitude of detrimental effects may be weaker when bats could use alternative unlit exits (Zagmajster 2014).

Bright illumination of roosts may cause a sudden decline in the number of emerging bats, as observed in a colony of notch-eared bats in Hungary (Boldogh *et al.* 2007). This decline could indicate that the bats either abandoned the roost or they were entombed inside and, in the latter case, may eventually starve (Zeale *et al.* 2016). Indeed, in several cases artificial illumination forced bat colonies to completely abandon roosts (Boldogh *et al.* 2007).

Long-term effects. Although long-term effects of illumination on bat colonies in buildings can be expected, there is only a single study addressing this topic by comparing colony presence in churches over a period of 25 years. In the 1980s, Rydell (1987) investigated 61 country churches in southern Sweden for the presence of *Pl. auritus*, before any floodlights were installed in this area. The same churches were then surveyed again in summer 2016, when about half of the churches had become illuminated at least partially (Rydell *et al.* 2017; Fig. 2.5). The percentage of churches with bat colonies had decreased by 38% in 2016 and all of the abandoned churches had been fitted with aesthetic lights (floodlights) in the period between the surveys, strongly suggesting that the illumination was causative for the disappearance of bats. Alternative explanations, such as renovations and targeted attempts to exclude bats from roosts, could be ruled out as a reason for colony collapses.

Bats were affected differently if churches were completely or only partly illuminated. For example, *Pl. auritus* were less often observed in churches that were illuminated

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from all directions, compared to those that were only partly illuminated (RYDELL *et al.* 2017). Illumination of buildings from all directions may be particularly detrimental since bats have no dark exits to emerge from, and no dark flyways between the roost and the surrounding areas. In the churches that remained unlit, all colonies of *Pl. auritus* remained in the same place after 25 years, hence showing consistent site fidelity. This study clearly shows that, in the long run, floodlights pointed towards buildings can have a devastating effect on the bats that live in the illuminated building. A smaller decrease in colony numbers was detected when at least part of the building was left dark for the bats' emergence and return. In a three-year study on emergence behaviour of *R. hipposideros* at church roosts, researchers observed differences in the proportion of emerging bats in relation to the level of illumination at roost openings (ZAGMAJSTER 2014). A significantly higher proportion of bats exited at the belfry opening closer to the woodland when it was shaded, while when heavily illuminated, a higher proportion of bats used the darker opening directed away from the woodland (ZAGMAJSTER 2014).

Disappearance of bats from lit buildings may not be obvious over the short term, as bat colonies are unlikely to abandon favourable roosts quickly. Indeed, *R. hipposideros* and *Pl. auritus* may remain in lit buildings for some time, despite the detrimental effects of ALAN, owing to the bats' extraordinary site fidelity (ZAGMAJSTER 2014; RYDELL *et al.* 2017). The observation that some of the long-eared bats consistently returned to partly lit churches may be a consequence of the limited number of

Figure 2.5. Three examples of churches in Sweden included in the 2016 survey of RYDELL et al. (2017). All had maternity colonies of Plecotus auritus *in the 1980's. (A) Bats remained in some of the partially illuminated churches, when they could leave from and return to the roost without having to pass through the light cone. (B) Bats disappeared from churches that were illuminated from all sides, without any dark passage left. In this case, lights were also installed inside, where the bat colony lived previously. (C) Bats consistently remained in churches that were not illuminated by flood-light. (© J. RYDELL).*

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high-quality roosts for this species (Rydell *et al.* 2017). Fidelity of *R. hipposideros* to illuminated roosts has been attributed to a trade-off between the disadvantage of increased predation risk at the lit sites and the advantage of having high-quality feeding grounds unaffected by ALAN in the surrounding environment (Zagmajster 2014).

2.5 Impact of interior illumination on bat roosts in buildings

Lights installed inside lofts or church towers occupied by bats have a detrimental effect on bat colonies, even if these lights are only dim. A colony of *Myotis nattereri* in England did not emerge from the roost inside a church for several days after it was experimentally illuminated. The experiment had to be stopped to avoid starvation of bats and the potential collapse of the colony (Zeale *et al.* 2016). In Sweden, several colonies of *Pl. auritus* disappeared after the installation of light bulbs inside attics and church towers (Rydell *et al.* 2017). In Slovenia, the monitoring of a nursery colony of *R. hipposideros* in a church attic revealed that bats avoided the part of the attic that was illuminated by the sun during the day and by ALAN through a roof window during the night (Kotnik 2016).

2.6 Artificial light in underground roosts

Underground sites, such as caves, mines, drainage pipes and similar subterranean structures are crucial for European bats (Mitchell-Jones *et al.* 2007). Some underground structures such as caves and mines are often open to the public, particularly tourists and therefore are frequently illuminated, but empirical studies on bats using illuminated underground roosts are scarce. *M. bechsteinii* refused to leave the interior of an underground mine after the installation of illumination at the entrance (Kugelschafter pers. comm., in Zeale *et al.* 2016). As a general observation, bats rarely, if ever habituate to artificial lights in underground sites and likely desert illuminated parts of show caves. For instance, commercial use of Fourth Chute Cave in Quebec, Canada, resulted in abandonment of the largest hibernaculum of eastern small-footed Myotis *M. leibii* known at the time in eastern North America (Mohr 1972). High light intensities have the most detrimental effect on the activity of bats, when Mann *et al.* (2002) explored behavioural responses of a maternity colony of 1,000 Cave Myotis *M. velifer* at an underground site by experimentally exposing the colony to cave tours. However, it is usually impossible to disentangle the impact of artificial light in show caves from associated factors, such as noise and changes in temperature and humidity.

Figure 2.6. A root cellar in Latvia regularly used by hibernating brown long-eared bats. (© J. Rydell, 2014).

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A special case may be the root cellars traditionally used in northern Europe for storage of potatoes and other root vegetables over winter. These cellars are also used by hibernating bats such as brown long-eared and northern bats (Vintulis & Petersons 2014). Temporary illumination of the interior of such cellars by light bulbs is tolerated by bats, presumably because the light is switched on for only a few minutes at a time (Fig. 2.6), yet long-term or comparative studies on this topic have not yet been undertaken.

2.7 Commuting routes and feeding areas

ALAN may affect the ***commuting routes*** of bats. The effects of light on commuting *M. dasycneme* were experimentally studied by placing a strong lamp (1 kW) along existing ***commuting routes*** (Kuijper *et al.* 2008). The artificial light reduced the percentage of ***feeding buzzes*** by more than 60%, although the abundance of insects tended to increase. Experiments at hedgerows at eight sites in southern Britain indicated that *R. hipposideros* reduced their activity in proximity of light sources (HPS lamps) and delayed the onset of commuting behaviour (Stone *et al.* 2009). The number of commuting bats declined even for bats on the dark side of a hedgerow, indicating that even low levels of light (in average 4.2 lx at 1.75m above the ground) have a negative effect on the commuting behaviour of this species (Stone *et al.* 2009). LED lights also reduced the commuting activity of *R. hipposideros*, even when the lights were dimmed to 3.6 lx at 1.7m above the ground (Stone *et al.* 2012).

Installation of ALAN had a substantial effect on the commuting behaviour of free-flying little brown bats (*M. lucifugus*). Apparently, ALAN prevented bats from flying into the illuminated area and made the flight situation more complex, resulting in a dramatic failure of orientation (McGuire & Fenton 2010). Recent studies revealed that even *P. pipistrellus*, the most common bat species in European cities, avoids highly illuminate areas when commuting even though this species tolerate ALAN when foraging around street lights (Alder 1993; Limpens *et al.* 1997; Verboom & Spoelstra 1999; Hale *et al.* 2015).

Street lights may have two principal effects on bat foraging. The first one is direct, as ALAN may repel light-averse bats from lit areas and restrict their use of commuting or feeding space. Indeed, rows of lights may form barriers which fragment the landscape and constrain flyways and therefore also the use of roosts and feeding grounds (Stone *et al.* 2009, 2015b; Mathews *et al.* 2015; Rowse *et al.* 2016a; Hale *et al.* 2015). Street lamps along roads might also act as fatal traps by increasing bat mortality due to more frequent collision with vehicles, an aspect that awaits investigation (Stone *et al.* 2015a; Fensome & Mathews 2016). The second one is indirect, as street lights may attract insects and thus influences availability and abundance of prey (see Chapter 2.1).

Generally, ALAN may be exploited by bats in diverse ways, depending on the species, as illustrated in Fig. 2.7. The smaller and more manoeuvrable species generally fly lower and closer to the light source, while the larger and faster species usually

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fly higher and cover wider areas. How the largest and fastest bats such as *Tadarida* spp. exploit urban areas at high altitudes is generally unknown, although there may be considerable activity of bats above city centres.

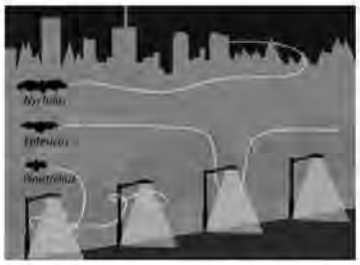

Figure 2.7. A general scheme showing how the size and wing shape relates to the way bats of different genera typically exploit a row of street lights. The smallest bats, e.g. P. pipistrellus, *normally use only one or a few lights at a time and spend some time in each light cone. Bats of the* genus Eptesicus *usually patrol the entire light row and make short and quick dives into the light cone in chase for insects, typically moths. Bats of the genera* Nyctalus *and* Vespertilio *are seldom seen in the light cones of small streetlamps, but occasionally at larger light sources, such as floodlights (© J. Eklof).*

Stadiums, train stations, harbours and airports are often illuminated with very strong floodlights. There are early observations of bats hunting under floodlights of airports (Gould 1978), later confirmed for flood lights at stadiums (Schoeman 2015). Hunting for insects at such strong lights is observed in free-tailed bats (*Molossidae*) and sheath-tailed bats (*Emballonuridae*), particularly in the tropics. Such behaviour is also shown by other fast-flying species, *e.g.* the *V. murinus* and the *N. noctula* and *N. leisleri*.

Waterways, such as canals, streams and rivers, are important flyways and feeding sites for a diversity of bats. In particular, trawling mouse-eared bats, such as *M. daubentonii*, *M. dasycneme* and *M. capaccinii* are among the most light-averse bat species (Jones & Rydell 1994, Kuijper *et al.* 2008). Lighting of waterways and associated structures, *e.g.* valve bridges and locks, for aesthetic purposes may therefore have serious negative consequences for these species (Kuijper *et al.* 2008).

Drinking sites are important for a variety of bat species, particularly those in Mediterranean, semi-arid and arid areas, and probably for most or all female bats during lactation. Exposing these sites to ALAN has serious negative consequences for bats, almost regardless of species. Russo *et al.* (2017) illuminated ponds in Italy with a strong floodlight and found a negative effect on the drinking activity of all local bats, even on opportunistic species such as *P. kuhlii*. It is likely that bats at drinking sites are also affected when lighting levels are much lower. This applies not only to ponds in arid areas, but also to small bodies of water in forests. The widespread use of artificial lighting along rivers, canals or lake shores may therefore have severe consequences for bats and this fact should be considered whenever illumination of water bodies is planned or installed.

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2.8 Effects of ALAN on bat communities

ALAN causes species-specific responses (RYDELL 1992; STONE *et al.* 2009; LEWANZIK & VOIGT 2017), which could cause displacement of species (POLAK *et al.* 2011; STONE *et al.* 2015b). For example, a competitive relationship between two bat species that respond differently to ALAN may possibly drive changes in local bat populations (HAFFNER & STUTZ 1984/85; ARLETTAZ *et al.* 2000). In extensively lit areas, the light-averse species of bats may disappear, at the same time the abundance of opportunistic species may increase when competition is reduced. In the long run, this effect may alter local bat assemblages (ANCILOTTO *et al.* 2015; SCHOEMAN 2015).

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3 General aspects of the planning process

The increase of ALAN affects bats and ecosystems at various scales, reaching from local effects to regional or even global levels. Consequently, protective measures for bats should be integrated into planning and policy processes on all these spatial scales. Particularly, addressing the negative impacts of ALAN on bats (and other protected species) for all functional habitats should be a constituent and explicit part of national planning frameworks. The details of these measures should follow the principles of the mitigation hierarchy – starting with avoidance, then mitigation and lastly compensation (Chapter 5). To achieve this, at the national level the impact of ALAN should be incorporated in the state's ***Strategic Environmental Assessment*** (SEA) to detect environmental conservation problems in plans and programmes. The national implementation of ***SEA*** should then be included into regional and local plans and strategies.

Planning policies at the regional and local level deal with a broad range of issues, including economic development, transport, housing, environment and energy. Consequently, the plans and strategies at this level of governance have potential for adversely affecting the conservation status of protected species. The guidance produced for planning authorities at these levels of governance needs to address how to deal with conflicts between the provisioning of ALAN for humans and the conservation of our natural heritage. By considering possible conservation issues at an early stage in the planning process, conflicts between stakeholders can be avoided or reduced. At the regional or local level this should be achieved through ***Environmental Impact Assessment*** (EIA). GIS-based approaches (Fig. 3.1), ***e.g.*** the online application available at https://www.lightpollutionmap.info (Fig.3.2) may help to identify areas of potential conflicts. Guidance for carrying out ***EIAs*** around infrastructure construction or other developments should highlight the importance of standardised bat surveys that assess the potential impact of lighting schemes in a methodical manner and oblige developers to employ the mitigation hierarchy (BATTERSBY ***et al.*** 2010). Where new lighting schemes are unavoidable, it should be mandatory to develop a lighting plan that considers the needs of bats and other wildlife so that a potential negative impact is avoided, or suitable mitigation and post-development monitoring schemes are put in place (Chapter 5).

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Impact zone of artificial lighting	Spatial scale	Planning tools for the consideration of lighting schemes
Migration routes (autumn/spring, long and short distance)	National and regional	• National environmental programmes/regulations; • Regulations/aims of national parks, biosphere reserves, nature parks, Natura 2000 sites • Regulations in national infrastructure projects • Regional conservation plans/landscape plans
Landscape	National and regional	
Commuting route	Regional and local	• Regional conservation plans/landscape plans • Management plans for protected areas (*e.g.* Natura 2000) • Guidelines for ecology assessments surveys • Guidelines for new buildings/developments/ refurbishment • Municipal regulations of o historic buildings o roads o private properties o sport facilities o advertisement o agriculture (*e.g.* greenhouses) o local conservation sites o management plans for caves, parks, green spaces, lakes
Feeding area	Local	
Roost (*e.g.* maternity, hibernation, swarming, mating)	Local	
	Local	

Table 3.1. Summary of spatial scale impacts and planning considerations.

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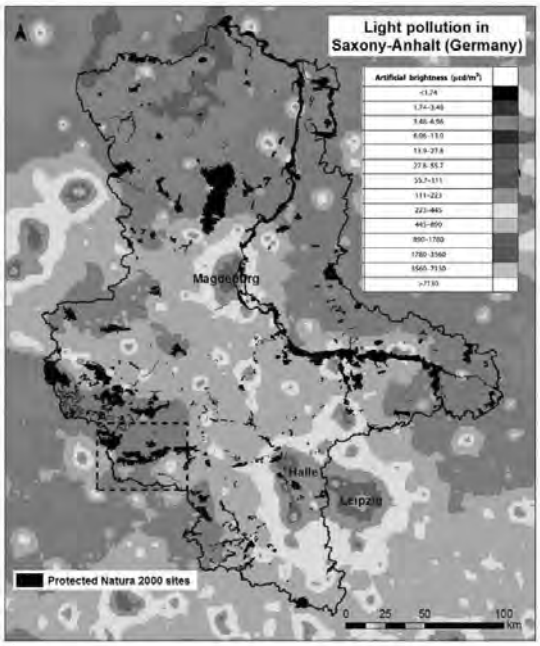

Figure 3.1. GIS map of the German state of Saxony-Anhalt showing Natura 2000 sites and ALAN for identifying zones of potential conflicts between light pollution and protected bat habitats. Dashed line indicates the area of **Figure 3.2** *(© K. KUHRING & M. FRITZE, GIS layer source: F. FALCHI et al. 2016).*

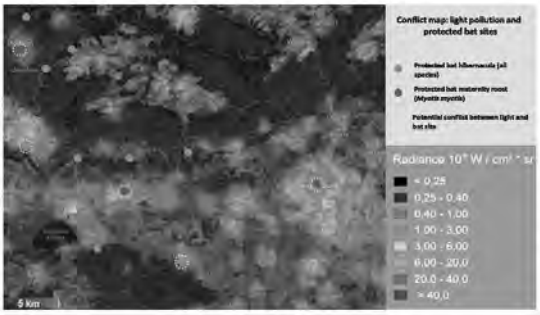

Figure 3.2. A map of the southern Harz in Saxony-Anhalt (local scale) showing protected bat hibernacula and maternity roosts of Myotis myotis *together with ALAN. Mapping may help to identify potential conservation conflicts (© K. KUHRING & M. FRITZE, ALAN map source: https://www.lightpollutionmap.info).*

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4 Carrying out impact assessments

4.1 General aspects of monitoring and assessment schemes

The most important feature of monitoring schemes, regardless of taxa and context, is a sound research question based in ecological theory, that is tested using a standardised survey technique, with all external factors kept constant (or as close to constant as possible) except for the change in the relevant factor, *i.e.* ALAN. For the assessment of the effects of the impact of a change in lighting, this is typically a before-after treatment assessment, such as counting the number of bats emerging from a roost before and after illumination was installed. A Before-After-Control-Impact approach (abbreviated as BACI) may consider co-varying factors such as the season or the year when multiple factors may change with the light treatment (*e.g.* Rowse *et al.* 2016b, 2018, Lewanzik & Voigt 2017). A standardized survey approach will ensure that other information required for interpreting the results, for example environmental conditions such as lunar cycle, ambient temperature, precipitation, is routinely recorded. More general aspects for surveillance and monitoring of bats can be found in the corresponding EUROBATS guidelines (Battersby *et al.* 2010). In the following, we will focus on specific aspects related to monitoring the impact of ALAN on bats.

4.2 When and where is monitoring important?

Monitoring is needed in all situations where bats are present and an installation or change in artificial light is planned. In some cases, the presence of bats may already be an established fact, especially for large roosts located in buildings, however ***commuting routes*** are usually unknown for these colonies. In most cases exploratory survey will be needed that target the planned change in ALAN. Changes may include the application of mitigation measures, the installation of new illumination, changes in the type of lamps or a modification of the lighting schedule (such as the duration of operation, or seasonal changes in lighting patterns).

Two situations in which the collection of data on the impact of ALAN on bats is particularly important are: 1) changes of ALAN at specific functional bat habitats such as roosts, ***commuting routes*** or ***foraging areas***, and 2) changes of ALAN on the landscape scale that could affect the ability of bats to access ***feeding areas*** and/or alternative roosts. Examples of the second case could include the illumination of river banks and roads.

4.3 Which data should be collected?

The following list provides a general guideline regarding the minimum level of data collection that should be conducted at each site.

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General guidelines

- Check whether measures are implemented correctly, in case of the application of mitigation measures;
- Use the same equipment wherever possible, with the same settings, before and after the lighting change;
- Be aware of, and record, additional changes in the vicinity of the location being monitored. For example, habitat alterations which may affect bat activity independent of the effect of lighting.
- Ensure that sufficient data are collected to consider temporal variation in bat activity, *e.g.* from day to day or across seasons. In the case of landscape surveys, automated static bat detectors should be used as these allow efficient data collection over multiple nights;
- The surveys conducted before and after changes to the lighting regime should be performed at the same time of year and in comparable weather;
- When conducting roost surveys, ensure that all exit points are monitored;
- For surveys in the wider landscape away from roosts, conduct surveys over a distance of at least 100 meters, incorporating areas at which the lighting will be changed. Paired control sites where the lighting regime is unchanged should always be included as part of the survey design: this is particularly critical in situations where a before-after comparison is not possible. For a detailed description of how to set up schemes for the monitoring of roosts, see section 3.3 in the EUROBATS guidelines (BATTERSBY *et al.* 2010).
- Surveyors are encouraged to interpret the data they collect to identify patterns of use. For example, peaks of activity at dawn and dusk may indicate proximity to a roost.
- Differences in illumination should be measured and compared with original lighting plans.
- Light meters can be useful, but must be calibrated appropriately, and the same instrument should be used for before- and after-change measurements.
- Another option for quantifying illumination is to use a digital single-lens reflex camera (DSLR) on a tripod. Before and after the change in lighting, photographs should be made from the same spot, with the same DSLR, the same lens, and with the same ISO, image format, aperture, shutter speed and white balance settings (*e.g.* LAMPHAR *et al.* 2014).

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5 Avoidance, mitigation and compensation

As outlined before, ALAN directly affects bats in their activity at night. It is important to keep in mind that ALAN also affects the insects that they feed on. Thus, any consideration of lighting schemes should include both direct and indirect effects, ***i.e.*** via trophic interactions.

5.1 Avoidance

As a rule, ALAN should be strictly avoided, and artificial lighting should be installed only where and when necessary, ***i.e.*** when ALAN is needed for safety reasons or to comply with the legal framework. Through careful consideration prior to development of new infrastructure it is often possible to avoid illumination of bat habitats without putting human safety at risk. The protection of dark refuges is essential for bats, particularly in urban areas. Land-use planners and authorities should pay attention to the preservation of dark corridors between roosts and larger unlit, vegetated areas such as urban parks and gardens which might function as the ***feeding areas***. A network of dark corridors would allow bats to commute between roosts and feeding areas without exposure to direct illumination in a landscape that is otherwise fragmented by ALAN (Fig. 5.1). Particularly, in towns where vegetation is scarce and most of the soil is sealed, spatial planning of outdoor lighting and of a 'light-exclusion network', respectively, should be set up concomitantly with the planning of a green infrastructure network.

Dark corridors should provide protective vegetation cover, ***i.e.*** optimally a closed canopy, which helps bats as a leading structure when commuting. Vegetation cover could also provide shade from ***skyglow***. Bright paving materials, that reflects moonlight, help to reduce ALAN since roads and trails are better visible for humans in the twilight. New solar-charged light-emitting materials which could substitute the use of artificial lights at bike paths are being tested (Fig 5.2). Influence of such 'glowing paths' on wildlife has to be evaluated and compared with that of conventional lighting.

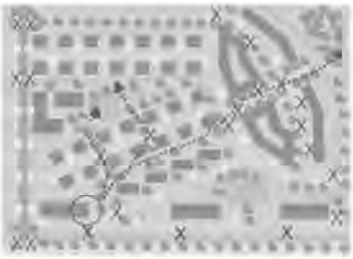

Figure 5.1. Schematic map of a village (dark grey: buildings; light grey: a small road; light blue: water bodies; brown: a large road; green-grey tree silhouettes: locations of trees). Bats emerge from a large building in the lower left corner (red circle) and commute (dashed green lines) along alleys to their foraging areas at a pond and in the forest. It is advised to avoid illumination or shield luminaries at the highlighted areas (red crosses) along treelines, waterbodies/channels and sites where treelines and channels cross the road (© H. LIMPENS).

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Figure 5.2. Example of a bicycle trail with a lighter paving material allowing to use it without street lights later in the evening (© H. LIMPENS).

Figure 5.3. Installation of luminaires on short poles for mitigating the effect of ALAN on a commuting route through an underpass in the Netherlands (the same place in daylight and at night). This solution was proven as efficient for P. pipistrellus *but not for the low-flying species* M. daubentonii *(© F. BREKELMANS).*

When ALAN is needed for safety reasons, dynamic lighting schemes that are switched on only when needed should be considered. Dynamic lighting schemes are usually triggered via motion sensors by a pedestrian, bicyclist or cars.

Use a minimal number of lighting points and ***luminaires*** on low positions in relation to the ground for minimising ***light trespass*** to adjacent bat habitats or into the sky (Fig. 5.3).

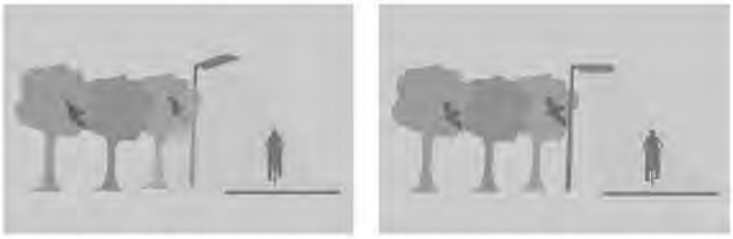

Figure 5.4. Avoidance of light trespass by installing shielded luminaries. Left - conventional luminaire with light spillage into the adjacent forest habitat, right - shielded luminaire that focuses the light cone only on the area where it is needed (© H. LIMPENS).

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Use focused light, ***e.g.*** by using LED or shielded ***luminaires*** which limit the light flux only to the required areas and prevent ***light trespass*** into adjacent bat habitats (Figs. 5.4 and 5.5).

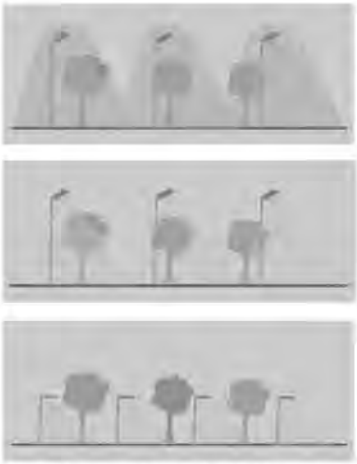

Figure 5.5. Combined effect of shielded luminaires and short poles on reducing light trespass. First picture - unshielded luminaires, second – luminaries with shields. The third picture shows shielded luminaires on short poles which cut-off light trespass and keep adjacent areas dark (© H. Limpens).

Create screens, either by erecting walls or by planting hedgerows or trees, to prevent ***light trespass***, ***e.g.*** from illuminated roads, to surrounding bat habitats. Screens can reduce the negative effects of ALAN on bats to some degree (Mathews ***et al.*** 2015; Fig. 5.6, 5.7).

Figure 5.6. In the Netherlands, walls were designed to avoid light trespass from a highway to a wildlife bridge with commuting routes (© H. Limpens).

Figure 5.7. Partially shielded noise screens, installed during the construction of a new motorway in the Netherlands for avoiding light trespass to a compensation area with bat habitats (© V. Lorenz).

Exits of bat roosts and a buffer zone around them should be protected from direct or indirect lighting to preserve the natural circadian rhythm of bats. Given that aesthetic light is not required for safety, arguments for such illumination should be reconciled with the need to preserve the nature and nocturnal organisms. Corresponding adjustments to existing artificial lighting should be made.

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The following prioritization for areas of conservation concern should be regarded when planning outdoor lighting:

P1: Protected areas (parks, natural monuments) including Natura 2000 sites

- Core zones of protected areas need strict avoidance of any external ALAN, except for inevitable purposes if required by a legal framework (safety). Mitigation measures (Chapter 5.2) must be considered and applied wherever possible.
- In buffer zones around the protected area only long-wavelengths luminaries should be allowed, which do not contribute significantly to ***skyglow***. In buffer zones, light pollution shall be minimised, and further lighting limited (Gaston *et al.* 2015). For unavoidable lighting, mitigation measures must be wherever possible applied. Any light in the buffer zone must be distant enough for ensuring that its ***illuminance*** level at the boundary of the protected area is lower than 0.1 lx, which roughly corresponds to the brightness of a full moon.

P2: Underground and overground roosts

- Strict avoidance of any direct artificial light inside the roost and at its entrances/exits. ***Illuminance*** levels caused by distant lights must be below 0.1 lx at the roost entrances, exits and along the emergence corridors outside the roost (measured by holding a luxmeter in a vertical position at 1.5 m above the ground, measuring perpendicular to the sky, or next to the roost entrance or exit).
- A flyway from the entrances/exits towards nearby unlit hedgerows, treelines or other structures used by bats for commuting must be kept unlit, with light levels below 0.1 lx. If possible, a preferable direction of emerging bats should be investigated beforehand, and the dark corridor accordingly outlined.

P3: Habitats that constitute key feeding areas of light-averse bat species, such as bodies of water (*e.g.* river banks, ponds, canals) and forests

- Strict avoidance of any direct ALAN. ***Illuminance*** levels due to distant lights must be below 0.1 lx.

P4: Habitats that are often used by bats for foraging and commuting, such as urban parks and gardens, the edges of forests, hedgerows and tree lines

- ALAN should be avoided whenever possible. Alternatively, partial lighting or dimming may be used to reduce the negative impact on foraging and commuting bats.

In summary, ALAN should be avoided wherever possible. For any unavoidable artificial lighting at night, adequate mitigation measures (see below) have to be considered and applied wherever possible.

5.2 Mitigation

Careful evaluations of the potential impact of light pollution on bats must be considered prior to any outdoor lighting projects. If artificial light is necessary for social, security or safety reasons, it is of major

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importance to adopt a "need-based" outdoor lighting planning strategy in order to illuminate only WHEN and WHERE it is actually required (Kyba *et al.* 2014). In this context, limiting the temporal and spatial extent of ALAN is a key issue for mitigating the adverse impacts of light pollution on biodiversity (including bats).

Outdoor lighting planning requires ALAN management through five integrated levels of action that emphasize 1) the spatial arrangement of artificial light sources to enhance connectivity between dark refuges for foraging and roosting in the landscape (see 5.1 Avoidance) and 2) its duration to illuminate only when it is necessary for humans (Kyba *et al.* 2014). Once areas and time periods that actually need to be lit have been defined, outdoor lighting planning should focus on 3) reduction of ***light trespass*** on nearby vegetation through precise directionality of the luminous flux; 4) reduction in the ***illuminance*** of light sources; and 5) adaptation of the spectral composition of the lamps according to the ecological context (Gaston *et al.* 2012; Schroer & Hölker 2016). Outdoor lighting planning recommendations for mitigating the impact of ALAN on ***feeding areas*** and ***commuting routes*** are presented in Table 5.1.

5.2.1 Mitigating the impacts of ALAN on feeding areas and commuting routes

Limiting the duration of night-time lighting (part-night lighting schemes): Public outdoor lighting is responsible for a substantial part of local administration's energy consumption and electricity bills. Following the economic crisis of 2008, many rural administrations across Europe have therefore set up part-night lighting schemes by turning off public outdoor lighting from midnight (± 1 hour) to early morning (05-06 AM). Although these schemes have mostly been set up to reduce local electricity costs, they may effectively mitigate the adverse impacts of ALAN on bats as they allow restoring darkness at a landscape scale for several hours during the night. It may hence give light-sensitive species access to additional ***feeding areas*** and restore landscape connectivity for at least part of the night. However, nocturnal biodiversity is mostly active soon after sunset. Most insect biomass is available at dusk and peak of activity of Microlepidoptera occurs during the first two hours after sunset (Knight *et al.* 1994; Jetz *et al.* 2003). As a consequence, nocturnal insectivores including bats follow the same pattern (Jones & Rydell 1994; Jetz *et al.* 2003). Thus, current part-night lighting schemes appear to fail encompassing the range of activity of most bat species (Azam *et al.* 2015; Day *et al.* 2015). In this context, the dark phase of a lighting scheme must begin within the first 2 hours after sunset to capture more than 50% of nightly bat activity (Fig. 5.8; Day *et al.* 2015). This would be crucial for bats during reproduction and migration. For an entire city or village, such a scheme would likely face resistance from local inhabitants (Gaston *et al.* 2012). However, the emergence of adaptive lighting technologies may open new opportunities for adopting specific part-night lighting schemes at landscape features where bats commute and forage.

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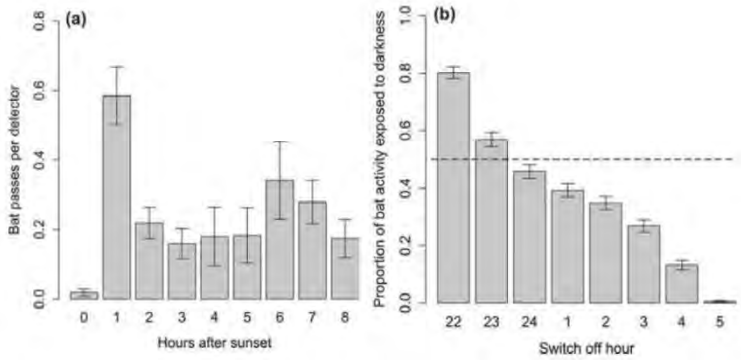

*Figure 5.8. Results of a study in the UK on the activity rhythm of greater horseshoe bats (*Rhinolophus ferrumequinum*) with (a) mean hourly bat passes (±se) across sites and (b) proportion of activity potentially exposed to dark conditions within part-night lighting scenarios. A dashed line represents 50% bat activity in the dark portion of the night (*Day *et al. 2015).*

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Dimming illuminance and limiting light trespass: for safety reasons, the European standard EN 13201 recommends illuminating pedestrian pathways and low-traffic roads with a minimum of 7.5 to 10 lx, and commercial areas and access roads with a minimum of 15 to 20 lx. These guidelines conflict with bat conservation as light-sensitive bats avoid areas exposed to even lower ***illuminance*** values (Kuijper ***et al.*** 2008; Stone ***et al.*** 2012; Lacoeuilhe ***et al.*** 2014; Lewanzik & Voigt 2017). Furthermore, many bat species show lunar phobia and reduce foraging and commuting activities during full-moon nights (Saldaña-Vázquez & Munguía-Rosas 2013). In this context, it is important to stress again that exposure to ***illuminance*** as low as full moon (***i.e.*** 0.1 lx) may already have a negative impact on bats. Thus, it is probably impossible to define an ***illuminance*** threshold that is compatible with both security standards and conservational requirements. However, the night-time light pollution is often exacerbated by poor lighting designs that emit light in upward and horizontal directions and induce ***light trespass*** (Gaston ***et al.*** 2012). The trespass may impact significant amounts of natural and semi-natural vegetated patches (Marcantonio ***et al.*** 2015). Therefore, reducing ***light trespass*** may effectively limit impacts of light pollution on biodiversity, and simultaneously decreasing electricity consumption.

Falchi ***et al.*** (2011) provide practical recommendations for limiting light pollution in outdoor lighting:

1. Dim light according to actual human usage of a given area to avoid overly illumination. This is particularly relevant for

commercial and industrial areas which are often brightly lit (Hale *et al.* 2013).

2. Use fully shielded ***luminaires*** that have no light emitted above the horizontal.
3. Direct downward light flux only toward the area that needs to be lit. Correcting a luminaire's height can help to focus light and avoid pollution.

These recommendations should help to avoid the vertical illumination of important bat ***commuting routes*** and ***feeding areas*** such as forest edges and hedgerows. Furthermore, controlling luminaires' height could also allow darkness restoration in the upper canopies of trees.

Finally, it is important to note that light reflected from lit surfaces can also induce significant upward light emissions and hence light pollution. For example, in Lombardia, Italy, although 75% of the artificial sky brightness is produced by light escaping directly from fixtures, 25% of it is induced by the reflections off lit surfaces (Falchi *et al.* 2011). Thus, replacing light-reflective surfaces by light-absorbent ones could be an effective way to reduce ***light trespass*** (Gaston *et al.* 2012).

Limiting the short wavelength (UV and blue) content of the light spectrum: In the EU, the most widely used types of light sources for streetlamps are sodium vapour lamps (HPS and LPS), MH and HPMV lamps representing 37, 36, and 27% sales, respectively, for the period 2004-2007 (European Commission 2011). However, since the European Eco-Design Directive (245/2009) became effective, HPMV lamps are being progressively phased out because of their low energetic efficiency (Table 5.1). This change occurs concomitantly with the increased cost-effectiveness of energy-efficient LEDs, representing so far approximately 7% of the European market (Zissis & Bertoldi 2014). HPMV, MH and standard white LED lamps often have broad-spectrum emissions, with an important peak of energy in the blue range and Correlated Colour Temperatures (CCT) > 3000 K.

Short wavelength emissions in the blue and UV ranges are responsible for the "flight-to-light" behaviour of billions of insects (van Langevelde *et al.* 2011) (see Chapter 2.1). During their search for insects, fast-flying aerial-hawking bats such as *Pipistrellus* spp. are therefore more attracted to MH and HPMV than to sodium lamps and white LEDs (Stone *et al.* 2015a; Lewanzik & Voigt 2016). However, although blue and UV emissions may offer foraging benefits for some bat species, they raise environmental concerns as they control melatonin secretions in mammals (Falchi *et al.* 2011, Schroer & Hölker 2016) and likely induce long-term population declines in insect communities (Conrad *et al.* 2006). Furthermore, blue and UV emitting light sources may attract insects from adjacent dark habitats, and thus may lower the quality of these adjacent habitats for bats (Eisenbeis 2006, chapter 3). In this context, it is important to avoid streetlamps emitting "cold-white" light containing wavelengths below 540 nm and with a CCT > 2700 K. It is important to point out that UV light is useless in street lights since it cannot be perceived by humans. Hence, wavelengths in the UV range can be filtered without any decrease in ***illuminance*** level. In contrast to humans, many bats can per-

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ceive UV light (Zhao *et al.* 2009, Fujun *et al.* 2012, Gorresen *et al.* 2015). For them, light sources emitting UV waste light presumably appear brighter than light sources with longer wavelength spectra. Consequently, UV-emitting lamps are particularly disturbing for light-averse bats and filtering the UV part of the spectrum may mitigate the effect of ALAN on them.

Nevertheless, it is important to note that slow-flying light-sensitive species such as *Myotis* spp. and *Rhinolophus* spp. avoid illuminated areas regardless of conventional lamp spectra. Negative effects of artificial lighting on their activity have been reported for HPMV (Lewanzik & Voigt 2016), HPS (Stone *et al.* 2009; Azam *et al.* 2015b), and white LEDs (Stone *et al.* 2012). This evidence supports the hypothesis that there are no "bat-friendly" conventional lamp types. Specifically designed light sources can however be an alternative. For example, deterrence of slow-flying bats (*Myotis* spp. and *Plecotus* spp.) and artificial attraction of agile species because of insect attraction (*e.g. Pipistrellus*) in foraging habitat can be avoided by using light with a reduced amount of blue, and an increased amount of red in its spectrum (Spoelstra *et al.* 2017).

Excluding any unwanted effects of any light type or spectrum remains difficult, and it is therefore important to state that darkness is always preferable. However, streetlamps with a pronounced blue content such as "cold-white" LEDs or MH significantly increase light pollution on a landscape scale because blue light is more easily scattered in the atmosphere than green and red lights (Falchi *et al.* 2011). A simulation of a transition from HPS outdoor lighting to white LEDs (4000 K) across Europe revealed a 2.5-fold increase in night sky brightness perceived by a human dark-adapted eye (*i.e.* Falchi *et al.* 2016). Thus, broad spectrum lamps emitting a substantial proportion of their energy in the short wavelength range are likely to exacerbate nightscape fragmentation and induce landscape-scale loss of dark refuges for bats.

New lighting technologies – opportunities and threats: We are currently witnessing an important development in outdoor lighting management as most existing lighting infrastructure is reaching its end-of-life in Europe. In the meantime, the increased cost-effectiveness of LEDs which are highly energy-efficient and have good luminous efficacy, will likely engender an exponential deployment of this technology in outdoor lighting in the coming decade (Zissis & Bertoldi 2014). As with many technological innovations, LEDs not only offer opportunities to limit light pollution, but also potent to increase it (Stanley *et al.* 2015). On the one hand, they can allow light to be directed with unprecedented precision and dimmed, via central management systems, according to human rhythms of activity throughout the night over large scale (Kyba *et al.* 2014). The potential of the adaptability of the spectrum of LEDs can be further explored to reduce impact on natural systems and be used to optimize light for different social contexts. Accordingly, this technology can offer promising options to design outdoor lighting schemes that can limit both the spatial and the temporal extents of ALAN and restore dark-

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ness integrity in human-inhabited landscapes. On the other hand, the massive deployment of LEDs in public infrastructure may come with a "rebound effect", characterized by both 1) the introduction of new artificial light sources in previously unlit areas, and 2) the use of brighter and often "cold-white" street lights (Kyba *et al.* 2014, 2017). Therefore, an ecological expertise of outdoor lighting projects will be particularly crucial in the coming decades to ensure that this technological innovation does not increase light pollution (emissions). Additional information on outdoor lighting recommendations can be found on the COST "Loss of the Night Network" website (http://www.cost-lonne.eu/recommendations/).

	Measure	Recommendations
Avoidance	*Conserve dark areas*	High priority areas that should remain dark: • protected areas, including roosting and underground hibernation sites • feeding areas (natural areas, vegetation patches) • commuting routes (forest edges, hedgerows, rivers, tree lines)
Only if lighting is necessary, and after an assessment of bat occupancy and patterns of activity within the landscape framework of functional habitats:		
Mitigation	*Part-night lighting*	Turn off public outdoor lighting within **2 hours after sunset** (civil twilight): • Especially during bat reproduction and migration periods • Particular attention within home ranges of maternity colonies
	Dimming	• Adapt dimming strategy to human activities • Keep illuminance levels as low as possible according to EU standards (not going over minimum illuminance required)
	Avoid light trespass	Avoid light trespass over 0,1 lx on surrounding surfaces: • Use fully shielded luminaires • No illumination at or above horizontal • Control street light height, especially along pedestrian pathways and tree lines • Use fewer light sources at points low to the ground • Consider the interaction between light from luminaires and reflecting structures, such as roads and walls
	Adapt lamp spectra	Avoid lamps emitting wavelengths below **540 nm** (blue and UV ranges) and with a correlated colour temperature > 2700 K
Compensation	*Restore dark areas*	No net loss of darkness: • Restore darkness to the same extent as the proportion of dark areas lost • Enhance alternative dark corridors that connect roosts and feeding areas

Table 5.1. Synthesis of the outdoor lighting planning recommendations to limit the impacts of ALAN on bat feeding areas and commuting routes.

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5.2.2 Mitigating the impacts of artificial lighting on bat roosting sites

It is paramount to completely avoid artificial illumination at bat roosts. The mitigation measures should be applied only when compelling arguments are present, as absolutely "bat friendly" illumination is impossible (MOHAR *et al.* 2014). The proposed mitigation measures should not be regarded as equal alternatives to avoidance, but only as actions with diverse levels of effectiveness for bat conservation. ALAN at bat roosts may originate from sources situated either inside (*e.g.* in caves or church interiors) or outside the roosting structure (*e.g.* external illumination of cultural heritage buildings, or natural rocky walls).

Artificial light outside of bat roosts (see Chapter 2.4): ALAN in front of a roost can affect the evening emergence behaviour and impact ***commuting*** bats (BOLDOGH *et al.* 2007; STONE *et al.* 2009, 2012). This impact can be reduced by installation of screens or masks that exclude the surfaces with flight openings, and that are directed on the walls of a building to reduce or avoid ***light trespass*** to the environment (MOHAR *et al.* 2014). Similarly, light sources illuminating a tree roost exit could be equipped with a shield, which prevents direct illumination of the exit and attributed ***commuting routes***. Wherever exits are already indirectly illuminated, the ***light trespass*** on such surfaces should be stopped. The effectiveness of such measures was studied in a project in Slovenia, on some roosts of *R. hipposideros* (MOHAR *et al.* 2014). If a church was illuminated by exaggerated light intensities and light spilled on some flight openings, more bats left the roost from those flight openings that were left dark (ZAGMAJSTER 2014). When masks that shaded the illumination of flight opening were installed, bats started to use the shaded flight openings.

Seasonal part-time lighting refers to controlling the illumination according to the season when the roost is occupied by bats. Some churches in Slovenia are lit with external illumination only during the most important religious events, like Christmas and Easter, while during the rest of the year the illumination is switched off. As bats inhabit such churches only during the time of nursery colonies, such a roost can be regarded non-illuminated from the bat perspective (ZAGMAJSTER & HERCOG, submitted).

Seasonal effects of human impact on bat roosts are more common at places that are visited by tourists throughout specific seasons. For example, the Predjama cave in Slovenia, one of the most important bat hibernation sites in Slovenia (PRESETNIK *et al.* 2009) is not visited by tourists during the winter. In the case of the Ajdovska jama cave in south east Slovenia, tourist visits and illumination of the cave interior is prohibited in summer, due to the presence of a Mediterranean horseshoe bat (*Rhinolophus euryale*) nursery colony (PRESETNIK 2004).

The timing of external illumination may also be adjusted on a daily basis. For example, Slovenian guidelines recommend that the illumination should be switched off after 23.00 hours (MOHAR *et al.* 2014). This proposal was made mainly to provide enough time for night active moths to leave their resting places near the lights and con-

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tinue their life cycle, although any effect of this proposed timing on bats was not specifically studied. At least, in case of *R. hipposideros*, *Plecotus macrobullaris* and *Eptesicus serotinus* bats left the roost also under illuminated conditions, but with a delayed emergence time (Zagmajster 2014; Zagmajster, unpublished data). However, switching the lights on later in the night can present a new light barrier when bats return to the roost; especially when mothers return to feed the juveniles. However, there is no empirical evidence that a temporary illumination scheme is less impairing for bats than continuous lighting. Therefore, the regime of part-time lighting should be avoided in favour of total darkness (Boldogh *et al.* 2007) or evaluated before applied on a larger scale.

Artificial light inside bat roosts (see Chapters 2.5, 2.6): Internal illumination of roosts may occur both in buildings (both at the above- and underground level) and natural underground sites (*e.g.* caves). When lights are installed close to bat roosts, *e.g.* in the attics of a church, they are often used only during the visit of maintenance staff. In such cases, if unavoidable, only weak and highly directed light sources should be installed inside buildings or other structures with roosts. It should only provide sufficient light for short term visits by humans, but without trespass to the spaces below the roof and on roost entrances (see also Boldogh *et al.* 2007). Bats may become trapped in the roost in case lights would have accidentally left on (*e.g.* Kugelschafter unpublished, referred to in Zeale *et al.* 2016).

Any internal lighting (including that of hand-held torches and headlamps) as well other as disturbances due to visits shall be avoided at underground sites with either maternity or hibernation roosts. As show caves are sometimes large and complex, tourist trails should guide visitors in a distance from sensitive parts used by bats. Such parts must not be illuminated under any circumstances. A smart lighting design can be applied in show caves, *e.g.* by directing light only at specific cave formations. To avoid ***light trespass*** when illuminating the footpaths, only directional or low path lighting should be used. There are many examples where larger subterranean sites are split into illuminated parts for tourists and dark parts for bats, which show how the conflict between economic interests and conservation requirement can be reconciled. For instance, fortifications in Nietoperek (Poland) and abandoned limestone mines in Mönsted and Daugbjerg (Denmark) have been split into dark and lit parts, with latter ones opened for tourists. Part-time lighting in caves may also represent an effective method to mitigate the effect of interior lights on bats, *i.e.* illumination is only switched on when visitors are present. However, the evidence is lacking whether this scheme might aid bats inside the cave. Further, artificial light in caves can be dimmed to low intensities since the human eye will adjust to these low light levels over time (Mohar *et al.* 2014).

5.2.3 Adjusting light spectra

Little is known about the wavelength-specific response of light receptors in European bats and less so about the light spectra that affect their behaviour most severely.

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However, different light spectra can have different effects on the emergence behaviour of bats (Downs *et al.* 2003; Fig. 5.9). Compared to no artificial illumination, red light had the least effect on number of emerging *Pipistrellus pygmaeus* from two roosts while the number dropped significantly when the roost exits were illuminated with blue and white light (Downs *et al.* 2003). Red light was proposed for being used in bat roost checks, supposedly having least effect on bats (Downs *et al.* 2003). A recent study (Spoelstra *et al.* 2017; see Fig. 5.10) showed that reducing the blue and increasing the red part of the spectrum of a light source significantly mitigates its impact on slow-flying *Myotis* and *Plecotus* species in their foraging habitat. Conversely, the absence of blue light reduced the attraction of insects and thereby the attraction of agile, opportunistic species such as *Pipistrellus* spp.

Voigt *et al.* (2018) observed an increase in flight activity for migrating *P. pygmaeus* and a trend for a higher activity for *Pipistrellus nathusii* around red LED lights, which is unrelated to foraging and could be explained by phototaxis. Therefore, response of bats to light spectra modifications may differ during migration season and seems site and species specific.

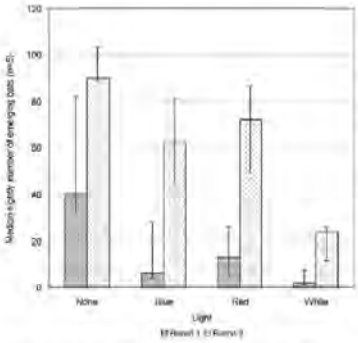

Figure 5.9. The median number of emerging P. pygmaeus with different light treatments for two roosts (plus IQ range) (Downs et al. 2003; the difference was insignificant between the red-light and no-light treatments).

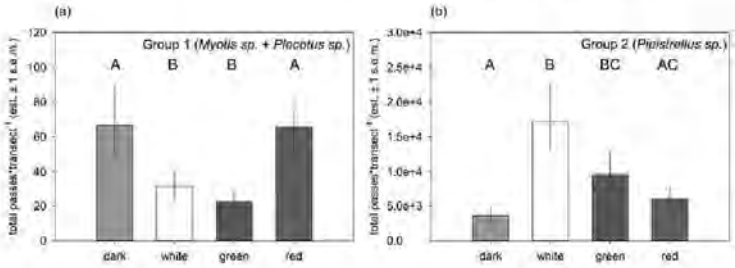

Figure 5.10. Bat activity under four (permanent) lighting conditions (darkness, white, green, and red light) measured over the course of five years in forest edge habitat (model estimates). Group 1 includes slow-flying light-averse species (Myotis and Plecotus spp.); Group 2 includes opportunistic, agile Pipistrellus species. Capitals identify significant differences between groups in post-hoc tests (figure from Spoelstra et al. 2017).

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	Roosts		
		External illumination of building facades	*Internal illumination of caves and other roosts*
Avoidance	*Conserve dark areas*	Bat roosts should not be illuminated.	Underground roosts (natural or anthropogenic) with hibernating bats and nursery colonies should be kept dark. Tourist visits should be forbidden in such sections.
Only if lighting is considered necessary, and after an assessment of bat occupancy and emergence behaviour:			
Mitigation	*Directional light, avoid light trespass*	Smart lighting onto only specific architectural parts: • surfaces and facades with flight openings must not be illuminated; • luminaires with shades to limit trespass on roost entrances; • directed (controlled) light – no trespass above horizontal.	Smart lighting design only: • low path lighting • light only on selected speleothems.
	Part-time lighting	Only in season when the roost is not occupied. Evening illumination delayed, or lights switched off after critical time period (when needed for human safety).	Temporary lighting only when tourists are present (*e.g.* for emergency exit signs). Sector lighting of interior, light switched off when tourists not present.
	Dimming	Low intensity (below 0.1 lx)	Low intensity
	Adapt lamp spectra	> 500 nm	> 500 nm
Compensation	*Restore dark areas*	Priority roosts should be strictly protected and not illuminated. Provide alternative roosts nearby.	Provide dark chambers and dark flight tunnels.

Table 5.3. Synthesis of the lighting planning recommendations to limit the impacts of artificial lighting on bats in roosts.

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5.2.4 Mitigating indirect effects of ALAN on bats prey

For mitigating the impacts of ALAN on insects, it appears of major importance to limit the amount of blue and UV emissions in outdoor lighting by favouring warm colour temperature lamps (such as low-pressure sodium lamps or amber-LEDs). However, it is important to note that long wavelengths are as attractive as short ones to geometrid moths (Somers-Yeates *et al.* 2013), and that the negative effects of ALAN on moth reproduction was detected regardless of the lamp colour spectrum (van Geffen *et al.* 2015b). Thus, the enhancement of dark corridors and patches in human-inhabited landscapes seems to be a key strategy to effectively limit adverse impacts on biodiversity, including insects (Gaston *et al.* 2012). Outdoor lighting should be separated by at least 25m from vegetated areas, and by at least 40m from riverbanks to limit its effects on insects (Perkin *et al.* 2014; Degen *et al.* 2016). The attraction radius of street lights to moths also suggests that standard inter-street light distances (approximately 20 – 45m) should be broadened without a concomitant increase in light intensity to allow individual dispersal and increase landscape connectivity (Degen *et al.* 2016). Furthermore, particular attention should be given to dimming and orientating street lights for avoiding ***light trespass.***

Finally, although most dipteran and microlepidopteran activity is highest during the first few hours after sunset (Knight *et al.* 1994; Jetz *et al.* 2003), some taxa of macromoths are active much later at night (*i.e.* peak of activity at midnight; Rydell *et al.* 1996). Because of their large eye size, they appear to be more attracted to ALAN than micromoths, which may result in a size-dependent mortality of moths at street lights (van Langevelde *et al.* 2011). Hence, restoring darkness in human-inhabited landscapes for a part of the night, by turning-off street lights from around midnight to morning hours when traffic and human activities resume (*i.e.* part-night lighting schemes) may effectively limit the adverse impacts of artificial lighting on large moth species, which in turn may positively affect the bats that feed on them (such as *Plecotus* spp.; Azam *et al.* 2015).

5.5 Compensation

Compensating the impacts of ALAN on feeding areas and commuting routes: A "No Net Loss of Darkness" approach should be adopted when planning new outdoor lighting projects. These efforts should be paired with a decrease in light emissions from existing illuminated areas in order to halt the yearly increase in night sky brightness over Europe (Falchi *et al.* 2011; Bennie *et al.* 2014b). The extent of ***feeding areas*** and ***commuting routes*** impacted by ALAN should be quantified for restoring the same amount of dark refuges and corridors in alternative areas. These areas should be located nearby outdoor lighting projects, so that the impacted bat population can benefit from these compensation measures.

Compensating the impacts of ALAN on bat roosting sites: Bats use roosts year after year, and some species do not accept new alternative roosts in the vicinity easily (*e.g.*

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Zeale *et al.* 2016). For this reason, it is very difficult to formulate compensation measures for the loss of roosts caused by ALAN. Therefore, the known important roosts in buildings should not be illuminated, or mitigation efforts employed. The same applies to caves and other natural roosts. Alternative dark roosts could be offered, but the effectiveness of these measures should be monitored.

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6 Research priorities

We have already collated substantial knowledge about various detrimental effects ALAN has on bats, yet the effects of ALAN are multifaceted and may be long-term. Therefore, we need further research. It is important to collate and analyse reports and single case studies to draw broader conclusions about the effect of ALAN on bats. Here, we propose some directions for future investigations.

6.1 Fitness consequences

Since bats have a low reproductive rate, it is particularly important to understand higher-level responses of bat species to ALAN. Besides a recent study from Sweden on declines in colonies of *Pl. auritus* (Rydell *et al.* 2017), no other long-term studies, covering several decades, have been carried out to determine if any of the observed behavioural changes in response to ALAN have consequences for fitness of bats. Although a potential effect of different illumination schemes on juvenile growth of *R. hipposideros* was studied in Slovenia at three roosts, observed differences could not be unambiguously related to differences in light regimes (Kotnik 2016). Boldogh *et al.* (2007) reported growth rates of juvenile bats in illuminated and dark roosts and interpreted the differences as a result of illumination. However, Kotnik *et al.* (2017) emphasized that multiple factors can influence reproductive success in a complex manner, and attention should be paid to disentangle the effect of illumination from other factors that may affect juvenile growth. Overall, we need to better understand how ALAN affects critical population parameters such as sex ratio, birth rate, dispersal and survival to understand and predict population-level effects.

6.2 Impacts on bat communities

The current literature highlights that ALAN may cause species-specific responses, which could alter the competitive interactions of bat species. For example, decreases in *R. hipposideros* numbers have been linked to increases in *P. pipistrellus* populations in Switzerland. It was suggested that growing, due to the improved food availability at recently installed streetlights, population of *P. pipistrellus* outcompetes and displaces that of *R. hipposideros* (Arlettaz *et al.* 2000). Further studies are needed to address the impact of artificial lighting on bat communities (Davies *et al.* 2013).

6.3 Emerging lighting technologies – spectra

Given the rapid technological advances outdoor lighting, research on how novel light sources may impact bat activity and reproduction are urgently required. Such studies should use sufficient replicates and a controlled design to generate meaningful data. One such example is the "Lichtopnatuur project" in the Netherlands where the effect of white, red and green LED lighting on various taxa is studied on a large spatial scale (Spoelstra *et al.* 2017; see http://www.lichtopnatuur.org).

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6.4 Bat vision

To improve our ability to predict the response behaviour of bats, it is key to better understand the spectral sensitivity of bat vision. Determining spectral and intensity thresholds for different species would aid to improve mitigation strategies and conservation initiatives (Gaston *et al.* 2013).

6.5 Efficiency of mitigation

Part-night lighting: some initial research has been performed in this area (see Chapter 5.2), but more studies must be done across a broader geographical range to encompass more species.

Motion detection: the dynamic lighting schemes, *e.g.* via the use of motion detectors, have already been implemented in Portugal, the Netherlands and France, and may have ecological benefits. The lights remain switched off unless needed, and so still provide all the perceived public safety benefits (Royal Commission on Environmental Pollution 2009). However, these fluctuations in lighting levels may also be damaging to bats and should be studied.

Light trespass: Currently, it is largely unknown how bats respond to efforts for minimizing the ***light trespass***.

Dimming: More research needs to be launched to improve our ability to define the optimal light intensities that serve both purposes human safety and nature conservation.

Dark zones: effectiveness of dark areas and corridors for bats should be more thoroughly investigated.

Spectrum adjustment: further studies on the impact of altered spectra are essential, for example at various roost types, ***commuting routes*** and on different bat species.

6.6 Measuring light objectively

Illumination is measured in ***lux***, which is defined as the brightness of a light according to human spectral sensitivities; spectral sensitivities of other taxa are often very different from ours. Since the unit is commonly used by lighting engineers, designers and environmental regulators, migrating from this term may thwart interdisciplinary communication (Longcore & Rich 2004). Although outdoor lighting is usually installed for humans and hence measuring light in ***lux*** is a logical approach, this unit lacks key biological information.

6.7 Migration

Migratory animals are particularly sensitive towards anthropogenic changes because they depend on a serious of intact habitats. Some migratory birds are known to get distracted by ALAN, particularly in the red wavelength spectrum. Indeed, a recent study highlights that migratory *P. nathusii* might as well get disoriented, when exposed to artificial green or red light (Voigt *et al.* 2017, 2018), yet the underlying causes and any potential interference of ALAN with the navigational system of bats are still under debate and require further research.

6.8 Hibernation

The effects of lighting on bat hibernation are currently not known: field observations are contradictory and anecdotal. Given the importance of hibernation for the survival of many temperate species, this is an area which requires urgent attention. Key questions include the impacts of lighting on arousal and overwinter survival.

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6.9 Developing a predictive framework at the landscape level

Predicting areas where bats may be most at risk from light pollution will allow planning, avoidance and mitigation on larger scales. Development of methods and techniques for such predictions is crucial for conducting SEAs and EIAs.

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8 Glossary

Commuting routes – flight paths that bats use regularly to fly from a roost to a foraging area (and back) or to move between foraging areas or roosts.

Environmental impact assessment (EIA) – a national procedure for evaluating the likely environmental effects of those public and private projects which may have significant effects on the environment (see for instance Council Directive 85/337/EEC).

Feeding areas – habitat patches where bats perform area-restricted foraging.

Feeding buzzes – stereotypic sequences of echolocation calls indicating an insect hunt.

Illuminance – the total luminous flux per unit area; previously called brightness.

Habitats Directive – Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Light trespass – artificial light in areas where it is not wanted; spill light.

Luminaire – a lighting unit.

Lux – a measure for the illuminance (lumen per square meter) as perceived by humans, derived from the international system of units (SI).

Migration – regular, usually seasonal, movement of all or part of an animal population to and from a given area.

Mitigation – action taken to mitigate, reduce or minimize any negative environmental impact such as habitat loss, animal fatality or injury where it is not possible to avoid such impacts.

Photic entrainment – adjustment of circadian rhythms by light.

Skyglow – brightness of sky caused by artificial light at night.

Strategic environmental assessment (SEA) – procedure for integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development (see for instance Directive 2001/42/EC).

Swarming – "autumn swarming" is a behaviour of some temperate bat species (particularly *Myotis*, *Plecotus*, *Eptesicus* spp. and *B. barbastellus*) that occurs from late summer to autumn. *Pl. auritus* performs a "spring swarming" as well. Bats may travel many kilometres to underground "swarming sites", arriving several hours after dusk, flying in and around the site and departing before dawn. Swarming is important part of social interactions, including courtship. Some swarming sites may also be used as hibernacula later in the year. Swarming ("dawn swarming") also refers to the circling flight pattern of some bat species that occurs outside the entrance to a roost (especially maternity roosts) before the bats enter at dawn.

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Authors' affiliations:

CHRISTIAN C. VOIGT: Department of Evolutionary Ecology, Leibniz Institute for Zoo and Wildlife Research, Alfred-Kowalke-Str. 17, 10315 Berlin, Germany; Institute of Biology, Freie Universität, Takustr. 6, 14195 Berlin, Germany

CLÉMENTINE AZAM: Centre d'Ecologie et des Sciences de la Conservation, Muséum National d'Histoire Naturelle, 55 rue Buffon, 75005 Paris, France

JASJA DEKKER: Batlife Europe, 250 Kennington Ln, Kennington, London SE11 5RD, UK

JO FERGUSON: Bat Conservation Trust, Quadrant House, 250 Kennington Lane, London, SE11 5RD, United Kingdom

MARCUS FRITZE: Department of Evolutionary Ecology, Leibniz Institute for Zoo and Wildlife Research, Alfred-Kowalke-Str. 17, 10315 Berlin, Germany

SUREN GAZARYAN: UNEP/EUROBATS, United Nations Campus, Platz der Vereinten Nationen 1, 53113 Bonn, Germany

FRANZ HÖLKER: Leibniz Institute of Freshwater Ecology and Inland Fisheries, Müggelseedamm 310, 12587 Berlin, Germany

GARETH JONES: University of Bristol, 24 Tyndall Avenue, Bristol BS8 1TQ, UK

NOAM LEADER: Ecology Department, Science Division, Israel Nature & Parks Authority, Israel

DANIEL LEWANZIK: Acoustic and Functional Ecology Research Group, Max Planck Institute for Ornithology, 82319 Seewiesen, Germany

HERMAN J.G.A. LIMPENS: Dutch Mammal Society, Thoernooiveld 1, 6525 ED Nijmegen, the Netherlands

FIONA MATHEWS: University of Sussex, Sussex House, Falmer, Brighton, BN1 9RH, United Kingdom

JENS RYDELL: Biology Department, Lund University, 22362 Lund, Sweden

HENRY SCHOFIELD: The Vincent Wildlife Trust, Railsgate Barn, Kinnerton, Presteigne, OWYS LD8 2PD

KAMIEL SPOELSTRA: Netherlands Institute of Ecology, P.O. box 50, 6700 AB Wageningen, The Netherlands

MAJA ZAGMAJSTER: Department of Biology, Biotechnical Faculty, University of Ljubljana, Jamnikarjeva 101, SI1000 Ljubljana, Slovenia

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UNEP

EUROBATS

EUROBATS

Eighty percent of the world's population are currently exposed to light-polluted skies, and the Milky Way is no longer visible to more than a third of humanity. The pace the light pollution is increasing is faster than global population growth and economic development. While environmental conditions at night are being dramatically and rapidly altered, circadian rhythms, behaviour and ecology of plants and animals are imminently influenced. In the same time, effects of artificial lighting, various illumination schemes and spectra on biodiversity, including bats, are currently insufficiently understood, whereas only a vague notion of required mitigation and compensation activities exists among decision-makers and other parties involved in lighting projects. Although the bats are almost exclusively nocturnal and extremely sensitive to multiple effects of light pollution, its negative impact on bats alongside essential measures needed to preserve unfragmented nightscapes for these animals are often disregarded during impact assessments, planning and operation.

In this volume, we tried to compile available evidence related to the effect of artificial light at night on the European bats. Based on the current state of knowledge, solutions are proposed concerning possible ways to avoid, mitigate and compensate the adverse effects which lighting projects may have on bats and their functional habitats. We also outlined research priorities for future studies, required for in-depth understanding of the problem and assessing efficiency of proposed mitigative measures.

These guidelines were developed by the EUROBATS Advisory Committee in collaboration with external experts in pursuance of Resolution 7.13 on Implementation of the Conservation and Management Plan.

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2.3.2.1 Response to Letter from Los Angeles Audubon Society

Comment No.	Response
LAA-1	The commenter notes the history of the Los Angeles Audubon Society (Audubon) and the importance of La Brea Tar Pits and the Page Museum. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the Draft EIR; therefore, no response is necessary.
LAA-2	The commenter opines that the project will result in a loss of open undeveloped space and that the project would result in the overdevelopment of the site. While this is not a comment specifically on the analysis contained in the EIR, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park will continue to serve as a park facility within Los Angeles. As proposed, the Master Plan would retain and enhance more than 90 percent of the existing open space and passive park use of the site. As well, as described in the EIR Project Description, while the project would require removal and replacement and/or relocation of between 150 and 200 trees on the project site, there are more than 330 trees currently at the project site. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. As a result, the final number of trees at the site is anticipated to be increased rather than decreased after implementation of the project. New plantings would be consistent with the planting and landscape concept and plant palette included in the La Brea Tar Pits Master Plan. New plantings would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. No changes to the EIR were determined to be necessary in response to this comment. Refer to **MR-1, Preferred Alternative, MR-2, Impacts to Native and Mature Trees,** and **MR-3, Use of Native Plants and Vegetation,** for more information.
LAA-3	The commenter expresses concern over the number of trees that would be removed from the site, and also provides the opinion that people and wildlife need parks with fewer buildings, not more. As discussed in EIR Section 5.12, Recreation, implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification to the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. No changes to the EIR were determined to be necessary in response to this comment. Additionally, refer to response to comment LAA-2.
LAA-4	The commenter indicates concern with hazards to birds related to the materials that may be used for the development of the new structures and development at the site. Also, the commentor refers to a prior project, "the construction of a large glass cube at Exposition Park in 2013", which it is the Otis Booth Pavilion located at the Natural History Museum site in Exposition Park. The illustrations and images provided in the Master Plan and Chapter 3, Project Description, of the EIR were not intended to imply the use of a specific type of material or amount of glass surface to be incorporated into the project design; they are conceptual illustrations and were developed early in the Master Plan design process. The following language has been added to Chapter 3, Project Description (added text shown in underline): "<u>To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.</u>" The County will continue to refine the project designs to decrease the extent of glazing and the need for bird deterrence. As more detailed construction documents are developed, appropriate bird deterrence methods will be studied and incorporated further to significantly reduce bird strikes resulting in mortality or injury. After receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including Audubon, and refined the design of the improvements proposed at the La Brea Tar Pits site. As a result, the County has proposed of a variation of the Master Plan which is described in the Final EIR. Refinements to the project will continue to be considered by the County as the design evolves. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs and Refined Alternative 3. The Otis Booth Pavilion at the Natural History Museum site (900 Exposition Boulevard, Los Angeles) is not part of the proposed project. The Pavilion was originally built so that the upper portion of the glass structure featured a bird strike reduction frit; however, the lower portion of the Pavilion did not. In Spring 2023 a pattern was added to the lower part of the Pavilion using solutions provided by a vendor specializing in bird deterrent technology solutions that are endorsed by bird conservation organizations and an overall decrease in bird collisions was noted after implementation.
LAA-5	The commenter indicates that the large expanses of glass that characterize the new facilities are inherently dangerous to birds and that birds cannot perceive glass as a barrier and will try to fly through these walls of glass and windows.

Comment No.	Response
	Refer to response to comment LAA-4. It should also be noted that, after receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including Audubon, and refined the design of the improvements proposed at the La Brea Tar Pits site. The County has proposed of a variation of the Master Plan which is described in the Final EIR. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs and Refined Alternative 3. As indicated in response to comment LAA-4, new construction would include bird collision deterrent features. This clarification has been added to EIR Chapter 3, Project Description. Furthermore, the current design approach has significantly decreased the extent of glazing. Refined Alternative 3 significantly reduces the glazed area above the terrace level in the expansion, and the glazed atrium that replaced the Page courtyard has been eliminated. Therefore, implementation of the project would not significantly increase the potential for bird collisions.
LAA-6	The comment states that the project's plans to illuminate the new glass facade would increase the chance of bird collisions. Refer to response to comment LAA-4 and LAA-5. It should also be noted that, after receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including Audubon, and refined the design of the improvements proposed at the La Brea Tar Pits site. The County has included a variation of the Master Plan in the Final EIR. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs and Refined Alternative 3. There are not significant components of the project that would result in lighting from within the new museum building. As well, like existing conditions, there are no plans for projection of images onto the walls or surfaces of the buildings. As discussed in EIR Section 5.1, implementation of Mitigation Measures AES/mm-4.1 and AES/mm-4.2 would reduce light and glare impacts to less than significant. These measures would ensure that the project would not substantially worsen the existing lighting conditions of the site. Through on-going management and operation of the property, the County will ensure that lighting from within is reduced to the extent feasible while retaining enough lighting for security and safety needs. This commitment is made for both existing and new facilities. The new museum building is not anticipated to be lit from within to any greater degree than the existing Page Museum. Lighting from within will be limited to dim security lighting, like the existing conditions at the Page Museum. No significant change in the amount of lighting from within buildings would occur. The new museum building would close at 5 pm, as the Page Museum closes now. Thus, no change in the timing of building illuminations would occur. Therefore, implementation of the project would not significantly increase the potential for bird collisions.
LAA-7	The commenter compares the project's plans to illuminate the new glass facade with the Wilshire Federal Building in Westwood, where bird collision and mortality has been documented. Refer to response to comments LAA-4, LAA-5, and LAA-6. This is not a comment that raises issue with the contents of the environmental analysis in the EIR; therefore, no response is necessary, and no changes to the EIR were determined to be necessary in response to this comment.
LAA-8	The commenter provides additional feedback on the renderings in EIR Chapter 3, Project Description, specifically related to the pathway that is planned to cross the lake. The commenter provides reference to a prior project, the Otis Booth Pavilion, and presents an article indicating that this prior project was not bird friendly. Refer to response to comments LAA-4, LAA-5, and LAA-6. As indicated in LAA-4, new construction, including the pathway features over the Lake Pit, would include bird collision deterrence features. This clarification has been added to EIR Chapter 3, Project Description. The County will continue to refine the project designs to decrease the extent of glazing and the need for bird deterrence. As more detailed construction documents are developed, appropriate bird deterrence methods will be studied and incorporated further to reduce bird strikes resulting in mortality or injury. It is expected that simply based on the design, the project would result in fewer bird collisions than the Otis Booth Pavilion. Compared to the Otis Booth Pavilion, the proposed project would result in significantly less glass surfaces. The Otis Booth Pavilion is six-stories tall and has an exterior that has three sides that are mostly glass. In comparison, the new museum building that is being proposed would be two stories tall and would feature an exterior consisting of only limited glass surfaces. Since construction of the Otis Booth Pavilion, new methods have been employed to reduce bird collisions with the building, such as adding patterned dots or stripes to the windows. The project would implement similar methods to minimize bird collisions. Furthermore, as indicated in response to comment LAA-4 and LAA-5, the current design approach has significantly decreased the extent of glazing. Refined Alternative 3 significantly reduces the glazed area above the terrace level in the expansion, and the glazed atrium that replaced the Page courtyard has been eliminated. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs and Refined Alternative 3. Implementation of the project would not significantly increase the potential for bird collisions.
LAA-9	The commenter requests that LEED bird collision deterrence guidelines be adopted for both the building and the glass pathway railings. The County may consider relying on the LEED bird collision deterrence guidelines; however, these specific features will not be finalized until the project design is complete. Further, it should be noted that adherence to LEED bird collision deterrence guidelines is not necessary to address potential impacts related to avian

Comment No.	Response
	collisions. As indicated in response to comment LAA-4, new construction, including the pathway features over the Lake Pit, would include deterrent features. This clarification has been added to EIR Chapter 3, Project Description. The County will continue to refine the designs as the project develops to reduce the potential for bird collisions as much as possible. No changes to the EIR were determined to be necessary in response to this comment.
LAA-10	The commenter opines that proper mitigation is necessary because millions of birds migrate over the City of Los Angeles each spring and fall and they are attracted to lights and mortality. The commenter indicates that birds of concern include sensitive species and migratory songbirds as a sensitive group, which have declined precipitously since the 1970s. The commenter claims that construction of the new facilities would constitute an impact through disturbance of migratory pathways for migratory birds and through impacts to migrants that winter in Los Angeles, such as Yellow-rumped Warbler, Townsend's Warbler, and Hermit Thrush, and that these species need not be rare or endangered to merit consideration under CEQA. The commenter goes on to opine that CEQA requires the consideration of impacts to native wildlife and mitigation for these species, as asserted in a recent ruling regarding the Sidewalk Repair Program EIR prepared by the City of Los Angeles for a City project. In response, some background on the City's Sidewalk Repair Program is warranted and is provided here. The Sidewalk Repair Program proposed to streamline the sidewalk repair process across the entire City of Los Angeles, with the City allocating roughly $1.3 billion towards sidewalk repairs over a 30-year period. These sidewalk repairs that were proposed included the following: installation of missing curb ramps, repair of damage caused by street tree roots, upgrade of existing curb ramps, repair of uneven pavement, and widening of pedestrian rights of way. If implemented, the project would result in the removal of an estimated 12,860 street trees. While the commenter claims that the recent ruling indicates that CEQA requires the consideration of impacts to native bird species, this does not appear to reflect the scope of the decision specifically made by the court (United Neighborhoods for L.A. v. City of L.A. Superior Court of California, County of Los Angeles, March 14, 2023, Case No. 21STCP02401) (Sidewalk Repair case). It is important to point out that Superior Court decisions are not considered citable case law. Published or "citable" opinions of the appellate courts are opinions ordered published in the Official Reports and may be cited or relied on by other courts and parties. The Sidewalk Repair decision is not legally binding precedent. However, to provide a response to this comment, some aspects of the Court decision that could relate to the subject matter of the La Brea Tar Pits EIR and this Audubon comment are reviewed below. In the Sidewalk Repair decision, the Court noted that it is undisputed that the Sidewalk Repair Program would affect certain bird species, including sensitive species. However, the Petitioner disagreed with the City that the EIR provided a proper and legally adequate analysis of the impact. As raised by petitioners and agreed to by the Court, the issue in the Sidewalk Repair case concerns the City's the analysis of the project's impacts to birds other than sensitive species. As indicated by the court: • "An EIR may not set an impermissibly narrow threshold of significance for biological impacts. (Endangered Habitats League, Inc. v. County of Orange (2005) 131 Cal.App.4th 777, 792; see also Guidelines, § 15064, subd. (b)(2). ["Compliance [*14] with the threshold does not relieve a lead agency of the obligation to consider substantial evidence indicating that the project's environmental effects may still be significant."]) If evidence tends to show that the environmental impact might be significant despite the selected threshold in the EIR, the agency must address that evidence. (Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th 1099, 1111.) And: • "CEQA mandates that public agencies consider short term impacts as well as long term impacts of a project. (Guidelines, § 15126.2, subd. (a). ["Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."]) However, the County did not limit its analysis to sensitive species. As provided for in EIR Section 5.3, Biological Resources, impact question (d), the EIR addresses effects of the project on non-sensitive species. Further, additional clarifying text has been added to the EIR to expand upon this consideration of non-sensitive species. The evaluation of biological resources for the La Brea Tar Pits Master Plan, including birds, included research of publicly available biological reports and spatial data from a variety of online sources, geospatial databases, and relevant previous reports for the project site and vicinity, for sensitive and non-sensitive species. In addition, a field survey was conducted to document species present or with potential to be present that included wildlife, regardless of their sensitivity. Several non-sensitive and non-native species were observed, or noted for potential to occur, such as rock dove, European starling, house finch, yellow-rumped warbler, urban rats, and eastern fox squirrel. Further, an analysis of potential nesting bird habitat in the project area was conducted per the federal Migratory Bird Treaty Act. The list of migratory birds covered by the act includes nearly all bird species native to the United States, regardless of sensitivity. Native wildlife, including sensitive and non-sensitive status species, are considered in the thresholds of significance based on the Environmental Checklist (contained in Appendix G of the State CEQA Guidelines) per question (d), "would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites." Refer to pages 5.3-24 through 5.3-26 of EIR Section 5.3, Biological

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	Resources for more information. This discussion in the EIR has been expanded in this Final EIR to provide more information on all bird species, regardless of sensitivity status. It should be noted that no "significant new information" has been identified because of these changes. These revisions only clarify and support the discussion regarding impacts to non-sensitive species included in the Draft EIR. As no significant modifications have been made, recirculation of the EIR is not required. The County is not asserting that other wildlife species are unlikely to occur at the project site nor that the project site is heavily disturbed; the particular circumstances of the La Brea Master Plan project are significantly different that those of the citywide Sidewalk Repair Program. The size and scale of the La Brea Master Plan project is considerably smaller and more focused than the Sidewalk Repair project, the former taking place solely within a 13-acre site, and would be completed within 4 years, while the latter takes place across the entire City of Los Angeles and would take place across the span of 30 years. The number of trees to be removed by each project differs as well; the implementation of the La Brea Master Plan would result in the removal and replacement and/or relocation of just 150 to 200 trees, while the Sidewalk Repair Program would result in the removal of an estimated 12,860 trees. Further, the Sidewalk Repair Program would specifically remove street trees, which, as discussed in Wood 2020 cited by the commenter, are particularly favored by avian species, and provide important habitat where there might otherwise be none. The La Brea Master Plan project would not remove any street trees, and instead would be removing and replacing trees within an existing green space. Many trees would remain in place throughout construction of the project and would continue to provide habitat for any number of species. As indicated in Section 5.3 of the EIR, page 5.3-25, the project site is suitable for permanent habitation: > There is potentially suitable nesting bird habitat present on-site and within 500 feet of the project site boundaries in street trees and landscape vegetation. The nesting season is generally defined as January 1 to September 15. Construction conducted during this period could result in adverse impacts to nesting birds. Temporary impacts to nesting birds would result from the removal of existing mature trees and shrubs during project construction. Although many more trees would be added than are proposed for removal, it would take several years for newly installed trees to reach the size and structural complexity of existing trees. > During project operation, indirect impacts could result from increased visitation use to the park and required maintenance of updated park facilities during nesting bird breeding season. Indirect impacts may also include beneficial impacts from an overall increase in native trees and shrubs associated improvement of native habitat for local bird species. Additional and higher-quality habitat for wildlife would be incorporated into site design that would improve conditions for birds and other wildlife over existing conditions. Further, the commenter does not substantiate why they believe the circumstances of the City's Sidewalk Repair Program should be compared to the La Brea Tar Pits Master Plan project. While both projects would result in the removal of trees which could potentially impact local bird species, as noted above, the Sidewalk Repair Program includes the removal of 12,860 trees across Los Angeles, which is several magnitudes larger than the 150 to 200 trees proposed for removal or replacement by the proposed project. For all the reasons noted above, impacts to non-protected bird species by the implementation of the La Brea Master Plan would be considerably less than the impacts posed by the Sidewalk Repair Program. Regardless, additional text has been added to the La Brea Master Plan EIR which expands the analysis of impacts to non-protected bird species. See EIR Section 5.3, Biological Resources, pages 5.3-24 and 5.3-25. As noted by the commenter, an urban oasis, such as the La Brea Tarpits, in dense cities provide important stop over habitat for sensitive and common California native bird species such as the Yellow-rumped Warbler (identified in the project site during surveys), Townsend's Warbler, Hermit Thrush, and others. The implementation of the La Brea Tar Pits Master Plan, depending on final design, could provide less refugia for migrating bird species in the immediate project site temporarily. However, birds are highly mobile and would likely use the significant urban tree refugia immediately north of the project site and numerous city parks and golf courses within 2 miles. For example, there are eBird recordation of 66 bird species at Park La Brea, located immediately north of the La Brea Tarpits, and 81 species recorded at Pan Pacific Park located less than 0.4 miles to the north. In addition, significant open space within the Hollywood Hills and Santa Monica Mountains are located 3 to 5 miles to the north and west with a large number of street trees and small parks in the interspaces. Over the longer term, the habitat in the project area for migratory and native nesting birds, both sensitive and common, is anticipated to increase three to five years following construction, as the native plantings (which replace the removed trees) mature. These native plantings are much more desirable to native bird species than exotic and ornamental species. The landscaping palette will incorporate native trees, shrubs, and herbs, providing a layered habitat that provides structure for a larger variety of native species than currently present. The temporary relatively small loss of trees relative to intact tree resources surrounding the project site and the implementation of nesting bird mitigation and replacement of plantings with native planting would reduce impacts to less than significant. Additionally, implementation of Mitigation Measure BIO/mm-5.1 would aid in the avoidance of impacts to nesting birds. The County acknowledges the source cited by the commenter, Horton et al. 2019, which provides evidence that the generation of significant artificial light during the night can pose risks to migratory birds. However, as previously discussed, no significant change in the amount of lighting from within buildings would occur because of the project. Therefore, implementation of the project would not significantly increase the risk for bird collisions due to artificial light. Refer to response to comments LAA-6 for further information regarding the potential impacts to birds because of lighting generated by the project. The County also acknowledges the source cited by the commenter, Rosenberg 2019, which provides evidence demonstrating the wide-spread decline of bird species across North America, partially due to

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	reduction in habitat. However, the project would not permanently reduce the habitat area for birds. As previously discussed, replacement of non-native trees and vegetation with native species would improve the overall quality of bird habitat in the park and would provide habitat that is expected to increase the number and diversity of birds using the park. Birds, and particularly native bird species, are known to avoid areas dominated by non-native tree species. With an increase in native tree species and other native vegetation, birds would be more likely to nest in the trees and shrubs on the project site. A diversity of native shrubs and trees would also increase the variety of plant structure (plant height, width, and foliage type) that would also improve bird habitat quality over existing conditions. These native trees and shrubs are also more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate and are known to offer better-quality resources such as food, nesting and roosting opportunities, and protection from predators. While the necessary tree removal proposed by the project may result in a temporary reduction in bird occurrence and viable habitat, the cumulative impact of the new native trees and plant species would eventually increase the amount of bird habitat supported by the site. Replanting of trees should result in no temporal loss of habitat for those individuals, while planting of new native shrubs should provide habitat within 2 to 3 years and trees in 5 to 10 years. As concluded in BIO Impact 1, the implementation of the La Brea Tar Pits Master Plan could result in significant effects on one species, the federal candidate monarch butterfly, either directly or through habitat modifications. Specifically, impacts during project construction could be significant. However, implementation of BIO/mm-1.1 would reduce construction impacts to any candidate, sensitive, or special-status species to less than significant. During project operation, the project would not result in significant effects, either directly or through habitat modifications, on any identified candidate, sensitive, or special-status species. Impacts during project operation would be less than significant. Similarly, no significant impacts to non-sensitive species are expected to result due to implementation of the La Brea Tar Pits Master Plan. Typically, for significant impacts to occur to non-sensitive species, it would require a greater quantifiable impact relative to that of impacts to sensitive species. This occurrence results from the fact that sensitive species, by definition, are designated as rare by a regulatory or advisory agency with expertise in the population levels and habitat threats of the species. Therefore, relatively small impacts to those species have greater proportional impacts to the species at a population level than a similar scale impact to a non-sensitive species. In order to demonstrate a significant impact to non-sensitive species, it generally necessitates documentation that a project will affect the species in such a way to markedly change the population level, such as shifting a stable population to a decreasing population. Examples of ecologically significant impacts could include the destruction of rookery or nursery habitat, the obstruction of a migratory artery, or the destruction of foraging habitat such that the population is no longer able to reproduce at replacement levels. None of these impacts would occur as a result of the project. Implementation of BIO/mm-5.1 and BIO/mm-5.2 would reduce construction and operation impacts to nesting birds to less than significant. Mitigation Measure BIO/mm-5.1 addresses the avoidance of impacts to nesting birds and BIO/mm-5.2 provides for the introducing of large box trees to reduce temporal impacts to bird habitat. Implementation of BIO/mm-5.1 and BIO/mm-5.2 will ensure that the tree removals will be conducted in a manner that is minimally impactful to nesting birds. Given that the tree canopy is projected to be fully replaced within 5 to 10 years of the project, no long-term losses of habitat for non-sensitive species are expected.
LAA-11	The commenter suggests that the project should have considered expanding the Page Museum vertically, instead of constructing a new museum building. An expansion of the Page Museum vertically could not occur without creating more significant impacts to the historic Page Museum. This is the reason that the County elected to propose a second museum building. By largely retaining the Page in its current configuration, the integrity and historic quality of the Page can be protected, and impacts reduced. For this reason, the County has determined that this design alternative would not be feasible and would not meet the project's objectives. Further, an EIR shall only describe a range of reasonable alternatives to the project which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. An EIR need not consider every conceivable alternative to a project. The option proposed by the Audubon would be detrimental to the integrity of the Page Museum from a historic standpoint. While this option could potentially result in the removal of fewer trees, many trees would still need to be removed due to the other on-site improvements proposed by the project. It should also be noted that, after receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including Audubon, and refined the design of the improvements proposed at the La Brea Tar Pits site. The County has included in the EIR a variation of the Master Plan for consideration by the Board of Supervisors. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs and Refined Alternative 3.
LAA-12	The commenter indicates that the EIR should identify the removal of 150 to 200 trees as a significant adverse impact on wildlife. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis regarding vegetation and tree impacts that is contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. It should be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. No

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	changes to the EIR were determined to be necessary in response to this comment. Refer to **MR-2, Impacts to Native and Mature Trees**.
LAA-13	The commenter states that the EIR does not include adequate bird surveys to sufficiently demonstrate the project's potential for impacts on native bird species. The comment goes on to list 97 native birds that may be present on the project site. As indicated in response to comment in LAA-10, implementation of the La Brea Tar Pits Master Plan would not result in significant effects, either directly or through habitat modifications, on any identified candidate, sensitive, or special-status species. Similarly, no significant impacts to non-sensitive species are expected as a result of the project. Typically, for significant impacts to occur to non-sensitive species, it would require a greater quantifiable impact relative to that of impacts to sensitive species. This occurrence results from the fact that sensitive species, by definition, are designated as rare by a regulatory or advisory agency with expertise in the population levels and habitat threats of the species. Therefore, relatively small impacts to those species have greater proportional impacts to the species at a population level than a similar scale impact to a non-sensitive species. In order to demonstrate a significant impact to non-sensitive species, it generally necessitates documentation that a project will affect the species in such a way to markedly change the population level, such as shifting a stable population to a decreasing population. Examples of ecologically significant impacts could include the destruction of rookery or nursery habitat, the obstruction of a migratory artery, or the destruction of foraging habitat such that the population is no longer able to reproduce at replacement levels. None of these impacts would occur as a result of the project. The California Natural Diversity Database (CNDDB) RareFind application and United States Fish and Wildlife Service (USFWS) occurrence data were used for background research as these sources are reviewed by regulatory agencies before occurrence data is reported. CNDDB RareFind is only used for identifying the presence of special status species on a project site and is not meant to be used for identifying the presence of non-special status species. Further, as discussed in LAA-10, additional text has been added to the La Brea Master Plan EIR which expands the analysis of impacts to non-protected bird species. See EIR Section 5.3, Biological Resources, pages 5.3-24 and 5.3-25. The evaluation of biological resources for the La Brea Tar Pits Master Plan, including birds, included research of publicly available biological reports and spatial data from a variety of online sources, geospatial databases, and relevant previous report for the project site and vicinity, for sensitive and non-sensitive species. In addition, a field survey was conducted to document species present or with potential to be present that included wildlife, regardless of their sensitivity. Several non-sensitive and non-native species were observed, or noted for potential to occur, such as rock dove, European starling, house finch, yellow-rumped warbler, urban rats, and eastern fox squirrel. Further an analysis of potential nesting bird habitat in the project area was conducted per the federal Migratory Bird Treaty Act. The list of migratory birds covered by the act includes nearly all bird species native to the United States, regardless of sensitivity. The results of this search identified two special status bird species, Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) and coastal California gnatcatcher (*Polioptila californica ssp. californica*), with historic records within a mile of the site. The report further analyzed the habitat in the project site to support these and other special status bird species. Species detection during the survey was limited to time of year that the surveys occurred and the short duration of the survey period. In comparison, the data found in eBird was collected over a more than 10-year period. The eBird data does indicate that the project area and its surroundings may be refugia for many native bird species. However, it should be noted that birds are highly mobile, and the birds identified in the eBird listing included in the comment likely also use the significant urban tree refugia immediately north of the project site and numerous city parks and golf courses within 2 miles. For example, there are eBird recordation of 66 bird species at Park La Brea, located immediately north of the La Brea Tarpits, and 81 species recorded at Pan Pacific Park located less than 0.4 miles to the north. In addition, there exists significant open space within the Hollywood Hills and Santa Monica Mountains, 3 miles north and 5 miles west, respectively, with a large number of street trees and small parks in the interspaces. A reference to the eBird results in relation to special-status species has been included in Section 5.3.1.2 through this Final EIR (Table 5.3-4). However, this additional data does not alter the results of the analysis or required mitigation measures for the project.
LAA-14	The commenter notes that the list provided in comment LAA-13 includes sensitive species, species in decline, and indicator species of the oak woodlands and wetland habitats found at the site. Oak woodlands, riparian habitats, and other aquatic resources were located at the project site and mapped; these habitats can support sensitive bird species. The exact trees or areas to be impacted through implementation of the project have not yet been determined and avoidance would occur, where feasible. Mitigation Measures BIO/mm-2.1 and BIO/mm-3.1 provide for the preparation and implementation of an approved restoration plan that will provide replacement habitat at an equal or better value than the existing within 5 years of planting. In addition, Mitigation Measure BIO/mm-5.1 addresses the avoidance of impacts to nesting birds and BIO/mm-5.2 provides for the introducing of large box trees to reduce temporal impacts to bird habitat. If oak trees cannot be avoided, Mitigation Measures BIO/mm-6.1 provides for the replacement of oaks at a 2:1 ratio for each tree impacted. No changes to the EIR were determined to be necessary in response to this comment.
LAA-15	The commentor indicates that the EIR is inadequate in its assessment of impacts on birds and should find that the removal of 150 to 200 trees is a significant adverse impact on the bird community at this site. The

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	commenter further opines that replacement of trees would be an inadequate mitigation measure because the design reduces the habitat area for birds considerably and species number is closely tied to habitat area. The County disagrees that the project would reduce the habitat area for birds. As proposed, the Master Plan would retain and enhance more than 90 percent of the existing open space and passive park use of the site. As well, while the project would require removal and replacement and/or relocation of between 150 and 200 trees on the project site, there are more than 330 trees currently at the project site. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. As a result, the final number of trees at the site is anticipated to be increased rather than decreased after implementation of the project. Further, replacement plantings would be primarily native species, and the project would increase the number of native trees at the project site. Replacement of non-native trees and vegetation with native species would improve the overall quality of bird habitat in the park and would provide higher quality habitat that is expected to increase the number and diversity of birds using the park. Many species of birds, and particularly native bird species, are known to avoid areas dominated by non-native tree species. With an increase in native tree species and other native vegetation, birds would be more likely to nest on site. A diversity of native shrubs and trees would also increase the variety of plant structure (plant height, width, and foliage type) that would also improve bird habitat quality over existing conditions. These native trees and shrubs are also more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. In addition, impacts to sensitive riparian habitats in the project area, which contain extremely valuable bird habitat, would be fully addressed through the mitigation measures identified in the EIR, which provide for restoration, enhancement, and management of new riparian habitat over a five-year period. Mitigation measures for impacts to habitat areas are provided for in Mitigation Measures BIO/mm-2.1, BIO/mm-3.1, BIO/mm-6.1 and BIO/mm-6.2. The mitigation measures identified in the EIR are adequate to address potential impacts; no changes to the EIR were determined to be necessary in response to this comment.
LAA-16	The commenter opines that the EIR provides a lack of reporting on the presence of bat species at the project site. The commenter references an article titled “We Found Bats at La Brea Tarpits!” from nhm.org published in 2014, as well as a Life History Account for the Pallid Bat prepared by CDFW. To support the EIR analysis, the CNDDB RareFind application and USFWS occurrence data was used for background research as these sources are reviewed by regulatory agencies before occurrence data is reported. The results of this search identified no bat species recorded within 5 miles of the project site in over 30 years. The 2014 nhm.org article “We Found Bats at La Brea Tarpits!” was also reviewed. Four species of bats were identified using bat detectors, although these records had not been uploaded to the CNDDB. Lastly, email correspondence with Miguel Ordeñana (the author of the 2014 article) indicated that the Hoary bat (Lasiurus cinereus) has also been observed on the project site. A discussion regarding impacts to bats has been added to EIR Section 5.3. The following text has been added on page 5.3-8, and 5.3-9, regarding existing conditions of the site: “Initial background database reviews did not indicate known bat presence at, or within the vicinity of the project site and no CNDDB records less than 30 years old were found within 5-miles of the site. Additionally, during the initial reconnaissance survey on March 18, 2022, no species of bats nor obvious signs indicating potential bat roosts, were detected within the project area. The project site includes open water features which may present suitable foraging habitat and nearby trees which may provide suitable roosting habitat for some bat species. A 2014 Los Angeles Natural History Museum of Los Angeles County article, authored by Miguel Ordeñana, indicates that the following four species of bats were positively identified during field acoustic monitoring surveys between July and September 2014: big brown bat (Eptesicus fuscus), canyon bat (Parastrellus hesperus), Mexican free-tailed bat (Tadarida brasiliensis), and Yuma myotis (Myotis yumanensis) (Foundation 2014). The article does not elaborate on the nature of bat detection, neither indicating if the bats were actively foraging, roosting, or were detected flying over the project site. Based on the habitat requirements and habits of these species, it is likely that these bats are transient foragers of the project area. Further email correspondence with Miguel Ordeñana indicated that the Hoary bat (Lasiurus cinereus) has also been observed on the project site. None of these species are listed under the CESA or the ESA and of the five species discussed, only the Yuma myotis and the Hoary bat occur on the CDFW Special Animals List. Yuma myotis has a NatureServe Global rank of G5 (Secure; at very low risk of extinction due extensive range, abundant populations or occurrences, and little to no concern from declines or threats) and State Rank of S4 (Apparently secure; uncommon but not rare; no immediate conservation concern). The Hoary bat has a NatureServe Global rank of between G3 (Vulnerable; At moderate risk of extinction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors) and G4 (Apparently secure; at fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors) and State Rank of S4 (Apparently secure; uncommon but not rare; no immediate conservation concern)..” Furthermore, the following text has been added on page 5.3-18 within the discussion of BIO Impact 1: “Bats potentially use the project area for foraging but are not known to roost in the project area and current proposed construction activities would have little to no direct impact on bat species. Potential indirect impacts to existing bat populations may be sustained from changes to the

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	existing habitat including those related to the removal of vegetation and changes to lighting. However, no significant change in the amount of lighting from within buildings is proposed. The new museum building would close at 5 pm, as the Page Museum closes now. Thus, no change in the timing of building illuminations would occur. In addition, only warm-white toned LEDs would be incorporated into lighting regimes during the nighttime (between dawn and dusk). Light shields that limit the light flux only to required areas and thereby avoiding as much light trespass into potential transitory pathways of the bats may be used. Lighting in areas of highest sensitivity where bats are most likely to occur (i.e., any ponding or surface water and areas of dense canopy) would be limited. For these reasons, impacts created by the proposed project would not result in a demonstrable change from existing conditions and would not be significant." As demonstrated above, lighting impacts created by the proposed project would not result in a substantial change from existing conditions. Therefore, related impacts to bat species would be less than significant. It should be noted that no "significant new information" has been identified as a result of these changes. According to State CEQA Guidelines 15088.5: Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR. These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. Instead, the revisions only clarify and support the discussion regarding impacts to sensitive species included in the Draft EIR. As no significant modifications have been made, recirculation of the EIR is not required.
LAA-17	The commenter asks how construction will affect the bat species. Specifically, how will lighting from the project affect bat species. The commenter further indicates that bats are known to be sensitive to lighting impacts and that the EIR does not identify the presence of bat species, including one sensitive species. The commenter asks that the impacts of construction of the project, including tree removal and installation of new lighting, be considered. Through on-going management and operation of the property, the County will ensure that lighting from within is reduced to the extent feasible while retaining enough lighting for security and safety needs. This commitment is made for both existing and new facilities. The new museum building is not anticipated to be lit from within to any greater degree than the existing Page Museum. Lighting from within would be limited to dim security lighting, like the existing conditions at the Page Museum. No significant change in the amount of lighting from within buildings would occur. Thus, no change in the timing of building illuminations would occur. Refer to response to comments LAA-16. Through this Final EIR process, the analysis within EIR Section 5.3, Biological Resources has been updated to include consideration for bat species (see pages 5.3-8, 5.3-9, 5.3-18, and 5.3-25). As discussed under impact questions (a) and (d), these considerations include potential indirect impacts resulting from changes to the exiting habitat, including those related to the removal of vegetation and changes to lighting. The current proposed construction activities would have little to no direct impact to bat species, as no known roosting habitat would be impacted or reduced. Further, lighting at the project site after construction would be similar to existing lighting at the site. The following text has been added on page 5.3-18 within the discussion of BIO Impact 1: "Bats potentially use the project area for foraging but are not known to roost in the project area and current proposed construction activities would have little to no direct impact on bat species. Potential indirect impacts to existing bat populations may be sustained from changes to the existing habitat including those related to the removal of vegetation and changes to lighting. However, no significant change in the amount of lighting from within buildings is proposed. The new museum building would close at 5 pm, as the Page Museum closes now. Thus, no change in the timing of building illuminations would occur. In addition, only warm-white toned LEDs would be incorporated into lighting regimes during the nighttime (between dawn and dusk). Light shields that limit the light flux only to required areas and thereby avoiding as much light trespass into potential transitory pathways of the bats may be used. Lighting in areas of highest sensitivity where bats are most likely to occur (i.e., any ponding or surface water and areas of dense canopy) would be limited. For these reasons, impacts created by the proposed project would not result in a demonstrable change from existing conditions and would not be significant." Therefore, lighting impacts created by the proposed project would not result in a substantial change from existing conditions, and related impacts to bat species would be less than significant. It should be noted that no "significant new information" has been identified as a result of these changes. According to State CEQA Guidelines 15088.5: Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR. These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. Instead, the revisions only clarify and support the discussion regarding impacts to sensitive species included in the Draft EIR. As no significant modifications have been made, recirculation of the EIR is not required.
LAA-18	The commenter indicates that Audubon is available to work with the County to further develop the project. The County appreciates the input that Audubon has provided on the project to-date, and it is being considered throughout the design process. The Foundation and the County welcome the opportunity to work with Audubon as the design progresses.

2.3.3 Los Angeles Conservancy

LOS ANGELES
CONSERVANCY

523 West Sixth Street, Suite 826
Los Angeles, CA 90014

213 623 2489 OFFICE
213 623 3909 FAX
laconservancy.org

October 26, 2023

Submitted Electronically

Leslie Negritto, Chief Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007

RE: Draft Environmental Impact Report for the La Brea Tar Pits Master Plan Project

Dear Ms. Negritto:

On behalf of the Los Angeles Conservancy, I am writing to comment on the Draft Environmental Impact Report (EIR) for the La Brea Tar Pits Master Plan Project. As we previously stated in our Notice of Preparation (NOP) comments, the La Brea Tar Pits and the George C. Page Museum (Page Museum) are significant and identified historic resources operated by the Natural History Museums of Los Angeles County (NHMLAC), located on portions of the 23-acre Hancock Park. We have been encouraged by early design concepts, and thank NHMLAC staff for their ongoing collaboration and meetings with the Conservancy on this project and undertaking. LAC-1

Based on the impacts analysis provided within the DEIR, and the severity of the potential loss of historic resources, we are concerned. The Conservancy would like to work with the NHMLAC staff and team further to consider alternatives. We strongly believe it is possible to achieve a "win-win" outcome, meeting both project objectives and goals through either a reduction or elimination of the current significant impacts to historic resources as a result of this project. LAC-2

I. Proposed renovation of the existing Page Museum, new two-story museum building, and modifications to the existing site plan and identified historic district

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits, which includes the George C. Page Museum (Page Museum). Hancock Park and the La Brea Tar Pits were first deemed eligible for listing in the National Register of Historic Places in 1984. More recently, in 2014, the La Brea Tar Pits, Hancock Park, and the Page Museum were all identified as eligible for LAC-3

designation at the local, state, and national levels through the City of Los Angeles's SurveyLA historic resources survey.

While a number of historic resources are identified and analyzed as part of this DEIR, the two primary resources consist of the 1) La Brea Tar Pits Historic District and 2) George C. Page Museum. The La Brea Tar Pits Historic District is eligible for landmark designation at the state, county, and city levels, and previous analysis also determined its eligibility for the National Register of Historic Places. The historic district consists of related cultural/paleontological resources, site/landscape features, and institutional facilities reflecting the story of over 100 years of scientific excavation, study, public education, and exhibition of one of the world's most significant concentrations of Pleistocene-age fossils.

The 1977 Page Museum was identified as eligible for landmark designation at the state, county, and city levels, in addition to the National Register of Historic Places. The building was documented as an "excellent example of Late Modern institutional architecture, designed by local architecture firm Thornton and Fagan."

As defined in the DEIR, the project would:

> "...renovate the existing Page Museum within the same footprint as the existing building (currently approximately 63,200 square feet) to allow for an enlarged exhibition space, additional collections storage, a ground floor café, and retail space. The central atrium would be renovated to provide additional exhibitions, an additional classroom, and visible laboratory space. A sloped green roof would be installed north of the Page Museum and would curve to the west. The project would add several sustainability features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and rooftop solar photovoltaic panels."

Further, the project envisions a new, two-story museum building to be built northwest of the Page Museum. At approximately 40,000 square feet in size, this would increase the total museum square footage to 104,000 gross square feet.

The project would renovate the existing facilities at all the tar pits in the western portion of the project site. Also planned is a renovation of the existing entrance to La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza – the Wilshire Gateway. This gateway would provide orientation, spaces for gathering and queuing, and restrooms. A picnic area would also be located under the shaded canopy. A pedestrian bridge and walking path would be constructed over the Lake Pit. Directly to the east of the Lake Pit, a new garden bioswale would be installed to manage stormwater and would include vegetation related to the relocated mammoths and mastodon sculptures.

LAC-3 (cont'd)

II. The Master Plan should avoid and minimize, to the greatest extent possible, significant adverse impacts to the La Brea Tar Pits Historic District and George C. Page Museum

LAC-4

The project introduces a series of new features, buildings, structures, circulation corridors, and other elements that would fill-in and divide the components of the La Brea Tar Pits Historic District, shifting

LAC-5

the setting and feeling of the historic district and removing some of its character defining features. Based on previous conversations and discussions with the NHMLAC staff team, the Conservancy anticipated some of these potential impacts to the overall historic district. The DEIR analysis states:

> "Implementation of the project would result in a comprehensive redesign of Hancock Park, which would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a CRHR- and locally eligible historic district."

Much of our conversation to date has been focused on the Page Museum, an individually-eligible historic resource and focal point of the historic district. The proposed scope of the remodel and modifications, including necessary seismic and systems upgrades, will also result in a significant impact to the Page Museum. Specifically, the project and its scope will adversely impact the following character defining features of the Page Museum:

- Elimination of the sharply raised berms on the west and north elevations of the museum site
- Eliminating the indoor-outdoor integration provided by the open roof, podium, and central atrium, by adding a roof structure and photovoltaic panels and enclosing the open space at the podium with fenestration
- Adding windows beneath the Pleistocene-era frieze, which will diminish the museum's high degree of indoor-outdoor integration and the visual prominence of the frieze as one of the key character-defining features of the museum
- Shifting the principal entrance to the new museum building; the principal, descending entrance ramp to the Page Museum would be retained physically but converted in use to serve as an outdoor classroom space; the main entrance to the museum would shift to the annex to the west
- Demolition of a portion of the museum's northwest corner
- A site redesign in which the Page Museum, which is presently a prominent, stand-alone feature, would be incorporated as one component of an integrated, connected three-part complex, including built-up berms on the west and north, a public promenade, and new museum building; new construction does not include visual, physical distinctions and separations between the old and the new
- Construction of the new museum building, which, though on par with or slightly higher than the Page Museum, would visually compete with the Page Museum

LAC-5 (cont'd)

Based on the totality of the significant impacts proposed as part of this project to both the La Brea Tar Pits Historic District and the Page Museum, the Conservancy is concerned. Full build out of the La Brea Tar Pits Master Plan Project, as currently proposed, would result in both historic resources losing their eligibility, and an overall loss to the broad architectural and cultural heritage of Los Angeles County.

LAC-6

III. Draft EIR Project Alternatives should be fully analyzed and considered, expanded in scope where necessary, and selected to reduce significant impacts to the existing historic resources

The Master Plan must fully incorporate historic preservation into its goals and objectives to ensure the project meets the Secretary of the Interior's Standards for Rehabilitation. Compliance with the Standards allows all historic resources on the site to remain eligible for designation at the local, state, and national levels. A range of preservation alternatives, including those contained with this DEIR, and others that still might be considered, can help meet this goal. LAC-7

Three project alternatives are included in the DEIR. This includes:

Alternative 1: Renovate Page Museum Only
Alternative 2: Maintain Central Atrium Pleistocene Garden.
Alternative 3: Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green LAC-8

Alternatives 1 and 3 reduce significant impacts, but only Alternative 1 achieves a preservation-based approach that results in less than significant impacts to the La Brea Tar Pits Historic District and the Page Museum. While it would not meet most of the project objectives, Alternative 1 is the alternative scenario that reduces the most environmental impacts when compared to the project. Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District, thereby reducing the overall severity of the impacts to historical resources. Alternative 3 is the alternative that meets all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project. LAC-9

A key policy under the CEQA is the lead agency's duty to "take all action necessary to provide the people of this state with historic environmental qualities and preserve for future generations examples of major periods of California history."[1] To this end, CEQA "requires public agencies to deny approval of a project with significant adverse effects when feasible alternatives or feasible mitigation measures can substantially lessen such effects."[2] LAC-10

While additional mitigation measures can help, we do not believe they can outweigh the environmental impacts that cannot currently be avoided or mitigated to a less than significant level. Therefore, the Conservancy strongly recommends consideration of either Alternatives 1 or 3, or an expanded and modified version of either, to attempt to better meet project objectives and avoid and reduce significant impacts to historic resources. The Conservancy believes this needs to be resolved and further studied before proceeding with a Final Environmental Impact Report. LAC-11

I. The Conservancy requests additional meetings with the La Brea Tar Pits Master Plan Team

The Conservancy requests and welcomes the opportunity to further meet with NHMLAC staff and team, to work collaboratively toward a "win-win" outcome. Our desire is to help NHMLAC staff meet intended project objectives while also finding a way and a project scope that reduces significant impacts to LAC-12

[1] Public Resource Code, Sec. 21001 (b), (c).
[2] *Sierra Club v. Gilroy City Council* (1990) 222 Cal.App.3d 30, 41; also see Public Resources Code §§ 21002, 21002.1.

historic resources, including maintaining the current historic eligibility status for both the La Brea Tar Pits Historic District and George C. Page Museum. Both of these historic places are too important to risk losing. Therefore, we're committed to working with you to find and develop an acceptable preservation-based outcome. We have been successful in doing this elsewhere and finding common ground, and believe that is possible in this case as well. LAC-12 (cont'd)

About the Los Angeles Conservancy:
The Los Angeles Conservancy is the largest local historic preservation organization in the United States, with nearly 5,000 members throughout the Los Angeles area. Established in 1978, the Conservancy works to preserve and revitalize the significant architectural and cultural heritage of Los Angeles County through advocacy and education. LAC-13

Please do not hesitate to contact me at (213) 430-4203 or afine@laconservancy.org should you have any questions or concerns.

Sincerely,

Adrian Scott Fine

Adrian Scott Fine
Senior Director of Advocacy

2.3.3.1 Response to Letter from Los Angeles Conservancy

Comment No.	Response
LAC-1	The comment introduces the letter, provides an overview of the Los Angeles Conservancy (Conservancy), and notes the prior comments made on the scope of the EIR in response to the Notice of Preparation. The comment further notes that the Conservancy has been encouraged by the early design concepts for the project and that the organization looks forward to ongoing collaborations with the County. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. It is important to note that this letter does not state any concern or critique of the analysis contained within the Draft EIR. However, the County is providing responses to the project concerns raised to provide as much information and transparency to the commenter and interested parties as possible. The County appreciate the Conservancy's participation in the process. The comment is introductory in nature and provides information regarding the previous involvement of the organization in collaboration and meetings with the Conservancy on the project.
LAC-2	The commenter notes that because of the severity of the potential loss of historic resources, as reflected in the analysis contained in the Draft EIR, that the Conservancy would like to work further with the County to consider alternatives. After receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including the Conservancy, and refined the design of the improvements proposed at the La Brea Tar Pits site, including exploring changes to the project design to reduce the historic impacts identified by Section 5.5, Cultural Resources – Historical Resources. The County will be recommending approval of Refined Alternative 3 by the Board of Supervisors. This variation of the Master Plan is a refined version of the original Alternative 3 and is presented in Chapter 6, Alternatives Analysis, of the EIR. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs, Refined Alternative 3 and the County's commitment to reducing historical impacts to the degree possible while still meeting the objectives of the project. After developing concept drawings for Refined Alternative 3, the County met with the President and Chief Executive Officer of the Los Angeles Conservancy on January 30, 2024, to review the new concepts. County representatives reviewed the elements of Refined Alternative 3 and answered questions on the changes that were made to address the Conservancy's comments. After the January meeting, the Conservancy shared, via email to Leslie Negritto, Chief Financial and Operating Officer of the Foundation, that the Board of Directors of the Conservancy was pleased to hear of the changes that were made through Refined Alternative 3, and that the Board is appreciative of the direction that's now being pursued (March 6, 2024). This comment is consistent with the information provided in the EIR and does not raise a specific issue pertaining to the analysis provided in the EIR; for this reason, no additional response is provided, and no changes to the EIR were determined to be necessary in response to this comment.
LAC-3	The commenter provides a narrative of the Conservancy's understanding of the project site and its importance as a historical resource. The comment summarizes content provided in the EIR, including information included in EIR Section 5.5, Cultural Resources – Historic Resources. This comment is consistent with the EIR and does not raise a specific issue pertaining to the analysis provided in the EIR; for this reason, no additional response is provided, and no changes to the EIR were determined to be necessary in response to this comment.
LAC-4	This comment summarizes the commenter's concern regarding significant adverse impacts to the La Brea Tar Pits Historic District and Page Museum. This comment is consistent with the information provided in the EIR and does not raise a specific issue pertaining to the analysis provided in the EIR; for this reason, no additional response is provided, and no changes to the EIR were determined to be necessary in response to this comment.
LAC-5	This comment summarizes content provided in the EIR in Section 5.5, Cultural Resources – Historical Resources (pages 5.5-23, 5.5-24, and 5.5-27) and indicates that the Conservancy anticipated that some potential historical resource impacts would be identified for the project. This comment is consistent with the information provided in the EIR and does not raise a specific issue pertaining to the analysis provided in the EIR; for this reason, no additional response is provided, and no changes to the EIR were determined to be necessary in response to this comment.
LAC-6	This comment indicates that the Conservancy is concerned that the full scope of impacts identified in Section 5.5, Cultural Resources – Historical Resources, could occur. The commenter notes that full build out of the La Brea Tar Pits Master Plan project, as reflected in the EIR (specifically Chapter 3, Project Description) would result in both historic resources losing their eligibility, and an overall loss to the broad architectural and cultural heritage of Los Angeles County. As noted in response to comment LAC-2, after receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including the Conservancy, and refined the design of the improvements proposed at the La Brea Tar Pits site, including exploring changes to the project design to reduce the historic impacts identified by Section 5.5, Cultural Resources – Historical Resources. As a result, the County has developed a variation of the proposed Master Plan which is described in the Final EIR. Refer to **MR-1, Preferred Alternative,** for more information.

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	It is important to note that, after developing concept drawings for Refined Alternative 3, the County met with the President and Chief Executive Officer of the Los Angeles Conservancy on January 30, 2024, to review the new concepts. County representatives reviewed the elements of Refined Alternative 3 and answered questions on the changes that were made to address the Conservancy's comments. After the meeting the Conservancy shared, via email to Leslie Negritto, Chief Financial and Operating Officer of the Foundation, that the Board of Directors of the Conservancy was pleased to hear of the changes that were made through Refined Alternative 3, and that the Board is appreciative of the direction that's now being pursued (March 6, 2024).
LAC-7	The commenter indicates that alternatives should be fully analyzed and considered, including an expansion in scope where necessary. The commenter further opines that the project must fully incorporate historic preservation into its goals and objectives to ensure the project meets the Secretary of the Interior's Standards for Rehabilitation. The Conservancy states that a range of preservation alternatives could help meet the goals of retaining historic preservation goals. As noted in response to comment LAC-2, County representatives reviewed the elements of Refined Alternative 3 at a meeting with the Conservancy on January 30, 2024. After the meeting, on March 6, 2024, the Conservancy shared, via email to Leslie Negritto, Chief Financial and Operating Officer of the Foundation, that the Board of Directors of the Conservancy was pleased to hear of the changes that were made through Refined Alternative 3, and that the Board is appreciative of the direction that's now being pursued. Additionally, the County, the design team, and the EIR consultant's historic resource specialists continued to work together to refine the project designs considering the potential for impact to historical resources. As a result, the County has included a variation of the Master Plan for consideration by the Board of Supervisors. Refer to **MR-1, Preferred Alternative,** for more information. Regarding the comment that the incorporation of additional alternatives into the EIR could help meet the preservation goals of the project, the EIR considers a range of reasonable alternatives that would meet most of the basic project objectives, are considered to be potentially feasible, and would avoid or substantially reduce one or more of the potentially significant impacts of the project. Additionally, the information regarding Refined Alternative 3 has also been further expanded through the Final EIR in order to provide additional feasibility information into the analysis. As the County developed this version of the project after the close of the Draft EIR comment period, it became evident that implementation of this alternative would be less impactful when compared with the project described as the original Master Plan. While the broader vision of the Master Plan remains intact, the County and the design team have been able to incorporate the findings of the historical resources analysis and the comments of the Conservancy into a more environmentally superior option, which protects the historical values and importance of the sites resources to the extent feasible while still meeting the objectives of the project. In this context, it should be noted that, under CEQA, an EIR is not required to consider every conceivable alternative to the project; rather an EIR need only consider a reasonable range of alternatives. The EIR describes the alternatives that were considered but rejected, the reasons they were not carried forward for analysis, and the four alternatives that were carried forward for analysis. These suggested alternatives either were considered and rejected, included in the EIR's evaluation of alternatives, or discussed as to why they are not feasible alternatives. CEQA does not require further consideration of any additional alternatives suggested by the comments. However, the County have expanded the consideration of Refined Alternative 3 within the analysis provided by Chapter 6, Alternatives Analysis. The County was unable to develop an alternative consistent with the objectives of the project which completely preserved the historic integrity of the site. As detailed in EIR Section 6.2, many of the project objectives necessitate the expansion of existing museum facilities, or the construction of new facilities. These objectives would be impossible to achieve while also completely maintaining the existing conditions of the site. Many of the existing facilities which would need to be updated, such as the pedestrian entrances, the Page Museum, and the pit viewing areas, are considered important to the historic qualities of the site. Instead, Refined Alternative 3 was selected to strike a balance between preserving the historic elements of the site, and achieving the project objectives.
LAC-8	This comment summarizes content provided in the EIR in Chapter 2, Section 2.8, Project Alternatives (pages 2-59 and 2-60). This comment is consistent with the information provided in the EIR and does not raise a specific issue pertaining to the analysis provided in the EIR; for this reason, no additional response is necessary, and no changes to the EIR were determined to be necessary in response to this comment.
LAC-9	This comment reflects the Conservancy's understanding that, of the alternatives presented in the EIR, Alternatives 1 and 3 reduce significant historical resource impacts, which is consistent with the analysis contained in the EIR. The Conservancy further reflects that Alternative 1 achieves a preservation-based approach that results in less than significant impacts to the La Brea Tar Pits Historic District and the Page Museum, and that Refined Alternative 3 is the alternative that meets all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project. The County agrees with this comment. However, as described in the EIR, Chapter 6, Alternatives Analysis (page 6-19), Alternative 1, Renovate Page Museum Only, would not meet most of the project objectives. Specifically, it would only fully meet one of the project objectives, partially achieve another two of the objectives, and not meet the remaining objectives. Table 6-5 of the EIR, in Chapter 6 Alternatives Analysis, provides detail on this assessment. Importantly, Alternative 1 would <u>not</u> meet the following objectives of the La Brea Tar Pits Master Plan:

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	• Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections. • Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology. • Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum. • Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible. • Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park. • Redesign and renovate the Hancock Park community park green space as an expression of the goals of the City of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood. Because Alternative 1 does not achieve most of the project's objectives, the County have not explored this option further. However, significant exploration of the feasibility and viability of the original Alternative 3 has occurred since the close of the Draft EIR public comment period. Through this exploration, refinements to the original Alternative 3 have been developed, which are presented in Chapter 6, Alternatives Analysis, of this EIR. As a result, the County will be recommending approval of Refined Alternative 3 by the Board of Supervisors. The Refined Alternative 3 is presented in Figures 6-4, 6-5, and 6-6 of this Final EIR. Refined Alternative 3 does not create additional environmental impacts when compared to the original Alternative 3 concept, as further detailed in the environmental evaluation contained in Chapter 6, Alternatives Analysis. Below are some key variations in Refined Alternative 3 that are considered in the Final EIR alternatives analysis: • The central, open atrium of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would no longer be covered and converted to indoor space; it would remain as an open atrium garden. It would continue to include landscaping; the landscaping and hardscaping features of the atrium would be renovated to create a more useable public space with vegetation relevant to interpretive themes of the tar pits. This differs from the original Alternative 3, which replaced the open atrium garden with research laboratory space. • The structural space frame that supports the frieze (including the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped, as had been proposed in the original Alternative 3; the existing space frame and open-air grid roof would remain intact as is. • The Page Museum and the new museum building would be connected only with a covered, open-air breezeway; the original Alternative 3 proposed a physical connection/joining of the two buildings. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway. • Because the connection point for the existing Page Museum and the new museum building would be decreased, demolition of the northwest corner of the Page Museum would be avoided, thereby retaining more of the original character-defining features and materials of the historical resource. However, the removal of the berm surrounding the west wall of the Page Museum would still be necessary as proposed in the original Alternative 3. Refer to **MR-1, Preferred Alternative,** for more information.
LAC-10	The Conservancy provides reference to directives of CEQA and references published case law in support of the commenter's position. This comment references Public Resources Code (PRC) sections and implies that a lead agency is obligated to deny a project that has the potential to result in significant adverse effects on the environment (specifically, the historic environment). The Conservancy partially references PRC § 21001 (b) and (c), PRC §§ 21002, 21002.1, and case law *Sierra Club v. Gilroy City Council* (1990). Referenced PRC sections (in full) are provided below. PRC § 21001: (b) Take all action necessary to provide the people of this state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise. (c) Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history. Additionally, it is worth noting that PRC§ 21001 also includes the following sections which address a duty to take action to rehabilitate and enhance environmental qualities and consider economic and long-range benefits while making determinations regarding proposed projects: (a) Develop and maintain a high-quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state. (g) Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment.

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	PRC § 21002: The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof. PRC § 21002.1: In order to achieve the objectives set forth in Section 21002, the Legislature hereby finds and declares that the following policy shall apply to the use of environmental impact reports prepared pursuant to this division: (a) The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided. (b) Each public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so. (c) If economic, social, or other conditions make it infeasible to mitigate one or more significant effects on the environment of a project, the project may nonetheless be carried out or approved at the discretion of a public agency if the project is otherwise permissible under applicable laws and regulations. (d) In applying the policies of subdivisions (b) and (c) to individual projects, the responsibility of the lead agency shall differ from that of a responsible agency. The lead agency shall be responsible for considering the effects, both individual and collective, of all activities involved in a project. A responsible agency shall be responsible for considering only the effects of those activities involved in a project which it is required by law to carry out or approve. This subdivision applies only to decisions by a public agency to carry out or approve a project and does not otherwise affect the scope of the comments that the public agency may wish to make pursuant to Section 21104 or 21153. (e) To provide more meaningful public disclosure, reduce the time and cost required to prepare an environmental impact report, and focus on potentially significant effects on the environment of a proposed project, lead agencies shall, in accordance with Section 21100, focus the discussion in the environmental impact report on those potential effects on the environment of a proposed project which the lead agency has determined are or may be significant. Lead agencies may limit discussion on other effects to a brief explanation as to why those effects are not potentially significant. Regarding the *Sierra Club v. Gilroy City Council* (1990) case referenced by the Conservancy, it is implied (in referencing this case law), that CEQA requires public agencies to deny approval of a project with significant adverse effect when feasible alternatives or feasible mitigation measures can substantially lessen such effects. The *Sierra Club v. Gilroy City Council* case involved the loss of viable habitat for the California tiger salamander and the specifics of the case are not necessarily equivalent to the loss of eligibility of a historic resource due to rehabilitation of the resource. However, the PRC and the State CEQA Guidelines indicate that, when economic, social, or other conditions make project alternatives infeasible, projects may be approved despite one or more significant effects. Specifically, as noted above through PRC § 21002.1 (b) and (c), public agencies are only required to mitigate or avoid significant effects when it is feasible to do so and if economic, social, or other conditions make it infeasible to mitigate one or more significant effects on the environment of a project, the project may nonetheless be carried out or approved at the discretion of a public agency. The exploration of feasible alternatives that attain some or most of the project's objectives but reduce environmental impacts is provided in Chapter 6, Alternative Analysis, of the EIR. Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar environmental impacts as the project for each issue area analyzed in this EIR, except for historical resources. Refined Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District thereby reducing the overall severity of the impacts to historical resources; however, it would not avoid the project's significant and unavoidable impacts. Similarly, the design refinements in this alternative would help to further support the land uses plans and policies applicable to the project as they relate to the protection and alternation of historical resources, but not in such a way to avoid the project's related significant and unavoidable impacts. Refined Alternative 3 is the alternative that meets all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project and reduces impacts to historic resources, although not to a level below significance. No changes to the EIR were determined to be necessary in response to this comment.
LAC-11	The commenter indicates that mitigation measures can help, but do not outweigh the concerns regarding the design of the Master Plan. It is important to note that, when making this comment, the Conservancy is considering the project designs as portrayed in Chapter 3, Project Description, of the Draft EIR. The commenter goes on to comment that they "strongly recommend" that either Alternative 1 or 3 (or an expanded and modified version of either) be considered to "better meet project objectives and avoid and reduce significant impacts to historic resources." Furthermore, the commenter "believes this needs to be resolved and further studied before proceeding with a Final EIR." The County, the design team, and the EIR consultant's historic resource specialists continued to work together to refine the project designs considering the potential for impact to historical resources. Because Alternative 1 does not achieve most of the project's objectives, the County has not explored this option further. However,

Comment No.	Response
	significant exploration of the feasibility and viability of the original Alternative 3 has occurred since the close of the Draft EIR public comment period as discussed with the Conservancy on January 30, 2024. In this Final EIR, consideration of the original Alternative 3 has been expanded and the design refined to preserve more character-defining features of the Page Museum. As a result, the County will be pursuing Refined Alternative 3 for approval by the Board of Supervisors. Refined Alternative 3 and the expanded analysis is provided in Chapter 6, Alternatives Analysis, of this Final EIR. Specifically, Figures 6-4, 6-5, and 6-6 provide the further development and refinement of the concept designs for Refined Alternative 3. Below are some key variations in Refined Alternative 3 that are considered in the Final EIR alternatives analysis: • The central, open atrium of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would no longer be covered and converted to indoor space; it would remain as an open atrium garden. It would continue to include landscaping; the landscaping and hardscaping features of the atrium would be renovated to create a more useable public space with vegetation relevant to interpretive themes of the tar pits. This differs from the original Alternative 3, which replaced the open atrium garden with research laboratory space. • The structural space frame that supports the frieze (including the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped, as had been proposed in the original Alternative 3; the existing space frame and open-air grid roof would remain intact as is. • The Page Museum and the new museum building would be connected only with a covered, open-air breezeway; the original Alternative 3 proposed a physical connection/joining of the two buildings. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway. • Because the connection point for the existing Page Museum and the new museum building would be decreased, demolition of the northwest corner of the Page Museum would be avoided, thereby retaining more of the original character-defining features and materials of the historical resource. However, the removal of the berm surrounding the west wall of the Page Museum would still be necessary as proposed in the original Alternative 3. Refined Alternative 3 does not create additional environmental impacts when compared to the original Alternative 3 concept, as further detailed in each of the environmental evaluations contained in Chapter 6, Alternatives Analysis. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by Refined Alternative 3 and the refined designs.
LAC-12	The Conservancy requests that additional meetings with La Brea Tar Pits Master Plan team occur to work collaboratively on the design of the project. The Conservancy further notes that their desire is to help to meet the intended project objectives while also finding a way to reduce significant historic impacts. As noted in response to comment LAC-2, County representatives reviewed the elements of Refined Alternative 3 at a meeting with the Conservancy on January 30, 2024. After the meeting, on March 6, 2024, the Conservancy shared, via email to Leslie Negritto, Chief Financial and Operating Officer of the Foundation, that the Board of Directors of the Conservancy was pleased to hear of the changes that were made through Refined Alternative 3, and that the Board is appreciative of the direction that's now being pursued. Please also refer to response to comment LAC-11. The County, the design team, and the EIR consultant's historic resource specialists continued to work together to refine the project designs considering the potential for impact to historical resources. As a result, the County has included a variation of the Master Plan for consideration I by the Board of Supervisors, which is consistent with Refined Alternative 3. This variation of the Master Plan is addressed in Chapter 6, Alternatives Analysis, of this Final EIR. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information regarding the County's preferred alternative.
LAC-13	In closing the letter, the Conservancy summarizes that the Los Angeles Conservancy is the largest local historic preservation organization in the United States, with nearly 5,000 members throughout the Los Angeles area, that the Conservancy was established in 1978, and that the organization works to preserve and revitalize the significant architectural and cultural heritage of Los Angeles County through advocacy and education. This comment does not provide additional input into the project design or the EIR process; therefore, no response is required. The County appreciates the Conservancy's attention to this important project, as represented through the various communications received on the project as well as the meetings with the County that the Conservancy has participated in. No changes to the EIR were determined to be necessary in response to this comment

2.3.4 Neighborhood Council Sustainability Alliance of Los Angeles

NEIGHBORHOOD COUNCIL
SUSTAINABILITY
ALLIANCE

October 26, 2023

Re: La Brea Tar Pits Master Plan

Please see the attached letter, which our representatives voted to support.

Thank you,

Lisa Hart

Lisa Hart
Executive Director

NEIGHBORHOOD COUNCIL
SUSTAINABILITY
ALLIANCE

October 26, 2023

Leslie Negritto, Chief Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007
Via e-mail: Leslie Negritto, reimagine@tarpits.org

RE: Public Comment On Proposed La Brea Tar Pits Master Plan Project

Dear Chief Operating Officer Negritto:

The Neighborhood Council Sustainability Alliance (NCSA) has important concerns with the environmental impact of the Master Plan Project as presented by the Natural History Museums of Los Angeles County (NHM) to expand the Page Museum and facilities at the La Brea Tar Pits. Over the course of the past two years, objections have been voiced to project representatives regarding mature tree loss—especially native tree and other native plant removals that are crucial to the ecosystem. Many individual objections came from members of the NCSA Trees Committee who are versed in the value of these assets. Yet these concerns have had no discernible influence on the project. NCSA-1 NCSA-2

We question why this DEIR is offered without a tree inventory, and why it provides no specific disclosure of which trees would be removed and which retained? These are standard elements of a CEQA document, and their absence leads us to challenge how this EIR can be accepted without this disclosure. NCSA-3

A representative of the NCSA Trees Committee who attended your September 30 outreach event and walked the site had positive engagement with several Gruen Associates including architect Debra Gerod and also members of the landscape design team including Ronnick Licudo and Nicholas Decker. The latter two representatives were joined by another associate, Dean Howell, at our NCSA Advocacy meeting of October 1. NCSA-4

Below we take issue with the environmental evaluation of the Master Plan Project as presented. Text from the DEIR is cited. A numbered list of minimum expectations for the project is presented later in this comment letter.

From the DEIR Appendix B p. 29: NCSA-5

Existing trees and plantings throughout the park are scattered and achieve little sense of character or unity. The enhanced character of the park will require new plantings as well as existing trees and plantings that complement the concept design. Species such as the Western Sycamore, California Buckeye, and Redwood should be preserved.

With the current heat crisis in Los Angeles, we need to retain every shade-producing tree. Replacement planting deprives the City of ecosystem services for 20 years while trees attain maturity. Dr. Beverly Law, Emeritus Professor of Global Change Biology, explains how new trees initially add carbon to the atmosphere and only mature trees sequester carbon, one of the chief environmental benefits from trees.† NCSA-6 NCSA-7

Given the benefits of mature trees, the "***character and unity,***" stated in the above quote from the DEIR, should not be the deciding factor for tree elimination. While the palms and agaves at the project site may be expendable, there are numerous shade trees that should be preserved but will not be in this Master Plan. Even more disturbing, the DEIR says, "Western Sycamore, California Buckeye, and Redwood should be preserved" BUT ACCORDING TO THE PRESENTATION ON SEPTEMBER 30, THESE VALUABLE NATIVE TREES ARE NOT BEING PRESERVED, AND THIS IS NOT REVEALED IN THE NCSA-8 NCSA-9

DEIR. If the DEIR says native trees "should be preserved," then it should begin with an inventory of all these native trees / shrubs and demonstrate how the project will design around them. It is ironic that a project that is dedicated to educating the public about extinction does not begin with a mandate to preserve valuable specimens of extant but rare native trees and other native plants. Select highly precious native tree specimens on the Tar Pits site are cited in section 2) of this comment letter below. **NCSA-9 (cont'd)** **NCSA-10**

From the DEIR Appendix B p.19:

A picnic area under the canopy and shade trees provides new programming opportunities, from outdoor education and school lunches to orientation and gathering.

Again, new trees provide no appreciable shade for 20 years. At the picnic area there is an opportunity for tree preservation if the construction company is mandated to protect existing valuable trees. These trees border construction, and the builders must be sensitive to protecting existing trees instead of relying on a "planting plan." Tree preservation requires expert supervision to avoid harm to the trees. **NCSA-11**

From the DEIR Appendix B p.28:

A woodland zone along the park's peripheral edges (northern, southern, eastern, and western) provides shade to the picnic areas and the parking lot to the north. These landscape zones are designed to maximize space for community, creating opportunities for the public to engage with the site's natural history and create a distinctive identity for the park to help tell La Brea's story. The planting scheme addresses the realities of Los Angeles's current and projected climate and aims to ease water consumption, ensure appropriate maintenance, promote sustainable growth, and provide a model for resilient site planning in the area.

A museum dedicated to studying past extinctions should mitigate future extinctions by committing that **EVERY new plant and tree will be native**. Experts like Doug Tallamy, PhD professor in the Department of Entomology and Ecology at the University of Delaware, author of 80 research articles and 4 bestselling books, spoke at the City of Los Angeles Community Forest Advisory Committee in the October 2023 meeting, telling us we must plant native in cities in all planting spaces. Other ecologists concur: **NCSA-12**

Native plants play a very important role in our ecosystems. As ecologists, wildlife biologists and entomologist have shown, native plant species are more favorable for supporting local wildlife, including insects such as bees and butterflies, amphibians, reptiles, and mammals. Native plants feed the creatures at the bottom of the food web that then provide meals for creatures on the next ring of the web, such as the birds.††

We believe there are specific adjustments to the landscaping plan that will improve the sustainability, historical value, and cultural significance of the project. Accordingly, we request that the following changes be incorporated into the design. **NCSA-13**

1) Allow biofiltration areas to recharge groundwater and irrigate lawn. **NCSA-14**

As outlined in DEIR Section 3.4.7.2, the three biofiltration spaces will be lined with an impermeable liner, and water will be routed to the city stormwater drains. This is a missed opportunity. Central to the function of a true bioswale is the absorption of water for groundwater recharge. This can only be accomplished if the bioswale (or biofiltration planter) does not reside over an impermeable barrier. Therein, an unlined or partially unlined bottom in each of the three biofiltration spaces would have greater benefit to the community and the urban ecosystem by allowing some groundwater recharge. Of particular significance is that Oil Creek is a naturally occurring spring that is a fundamental component of the very system and unique phenomenon that the park celebrates. To add impermeable barriers to such a system undermines the functionality of a unique historical site, diminishing its educational value and threatening **NCSA-15**

the existence of the Oil Creek spring. Importantly, it is counterintuitive to use natural systems to filter onsite water, only to dump it back into the city stormwater drain system, where it will be polluted again before reaching our local watershed. Certainly any flooding concerns could be addressed with overflow drainage in the bioswale and bioplanter designs. Groundwater flow is an inherent element of Oil Creek. **NCSA-15 (cont'd)**

The immense footprint of grass lawn in the project underscores the need to utilize onsite water sources rather than dumping naturally cleaned water into the stormwater drain. Overflow water cleaned by the biofiltration spaces should be captured as an irrigation source to offset the significant impact of using potable water to irrigate the grass lawn in the project. **NCSA-16**

2) Redesign the landscaping plan to save / incorporate four historically significant tree specimens.

The area to the northwest of the current Central Green, south of the current Pleistocene garden, contains two old-growth *Rhus ovata* (Sugarbush) and one old-growth *Heteromeles arbutifolia* (Toyon). These are visible (albeit difficult to identify) in Existing Site Figure 3-3 in the DEIR. We believe the two *Rhus ovata* are the largest specimens in the City of Los Angeles and among the largest in existence for this regionally local species. Likewise, the *Heteromeles arbutifolia*, a species declared the official native plant of Los Angeles by City Council in 2012 and a protected tree species via Los Angeles Ordinance 186873, has historical and cultural significance. A 1924 overhead photo of the site in the Los Angeles Public Library archives shows probable evidence of these three trees existing on the site a century ago. Further northwest of these three trees, north of Oil Creek and a few feet northwest of the current Pleistocene garden, is an exceptional example of *Aesculus californica* (California Buckeye) that also carries significance as being among the largest examples in the City of Los Angeles. Though the DEIR lacks a tree inventory and specifics on exactly which trees will be preserved, preliminary documents suggest all four of these trees are slated for removal. Due to their age and size, these four trees are poor candidates for survival if moved, even if the large expense and effort to do so was undertaken. However, an overlay of the Conceptual Site Plan in Figure 3-4 onto Figure 3-3 suggests these four trees are outside the proposed new building footprint and could be accommodated and preserved with minor alterations to the landscaping design. **NCSA-17**

Consider that the project site also includes two mature *Sequoia sempervirens* (Coast Redwood), two mature *Umbellularia californica* (California Bay Laurel), and several mature *Pinus torreyana* (Torrey Pine). These native trees are among the largest trees on the site, and a superior plan would have designed around them. *Umbellularia californica* is a protected species in Los Angeles and *Pinus torreyana* is an endangered species that is the rarest pine species in the United States. However, because they are within the footprint of a new building in the DEIR, we don't see how they can be saved without a major redesign of the project. The loss of these trees will constitute a significant harm to the ecosystem of the area and the cultural heritage of the region. This makes it all the more imperative that the four trees listed in the prior paragraph (which can be saved with comparatively minimal effort) be saved. **NCSA-18** **NCSA-19**

3) Removal of any native tree protected by Los Angeles Ordinance 186873 should result in the full 4:1 replacement ratio planted on site within the project boundaries.

Though this is a County facility, it is situated in the City of Los Angeles, which has a Protected Tree Ordinance in place to discourage the removal of native trees and shrubs. The fact that the Tar Pits are a County facility is insufficient reason to ignore City law supported by the stakeholders of the community. The existing site contains multiple healthy mature specimens of these five protected tree species (*Heteromeles arbutifolia* (Toyon), *Platanus racemosa* (Western Sycamore), *Umbellularia californica* (California Bay Laurel), *Sambucus mexicana* (Blue Elderberry), and *Juglans californica* (Southern California Black Walnut)) and one protected tree genus *Quercus* (Oaks) of native origin as defined in Los Angeles Ordinance 186873. Many of these are slated for removal. The project site is noteworthy for having all these species in a relatively small area that is easily walkable and accessible, and **NCSA-20** **NCSA-21** **NCSA-22**

consequently serves as an extremely valuable education tool in addition to having the biodiversity benefits these native trees provide. Section 3.4.7.1 of the DEIR estimates that 135 to 180 trees (including many non-native trees) in the existing site will be removed, assuming the calculation that an additional 10 percent will be relocated. This is a significant loss of mature tree canopy for the community, with decades-long loss of shade, carbon capture, and heat-island effect offset. Installing the full 4:1 replacement ratio of our protected species on site as part of the new design is an important long term mitigation to these losses. **NCSA-22 (cont'd)**

4) The removal of any *Berberis nevinii* (Nevin's Barberry) should also result in a 4:1 replacement ratio planted on site within the project boundaries

Berberis nevinii is a federally and state listed endangered species. Several large, mature examples of this shrub are at the existing site, specifically within the current Pleistocene garden—an area slated for removal in current plans. Though these plants were planted by humans, they are well established at the location. The new plant palette designs in Figures 3-12, 3-13, and 3-14 of the DEIR do not include plans for *Berberis nevinii*. While relocation of the existing on site mature shrubs is technically possible, this may have a low success rate beyond the short term. By incorporating new plantings of this species into the design, a long term presence for this endangered species can be secured. **NCSA-23**

5) All new plantings, other than functional lawn, must be native species, with a preference for species from the tar pits fossil record. **NCSA-24**

The original vision of this park as articulated by naturalist Theodore Payne and landscape architect Ralph Cornell over a century ago was to feature an exclusively native plant habitat. This project offers a singular opportunity to bring that vision closer to reality, and there are extremely important reasons to do so. Los Angeles is experiencing a biodiversity crisis, having lost over 90% of our local pollinators since the beginning of the twentieth century. Key Lepidoptera species (butterflies and moths) are disappearing to extinction at the rate of two regional species per year. Because many specialist fauna depend on the native plants with which they have evolved, native landscaping plants and trees provide essential support for local biodiversity. There is not a better case for an all-native urban landscaping design than that of Hancock Park in the La Brea Tar Pits Master Plan Project, a space noteworthy for being the most important Pleistocene fossil site on the planet. The tar pits have established a fossil record with tens of thousands of years of evidence of our native plants surviving climate change and varying carbon levels that exceed those anticipated from anthropogenic climate change. These changes were a factor in wiping out the famous megafauna displayed in the Page Museum at the tar pits, yet our surviving local native plants endured these changes. **NCSA-25**

As a demonstration of the power of adaptability within the DNA of our local native plants in our unique biodiversity hotspot, the project site has unparalleled importance as an education tool for climate change and biodiversity, but only if the landscaping design utilizes those native plant species. Happily, the creators of the DEIR document seem to get this, as all the proposed species in Sections 3.4.7 and 3.4.7.1 and the aforementioned Figures of the DEIR exclusively reference native species. However, suggested plant palettes are different from actual detailed landscaping plans. In conversations with several members of the landscape design team, our members were repeatedly told that new landscaping installations would be "90 to 95 percent native" with some members of the design team going on to mention plans to install multiple exotic trees such as *Tipuana tipu*. There is no scientific, cultural, or practical justification for including non-native tree species in the planting palette of this project. With well over 70 locally native tree and shrub species and hundreds of local herbaceous plant species providing ample choices for both drought resistant landscaping as well as the project's riparian biofiltration areas, no credible argument can be made that it is biologically valuable or necessary to add more ornamental non-native species to this site (a site that will still contain over 100 mature non-native trees slated for preservation in the current plan). **NCSA-26** **NCSA-27**

Furthermore, even the "90 to 95 percent" natives suggested by designers is greatly misleading. Consider that a large percentage of the 13 acres in both the existing site and proposed site in the DEIR consists of non-native grass species for open lawn. Thus, the native percentage estimate by designers omits the lawn that will constitute the highest percentage of planted biomass for the project. While lawn has a functional green space value for the community, the ornamental landscaping trees and other non-lawn plants added to this site, going forward, should be exclusively native in recognition of the historical significance of the plants in the fossil record that make this site a true treasure for the local community, region, and world. **NCSA-27 (cont'd)**

Thank you for this opportunity for public comment. We hope the NCSA, an alliance that includes members with extensive ecological and native plant expertise, can serve as an advisor on this project as it moves forward. We applaud NHM for its ambitious goals in this exciting endeavor. **NCSA-28**

Sincerely,

The Neighborhood Council Sustainability Alliance of Los Angeles
www.ncsa.la

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† https://www.youtube.com/watch?app=desktop&v=LDdKOmvIKyg&feature=youtu.be

†† https://www.ecolandscaping.org/native-plants/

2.3.4.1 Response to Letter from Neighborhood Council Sustainability Alliance of Los Angeles

Comment No.	Response
NCSA-1	The commenter introduces the letter from the Neighborhood Council Sustainability Alliance (NCSA), indicating that the NCSA has concerns with the environmental impact of implementation of the master plan. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This comment is introductory in nature and does not provide a specific concern with the environmental analysis contained in the EIR, so no response is provided. Responses to specific concerns raised later in the letter are provided below. It is important to note that most of the comments in the NCSA letter do not state any concern or critique of the analysis contained within the EIR. However, the County is providing responses to the concerns raised to provide as much information and transparency to the commenter and interested parties as possible.
NCSA-2	The commenter states that the NCSA has voiced concerns to project representatives over the past two years, but the objections did not seem to influence the project. This is not a comment on the EIR; therefore, no response is necessary, and no changes to the EIR were determined to be necessary in response to this comment.
NCSA-3	The commenter questions why the Draft EIR was prepared without a tree inventory. Further, the commenter asks why the EIR provides no disclosure of which trees would be removed and which would be retained. The commenter indicates that these are standard elements of a CEQA document. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The commenter is correct that the EIR does not provide identification of the exact trees to be removed through implementation of the project. However, the implication that this is required for a CEQA document is not correct. The project description for the EIR only needs to include the information necessary to come to conclusion regarding the potential for significant environmental impacts. The full range of potentially significant biological resource impacts, including those to trees, is provided in the EIR in Section 5.3, Biological Resources. The thresholds of significance address the full range of impacts that could occur with the project, including impacting tree specimens protected by local ordinances. In this case, the property is regulated by the County of Los Angeles. The environmental analysis regarding vegetation and local tree impacts that is contained in Section 5.3 of the EIR is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal and no changes to EIR are made through the Final EIR process. Refer to **MR-2, Impacts to Native and Mature Trees**. Throughout the comment letter, the NCSA requests specific adjustments to the landscaping plan that the commenter believes would improve the project. After receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including the NCSA, and refined the design of the improvements proposed at the La Brea Tar Pits site, including the landscaping plan and what features could be retained and/or protected and to what degree. As a result, the County has pursued development of a variation of the Master Plan for consideration by the Board of Supervisors. Refinements to the landscaping plan are continuing to be considered as the design evolves. Refer to **MR-1, Preferred Alternative,** and **MR-3, Use of Native Plants and Vegetation,** for more information regarding the updated designs, Refined Alternative 3 and the County's commitment to meet and exceed the regulatory requirements for impacts to native vegetation at the La Brea Tar Pits site.
NCSA-4	The commenter mentions that a representative of the NCSA Trees Committee had positive engagement with several design team members (e.g., Gruen Associates and members of the landscape design team) during the County's September 30th outreach event. Members of the design team also attended NCSA's October 1st Advocacy meeting. The County appreciates the input that NCSA has provided on the project to-date, and it is being considered throughout the design process. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-5	The commenter quotes an excerpt from Appendix B of the Draft EIR. Refer to response to comments NCSA-6 through NSCA-10 below. This is not a comment that raises issue with the contents of the environmental analysis in the EIR; therefore, no response is necessary, and no changes to the EIR were determined to be necessary in response to this comment.
NCSA-6	The commenter requests that all shade-producing trees should be retained rather than replaced. Refer to **MR-2, Impacts to Native and Mature Trees**. This comment does not critique the analysis contained in the EIR; rather, the commenter is noting that they disagree with the County's approach to the project. The exact trees to be removed through implementation of the project have not yet been determined. The County will prioritize the protection of existing trees, where appropriate. However, retention of trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. In addition, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park.

Comment No.	Response
	While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. Furthermore, by relying on native and disease-resistant species, the newly trees planted may prove to be more resilient than some of the existing trees on the project site, thus resulting in better shade production. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis regarding impacts to tree that is contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1 Aesthetics, which concluded a less than significant impact. The County will continue to refine the designs as the project develops to account for the most protections possible for native and community resources. This may include protection of individual tree species noted as important to the community and/or increases in replacement ratios for trees that are particularly valued by the community. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-7	The commenter provides additional information supporting their opinion that the existing trees at the project site should not be removed. Specifically, the commenter claims that according to Dr. Beverly Law, there is evidence that newly planted trees initially emit carbon, and only mature trees sequester carbon. Refer to **MR-2, Impacts to Native and Mature Trees**, and response to comment NCSA-6. This comment does not critique the analysis contained in the EIR; rather, the commenter is noting that they disagree with the County's approach to the project. The comment is correct that mature trees are important for their carbon sequestering abilities. As discussed in MR-2, the County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to several project requirements, including, the excavation requirements for construction of the new building, the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. However, the comment's claim that new trees should be viewed as sources of carbon is inaccurate. According to the PBS video referenced by the comment, Dr. Beverly Law provides evidence that new *forests* may be net sources of carbon, and that mature *forests* sequester greater quantities of carbon. The study in questions takes the entire carbon cycle of the forest into account, including decomposition on the forest floor, and assumes that every tree in the forest is newly planted. The purpose of the study was to provide evidence that retaining old growth forests is a more effective means of carbon sequestration than planting new forests. As the trees within the project site exist in a built-up urban environment, comparing the impacts of tree replacement by the project to the replacement of an entire old growth forest is erroneous. There is no reliable evidence that suggests that planting new trees would increase carbon emissions. It is true that the carbon sequestration abilities of the site would be reduced by removing mature trees, however, these losses would be recouped as the new trees mature. Furthermore, by relying on native and disease-resistant species, the new trees planted by the project may prove to be more resilient than some of the existing trees on the project site, thus resulting in longer term carbon sequestration. The EIR found that the project's greenhouse gas impacts would be less than significant after implementation of Mitigation Measures GHG/mm-1.1 and TRA/mm-1.1. As the EIR does not rely on the project's carbon sequestration potential to make an impact conclusion, the potential short-term reductions in carbon sequestration are not relevant to the analysis included in the EIR. Therefore, no changes to the EIR were determined to be necessary in response to this comment.
NCSA-8	The commenter provides additional information supporting their opinion that the existing trees at the project site should not be removed. Specifically, the commenter references a quote from Appendix B of the DEIR and argues that the "character and unity" of the site should not be the deciding factor for tree removal. Refer to **MR-2, Impacts to Native and Mature Trees**, and response to comments NCSA-3 and NCSA-6. The quote referenced by the comment has been taken out of context. No trees are proposed to be removed solely because they do not add to the character and unity of the site. Instead, the quote is meant to demonstrate that there will be an emphasis on improving the character and unity of the site with the proposed new plantings. As discussed in MR-2, the County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to several project requirements, including, the excavation requirements for construction of the new building, the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-9	The commenter quotes text in the Draft EIR that indicates that Western Sycamore, California Buckeye, and Redwood trees should be preserved but then indicates that a presentation on September 30 indicated that these native trees are not being preserved. In addition, the commenter further indicates that a tree inventory should be provided. The exact trees to be removed through implementation of the project have not yet been determined. The County will prioritize the protection of these trees and will avoid their removal if feasible while also meeting the budgetary and design needs for the project. Retention of all individuals of an important tree species may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The County will continue to refine the designs as the project develops to account for the most protections possible for native and community resources. This may

Comment No.	Response
	include protection on individual tree species noted as important to the community and/or increases in replacement ratios for trees that are particularly valued by the community. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-10	The commenter indicates that the project should preserve valuable tree species to fulfill the project's dedication to educating the public about extinction. While this is not a comment specifically on the analysis contained in the Draft EIR, it should be noted that native species have been prioritized in the plant palette and incorporated into the design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. Furthermore, it should be noted that the plant palette also contains considerations for historical floral communities and pollinator resources. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. Refer to **MR-2, Impacts to Native and Mature Trees**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-11	The commenter provides additional feedback requesting the retention of shade-producing trees. Refer to **MR-2, Impacts to Native and Mature Trees,** and response to comments NCSA-6, NCSA-9, and NCSA-10. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-12	The commenter requests that all new plantings should be native species. While this is not a comment specifically on the project's environmental impacts as contained in the Draft EIR analysis, it should be noted that native species have been prioritized in the plant palette and incorporated into the design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. Refer to **MR-3, Use of Native Plants and Vegetation.** No changes to the EIR were determined to be necessary in response to this comment.
NCSA-13	The commenter notes that there are specific adjustments to the landscaping plan that they believe will improve the sustainability, historical value, and cultural significance of the project. The commenters' specific comments are addressed in the following responses. After receiving comments on the Draft EIR, the County, considered the comments made by the commenting entities, including the NCSA, and refined the design of the improvements proposed at the La Brea Tar Pits site as reflected in Refined Alternative 3, including the landscaping plan and what features could be retained and/or protected and to what degree. As a result, the County will be recommending approval of Refined Alternative 3 by the Board of Supervisors. Refinements to the landscaping plan are continuing to be considered by the County as the design evolves. Refer to **MR-1, Preferred Alternative, MR-2, Impacts to Native and Mature Trees**, and **MR-3, Use of Native Plants and Vegetation**, for more information regarding the additional information provided by the updated designs, Refined Alternative 3 and the County's commitment to meet and exceed the regulatory requirements for impacts to trees and other vegetation at the La Brea Tar Pits site.
NCSA-14	The commenter shares the opinion that the bioswales included in the project (as described in the EIR) should be redesigned without an impermeable liner because the use of an impermeable liner limits the ability for the bioswales to recharge the site's groundwater. While this is not a comment on the environmental impact analysis contained in the EIR, additional information is provided within this response to provide an understanding of the rationale for the proposed bioswale approach. It is correct that the use of an impermeable liner would limit the bioswales ability to recharge groundwater. However, the proposed bioswale is intentionally designed this way. Further, groundwater recharge is not an objective of the proposed project. Due to the conditions of the project site, constructing a permeable bioswale would not be feasible. Bioswales relying on permeable basins require the composition of the local soil to allow for a high enough infiltration rate in order to avoid any standing water. This is because standing water can lead to vector control issues, by potentially providing a breeding ground for mosquitos and other harmful organisms. The project site's soil composition includes clays and tar sands which would not allow stormwater to infiltrate into the ground at a high enough rate to avoid standing water. As well, groundwater must not be found less than 10 feet from the bottom of the bioswale, in order to allow for adequate filtration to reduce the amount of surface pollutants entering the groundwater. Groundwater at the project site has been discovered less than 10 feet from the surface, which would not allow stormwater to be adequately filtered prior to entering the groundwater. Lastly, since the site's soil includes clays and tar sands, this composition would further limit the ability for stormwater to infiltrate into the ground at high enough rates to allow for adequate filtration. Given the soil and groundwater conditions at the project site, the most feasible option is the use of bioswales which rely on stormwater bioretention basins, as proposed by the project. These types of bioswales consist of a raised planter system with a retention basin and an underdrain. They can be designed to be permeable, however certain site conditions may require an impermeable barrier. For the proposed project, the bioswales would be required to include an impermeable liner for two reasons. First, due to the presence of high groundwater, if the bioswale did not include an impermeable liner, the underdrain could continuously capture

Comment No.	Response
	the site's groundwater leading to unnecessary discharge. Second, without an impermeable barrier, the tar seeps present in the site's soil could potentially enter and clog the drainage system, reducing the effectiveness of the bioswale. For these reasons, permeable bioswales are not possible on the project site. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-15	This comment states that the use of bioswales with impermeable liners would undermine the functionality of the project site. As discussed in NCSA-14, the bioswales on the project site must be designed with an impermeable liner. However, the bioswales proposed would still be able successfully capture significant amounts of stormwater runoff and would reduce the potential for surface pollutants to further contaminate any groundwater present at the project site. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-16	The comment indicates that overflow water from the proposed bioswales should be captured for re-use on the project site. The County requires that all captured stormwater must be re-used within 96 hours to reduce the potential for vector control issues, as discussed in NCSA-14. Since the project will be landscaped with low-water use plants, it is anticipated that the demand required for reused water would not be met. EIR Sections 5.9 Hydrology and Water Quality and 5.15 Utilities include analyses with the assumption that water on the project site would not be recycled. The EIR concluded that the project would have less-than-significant impacts to hydrology and water quality as well as utility and service systems, with the implementation of identified mitigation measures. Therefore, no changes to the EIR were determined to be necessary in response to this comment.
NCSA-17	The commenter requests that the landscaping plan be redesigned to save the four tree specimens that have been highlighted by the NCSA as having value to the community because of their age. Specifically, these are identified by the commenter as two old-growth Sugarbush, one old-growth Toyon, one California Buckeye. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. The location of the trees identified by the commenter can be found in this appendix, which includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will prioritize the protection of these trees and will avoid their removal if feasible while also meeting the budgetary and design needs for the project. Retention of these trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The County will continue to refine the designs as the project develops to account for the most protections possible for native and community resources. This may include protection on individual tree species noted as important to the community and/or increases in replacement ratios for trees that are particularly valued by the community. However, because the property is not regulated by the City of Los Angeles, the replacement ratios set by the City of Los Angeles is not required to be met. Los Angeles County does not require any replacement ratios other than for protected oak trees. If the removal of oak trees cannot be avoided, Mitigation Measures BIO/mm-6.1 and 6.2 provide for the replacement of oaks at a 2:1 ratio for each tree impacted. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. This may include possible voluntary increases in replacement ratios. However, a specific replacement ratio is not required beyond the requirements specified in Mitigation Measure BIO/mm-6.1. The environmental analysis regarding vegetation and local tree impacts that is contained in Section 5.3 of the EIR is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Refer to **MR-2, Impacts to Native and Mature Trees**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-18	The commenter opines that a superior plan would have been to design around the California Bay Laurel and several mature Torrey Pines. Refer to **MR-2, Impacts to Native and Mature Trees**, and response to comment NCSA-17. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-19	The commenter reiterates their opinion that the four trees listed in comment NCSA-17 be saved. Refer to **MR-2, Impacts to Native and Mature Trees**, and response to comment NCSA-17. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-20	The commenter indicates that the City of Los Angeles Ordinance 186873 should be followed, which would result in different replacement ratios than what is being proposed or required for the project. Wherever possible, the County will provide for higher replacement ratios than what is required by the regulatory requirements that apply to the project. However, the requirements set by the City of Los Angeles do not apply to the project, as the property is subject only to the regulatory requirements of the County of Los Angeles. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. This may include possible voluntary increases in replacement ratios. However, the requirements identified in the EIR are not required to be revised as they are consistent with the regulatory requirements that apply to the project and what is necessary to reduce impacts to mature trees to less than significant. These measures are included in the EIR as Mitigation Measures BIO/mm-5.2, BIO/mm-6.1, and BIO/mm-6.2. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
NCSA-21	The commentor references several tree species that they indicate should be protected. Refer to **MR-2, Impacts to Native and Mature Trees**, and response to comment NCSA-20. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-22	The commenter indicates that the project site is noteworthy for having many identified tree species in a relatively small area and consequently serves as a valuable education tool. Further, the commenter indicates that Section 3.4.7.1 of the DEIR estimates that 135 to 180 trees (including many non-native trees) in the existing site would be removed, assuming the calculation that an additional 10% would be relocated. After receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including NCSA, and refined the design of the improvements proposed at the La Brea Tar Pits site, including the landscaping plan and what features could be retained and/or protected and to what degree. As a result, the County will be recommending approval Refined Alternative 3. Refinements to the landscaping plan are continuing to be considered by the County as the design evolves; the specific trees to be removed has not been finalized. Refer to **MR-1, Preferred Alternative** for more information regarding the additional information provided by the updated designs and Refined Alternative 3. The County agrees that the site is noteworthy for having all these species in a walkable and accessible park setting. The County will prioritize the protection of important trees and will avoid their removal if feasible while also meeting the budgetary and design needs for the project. However, retention of specific trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The County will continue to refine the designs as the project develops to account for the most protections possible for native and community resources. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-23	The commenter expresses that any removal of Nevin's Barberry should be replanted with a 4:1 replacement ratio. There are two Nevin's Barberry on site located in the Pleistocene Garden, which are proposed to be removed to accommodate grade changes for building and park improvements and the addition of a fire lane. However, this species can be included in the plant palette and incorporated into the design where appropriate. The requirements set by the City of Los Angeles do not apply to the project, as the property is subject only to the regulatory requirements of the County of Los Angeles. Los Angeles County does not require any replacement ratios other than for protected oak trees. If the removal of oak trees cannot be avoided, Mitigation Measures BIO/mm-6.1 and 6.2 provide for the replacement of oaks at a 2:1 ratio for each tree impacted. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. This may include possible voluntary increases in replacement ratios. However, a specific replacement ratio is not required beyond the requirements specified in Mitigation Measure BIO/mm-6.1. The environmental analysis regarding vegetation and local tree impacts that is contained in Section 5.3 of the EIR is an accurate assessment of the potential for significant environmental impacts regarding vegetation removal. Refer to **MR-3, Use of Native Plants and Vegetation**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-24	The commenter requests that all new plantings be native species, with a special preference for species found in the tar pits fossil records, as the park was originally envisioned to exclusively feature native plants. While this is not a comment specifically on the project's environmental impacts as contained in the Draft EIR analysis, it should be noted that native species are prioritized in the plant palette and incorporated into the design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. Refer to **MR-3, Use of Native Plants and Vegetation**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-25	The commenter states that it is critical that native plants are incorporated in the project's design as Los Angeles is currently experiencing a biodiversity crisis. As discussed in Response NCSA-24, native plants have been prioritized in the plant palette, and specifically highlight plants which are present in Tar Pits fossil record. Furthermore, it should be noted that the plant palette also contains considerations for historical floral communities and pollinator resources. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. Refer to **MR-3, Use of Native Plants and Vegetation**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-26	The commenter emphasizes that the project site has unparalleled importance as an education tool for climate change and biodiversity, but only if the landscaping design utilizes those native plant species. The commenter also expresses a concern that the final landscaping plans may differ from the proposed plant palettes, which primarily feature native plants. Refer to **MR-3, Use of Native Plants and Vegetation**, and Responses NCSA-24 and NCSA-25. The plant palettes included in Chapter 3 of the EIR are the palettes that were provided by the County and the design team, and they are continuing to be used as a guide for the detailed landscaping design plans. As previously

Comment No.	Response
	noted, native plants are prioritized in the plant palette and considerations for historical floral communities and pollinator resources are being incorporated in the project's landscaping design plans. Refinements to the landscaping plan are continuing to be considered by the County as the design evolves. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-27	The commenter notes that they were provided information that new landscape installations would include 90 to 95% natives. As the design process develops, the exact percentage of natives to be installed will be finalized. California native plants and trees have been prioritized in the project's landscaping plan. However, for practical reasons a limited quantity of adapted species that are not native would be included in some areas of the site. It is correct that the estimates excluded the open lawn areas. However, this comment does not change the findings or conclusions in the Draft EIR; no revisions to the EIR are necessary because of this comment. Refer to **MR-3, Use of Native Plants and Vegetation**. No changes to the EIR were determined to be necessary in response to this comment.
NCSA-28	The commenter closes the letter and states that the NCSA hopes to serve as an advisor to the project as it moves forward. The County appreciates the input that NCSA has provided on the project to-date and it is being considered throughout the design process. No changes to the EIR were determined to be necessary in response to this comment.

2.3.5 Park La Brea Impacted Residents Group

PLBIRG PARK LA BREA IMPACTED RESIDENTS GROUP

VIA EMAIL

October 26, 2023

Leslie Negritto
COO
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

Re: Natural History Museums of Los Angeles County ("NHMLAC")
La Brea Tar Pits Master Plan Project (the "Project")
(SCH # 2022020344)

Dear Ms. Negritto:

Park La Brea Impacted Residents Group (PLBIRG) is watchdog group of Park La Brea residents focused on land use / public safety matters on the Park La Brea perimeter which is across the street from the Project. These are our comments in response to the Project's Draft Environmental Impact Report (DEIR).

Overall we're pleased about the plans to update and enhance the Tar Pits campus and our comments are primarily related to grave concerns over the lack of safe pedestrian accessibility to the Project where the public frequently enters and exit the Tar Pits campus (the "Campus") midblock on the Curson perimeter. **PLBIRG-1**

Based on renderings in the DEIR it appears that the Project will retain one of the current pedestrian entrances, directly opposite the One Museum Square apartment tower. **PLBIRG-2**

As NHMLAC knows, or should know, there is a long history, well documented, of the public crossing midblock between the east and west sides of Curson to enter/exit the Campus via the Campus's midblock pedestrian entrances. The Project proposes to expand and "reimagine" the Tar Pits campus which will almost certainly attract even larger volumes of visitors in the future, with a related increase in staffing to serve the expanded facilities and visitor volume. That would exacerbate the existing pedestrian hazard. **PLBIRG-3**

The Curson midblock pedestrian hazard must be mitigated. **PLBIRG-4**

351 S. Fairfax Avenue #421 Los Angeles, CA 90036 (323) 955-0475 info@plbirg.org

PLBIRG
Comments on Tar Pits DEIR

On January 3, 2018 I submitted **MYDOT #93857** to Los Angeles Department of Transportation (LADOT) asking that LADOT install a midblock pedestrian crosswalk after I documented on a cold winter afternoon in January, in the space of a mere 27 minutes, 137 people crossed between the east and west sides of Curson in the vicinity of the Tar Pits midblock pedestrian entrance.

Had I stayed a full hour to continue photo-documenting, the total would likely have exceeded 275 crossings in an hour, *more than 10 times the volume needed to meet LADOT's 20 per hour benchmark* to justify a midblock crosswalk.

PLBIRG-5

I provided this photo gallery capturing the 137 crossings in 27 minutes to LADOT, CD4 and LA County and LACMA officials including Katy Young Yaroslavsky, Sheila Kuhel, Stephanie Cohen, Doug Leonhardt, and Timothy Lippman. I noted that fully 100% of the midblock pedestrian crossings involved museum campus visitors or employees. The County knew that their patrons and employees were in harm's way.

Unfortunately no action was taken, despite multiple attempts by PLBIRG to follow up. High ranking Tar Pits staff confided that they, too, crossed midblock when making a quick trip to the SAG building to get food or coffee. In 2022 we reached out to the Reimagining Team (Jesse Rocha) to make the new team aware of these issues. We were very disappointed that the DEIR was silent on the known history of unsafe pedestrian crossings on the Curson perimeter.

PLBIRG-6

Among those seen in the photo gallery were babies, toddlers, elderly in wheelchairs, and interestingly enough, quite a few County employees headed to and from getting food in the SAG building. These were all familes and individuals who patronized and or worked at the County's museum campus.

PLBIRG-7

PLBIRG is cognizant that crosswalks on public streets are the purview of the City, not the County. However, it is incumbent on NHMLAC to recognize that they are putting the public in harm's way by placing a mid block pedestrian entrance on Curson directly opposite two different high density apartment buildings (Museum Terrance and One Museum Square), the SAG public parking structure, which is patronized by Tarpits visitors, and multiple restaurants whose rear entrances/exits are opposite the Tarpits midblock entrance. The entrance's midblock position invites midblock crossing.

No amount of wishful thinking has ever or will ever persuade these residents, Tarpits visitors and SAG bulding patrons to walk to the corner to use the signalized crosswalks at Sixth or Wilshire. When someone emerges from their buiding opposite the entrance to their destination, it's a tough sell to convince them to walk half a block up to the corner to cross the street only to circle back to be directly opposite from where they started out.

PLBIRG-8

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PLBIRG
Comments on Tar Pits DEIR

For reference, in 2017, I submitted a crosswalk request to LADOT in connection with the Tarpits' Spaulding gate entrance on Sixth Street after a 67 year old grandmother was fatally struck crossing midblock with her 5 year old grandson from the north side of Sixth to enter the museum campus. We photodocumented the high level of midblock crossings at that entrance as well. The Spaulding / Sixth crosswalk was finally installed in the summer of 2019 after three years of my and my neighbors' advocating for it, in 2019. In this case, our reaching out to Katy Young, who was the Arts Deputy at the time, led to Katy helping to secure partial funding from LACMA to pay for the crosswalk. We faced the same exact issue that is before you now: these are City governed streets by the pedestrians are County facility patrons who need safe access and egress to and from those facilities. **PLBIRG-9**

This forseeable and abundantly documented hazard must be mitigated as part of any "Reimagining" of the Tar Pits, to protect the public. **PLBIRG-10**

Sincerely,

Barbara Gallen
Co-President
PLBIRG

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2.3.5.1 Response to Letter from Park La Brea Impacted Residents Group

Comment No.	Response
PLBIRG-1	The comment serves as an introduction to the comment letter and the Park La Brea Impacted Residents Group (PLBIRG). The introduction to the letter indicates that the organization is pleased, overall, with the plans to update and enhance the site. However, the PLBIRG has concerns regarding safe pedestrian accessibility, which are further expanded upon in the remainder of the letter. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This comment is introductory in nature and does not provide a specific concern with the environmental analysis contained in the EIR, so no response is provided. Responses to specific concerns raised later in the letter are provided below.
PLBIRG-2	The commenter describes a rendering that shows that the project maintains the current pedestrian entrance along Curson Avenue. This comment is consistent with the information presented in the EIR; no additional response is necessary, and no changes to the EIR were determined to be necessary in response to this comment.
PLBIRG-3	The commenter indicates that there are high volumes of pedestrians crossing along Curson Avenue at the midblock location between 6th Street and Wilshire Boulevard. The commenter provides further input indicating that they believe the project would encourage more pedestrians to cross at midblock because of an increase in visitor volume. The EIR considers environmental impacts based on thresholds established consistent with Appendix G of the State CEQA Guidelines. Specifically, the most relevant thresholds are outlined in the EIR in Section 5.13.3, Transportation, Thresholds of Significance. Consistent with this analysis methodology, a potentially significant transportation impact could occur if one of the following criteria were to be met: • The project would cause a conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. • The project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Proposed changes to the circulation system resulting from the project would not cause the hazards that the commenter believes currently exist. While the proposed project would likely increase the number of people who visit the site each day, there is no evidence that this would directly lead to an increase of pedestrians choosing to cross Curson Avenue at the midblock section rather than at an existing crosswalk facility. Overall, the improved circulation system proposed by the project would encourage visitors to enter and exit the site in proper locations located immediately near existing crosswalk facilities. The renovated Wilshire Avenue and 6th Street gateway entrances would encourage visitors to use the existing crosswalk facilities at the southeast and northwest corners of the site. Specifically, the improved visibility of the renovated Wilshire gateway entrance would likely decrease the number of visitors accessing the site from Curson Avenue. The project also proposes a new school drop-off area immediately in front of the Curson Avenue entrance. This drop-off area would further discourage pedestrians from attempting to access the site through the Curson Avenue entrance and would potentially disrupt illegal pedestrian crossings. Additionally, the existing Page Museum entrance would be primarily used as an educational group and tour entrance, which would be connected to the new school drop-off area on South Curson Avenue. This is expected to discourage visitors from exiting the site using the Curson Avenue entrance, and therefore would further reduce the potential for illegal pedestrian crossings on Curson Avenue. As such, the combination of the renovated gateway entrances and the proposed school drop-off zone would discourage any new visitors generated by the project from attempting to enter the project site by illegally crossing Curson Avenue. For this reason, no changes to the EIR were determined to be necessary in response to this comment.
PLBIRG-4	The commenter indicates that the existing Curson Avenue midblock pedestrian condition should be addressed because the commenter views it as a hazardous condition. Refer to response to comment PLBIRG-3. The suggestion for a midblock pedestrian crossing at the pedestrian entrance along Curson Avenue was considered by the County. This type of crossing could conflict with bus loading curb space on the west side of Curson Avenue. As well, the curvature of the road along Curson Avenue north of Wilshire Boulevard and south of the pedestrian entrance may pose a potential northbound vehicle site distance issue as this location is very close to the merging area north of Wilshire Boulevard where two streams of northbound vehicles merge. Driveways and utilities also act as a barrier to placement of a safe crossing facility in this location. Additionally, placement of a pedestrian crossing further north along Curson Avenue may also be infeasible because a crossing in this location would conflict with bus loading curb space on the west side of Curson Avenue and the presence of driveways and utilities would also be problematic to designing a safe crossing facility in this location. The City of Los Angeles could choose to examine this concern more closely, which the County would support. The environmental analysis contained in Section 5.13 of the EIR is an accurate assessment of the potential for significant environmental impacts regarding transportation and hazardous intersection. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
PLBIRG-5	This comment provides an observation of midblock pedestrian crossing volumes and an assertion that the observed volumes exceed LADOT standards for installing a pedestrian improvement. See responses to comments PLBIRG-3 and PLBIRG-4. In addition, it should be noted that the midblock location in question does not exhibit a history of accidents involving pedestrians and vehicles. According to the Transportation Injury Mapping System (TIMS), which is a database of California crash data, there was one midblock pedestrian crash for the 10-year period between 2013 and 2022. The crash occurred 110 feet south of the intersection with 6th Street, north of the location being referenced in this comment letter. In addition, this segment is not included as part of the City's high injury network, which is the focus of LADOT's comprehensive safety improvements where the highest concentration of traffic deaths and severe injury crashes occur. Refer to response to comments PLBIRG-4. No changes to the EIR were determined to be necessary in response to this comment.
PLBIRG-6	This comment asserts that there are significant pedestrian crossing volumes at the midblock location along Curson Avenue, and that the EIR should include analysis of the pedestrian crossing at this location. See responses to comments PLBIRG-3, PLBIRG-4, and PLBIRG-5. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. Further, a midblock pedestrian crossing at the location proposed by the commenter is likely not feasible (response to comment PLBIRG-4). Also, the location in question does not exhibit a history of documented pedestrian-related accidents (response to comment PLBIRG-5). No changes to the EIR were determined to be necessary in response to this comment.
PLBIRG-7	The commenter provides additional information regarding their observations of pedestrians crossing Curson Avenue at midblock. See responses to comments PLBIRG-3, PLBIRG-4, and PLBIRG-5. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. Further, a midblock pedestrian crossing at the location proposed by the commenter is likely not feasible (response to comment PLBIRG-4). Also, the location in question does not exhibit a history of documented pedestrian-related accidents (response to comment PLBIRG-5). No changes to the EIR were determined to be necessary in response to this comment.
PLBIRG-8	The commenter acknowledges that crosswalks on adjacent streets are under the jurisdiction of the City of Los Angeles. However, the commenter further expresses that PLBIRG believes that the Natural History Museum should recognize that they are putting the public in harm's way because PLBIRG believes that a hazardous condition exists for pedestrians crossing Curson Avenue at midblock. See responses to comments PLBIRG-3, PLBIRG-4, and PLBIRG-5. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. Further, a midblock pedestrian crossing at the location proposed by the commenter is likely not feasible (response to comment PLBIRG-4). Also, the location in question does not exhibit a history of documented pedestrian-related accidents (response to comment PLBIRG-5). No changes to the EIR were determined to be necessary in response to this comment.
PLBIRG-9	The commenter recounts an experience where LACMA coordinated with the City of Los Angeles to install a crossing along 6th Street which was requested due to a pedestrian fatality. See responses to comments PLBIRG-3, PLBIRG-4, and PLBIRG-5. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. Further, a midblock pedestrian crossing at the location proposed by the commenter is likely not feasible (response to comment PLBIRG-4). Also, the location in question does not exhibit a history of documented pedestrian-related accidents (response to comment PLBIRG-5). No changes to the EIR were determined to be necessary in response to this comment.
PLBIRG-10	The commenter concludes the letter by indicating again that there is an existing hazard to pedestrians crossing at midblock on Curson Avenue and requests the implementation of improvements. See responses to comments PLBIRG-3, PLBIRG-4, and PLBIRG-5. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. Further, a midblock pedestrian crossing at the location proposed by the commenter is likely not feasible (response to comment PLBIRG-4). As well, the location in question does not exhibit a history of documented pedestrian crashes (response to comment PLBIRG-5). No changes to the EIR were determined to be necessary in response to this comment.

2.4 PUBLIC COMMENTS AND RESPONSES

The following members of the public have submitted comments on the Draft EIR.

Table 2.4-1. Public Comment Documents Received

Respondent	Code	Page
Natalia Bell Comment card received: September 30, 2023	NB	2.4-3
Jonathan Bennett Comment card received: September 30, 2023	JB	2.4-5
Hannah Flynn Comment card received: September 30, 2023	HF	2.4-9
Robert Flynn Comment card received: September 30, 2023	RF	2.4-12
Kevin Glynn Comment card received: September 30, 2023	KG	2.4-14
Cheryl Harrison Comment card received: September 30, 2023	CH	2.4-16
David Seidel Comment card received: September 30, 2023	DS	2.4-18
Alexander Wikstrom Comment card received: September 30, 2023	AW	2.4-20
Jodi Dybala Letter dated: October 1, 2023	JD	2.4-22
Michelle Pesce Letter dated: October 2, 2023	MP	2.4-24
Will Tentindo Letter dated: October 2, 2023	WT	2.4-26
Miriyam Glazer Letter dated: October 5, 2023	MG	2.4-29
Marcia Lansford Letter dated: October 5, 2023	ML	2.4-31
Deatra Yatman Letter dated: October 9, 2023	DY	2.4-33
Lucy Bradley Letter dated: October 10, 2023	LB	2.4-35
Celine Burk Letter dated: October 10, 2023	CB	2.4-37
McCall Jones Letter dated: October 10, 2023	MCJ	2.4-39
Hadas Laureano Letter dated: October 10, 2023	HL	2.4-41
Elwarder Silas Letter dated: October 10, 2023	ES	2.4-43
Angela Bradshaw Letter dated: October 11, 2023	AB	2.4-45
Nancy Schwartz Letter dated: October 11, 2023	NS	2.4-47
Paula Waxman Letter dated: October 11, 2023	PW	2.4-49

Respondent	Code	Page
Sandra Dashiel Letter dated: October 25, 2023	SD	2.4-51
Joanne D'Antonio Letter dated: October 26, 2023	JDA	2.4-55
Marianne King Letter dated: October 26, 2023	MK	2.4-63
Ann Rubin Letter dated: October 26, 2023	AR	2.4-74
Lois DeArmond Letter dated: October 27, 2023	LDA	2.4-78

2.4.1 Natalia Bell

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☑ YES, I would like to stay up to date on this project.

NAME Natalia Bell

AFFILIATION (if applicable)

COMMENTS:

I've value this green space and want to see it maintained, accessible, and educative throughout the construction process. Please keep green space. Please utilize native plants

NB-1

NB-2

8

2.4.1.1 Response to Letter from Natalia Bell

Comment No.	Response
NB-1	The commenter requests that the green space present on the project site be maintained, and states that it should remain accessible during project construction. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. As discussed in EIR Section 5.12, Recreation, implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification of the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. While closure of portions of the park will be required in order to implement the park improvements while protecting the public, a construction sequencing plan will be developed for the purpose of maintaining public access to portions of the park throughout construction. Further, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park would continue to serve as a park facility with implementation of the project. The proposed Master Plan seeks to retain and enhance most of the valuable open space and passive park orientation of the site. Additionally, the County will be recommending approval of Refined Alternative 3 of the Master Plan. This variation would adjust the footprint of the project to reduce the new museum building's contact with the Page Museum and would expand the size of the Central Green. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
NB-2	The commenter requests that native plants be used in the project's design. While this is not a comment specifically on the analysis contained in the EIR, it should be noted that native species are prioritized in the plant palette and have been incorporated into the project design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the environmental impacts regarding vegetation removal. Furthermore, any visual impacts related to vegetation removal is appropriately discussed within EIR Section 5.1, Aesthetics, which concluded a less than significant impact. See **MR-3, Use of Native Plants and Vegetation,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.2 Jonathan Bennett

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☒ YES, I would like to stay up to date on this project.

NAME Jonathan Bennett

AFFILIATION (if applicable) _____

COMMENTS: I grew up - and still live - exactly one mile from Hancock Park. My interest is local, even parochial. I want the park to be a beautiful usable location for our park-starved local residents. Some of the proposals featuring the removal of mature trees along Ogden and 6th Street concern me: you don't remove mature trees during global warming! I abhor the possible destruction of the ginkgo tree JB-1 JB-2 JB-3

in the atrium of the Page Museum; this is the finest tree in the park. It is an ice-age tree. it belongs here. If it must be relocated from the atrium it should be replanted nearby. It will be logistically difficult (and expensive) but to do any less would be an act of vandalism. JB-3 (cont'd)

Thank you for the opportunity to comment. JB-4

16

2.4.2.1 Response to Letter from Jonathan Bennett

Comment No.	Response
JB-1	The commenter requests that Hancock Park remain a usable park destination for local residents. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. As discussed in EIR Section 5.12, Recreation, implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification of the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. Further, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park would continue to serve as a park facility with implementation of the project. The proposed Master Plan seeks to retain and enhance most of the valuable open space and passive park orientation of the site. Additionally, the County will be recommending approval of Refined Alternative 3 of the Master Plan. This variation adjusts the footprint of the project to reduce the new museum building's contact with the Page Museum and will expand the size of the Central Green. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
JB-2	The commenter states that the mature trees present on the project site should not be removed. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
JB-3	The comment requests retention of the Ginkgo tree in the atrium of the Page Museum. The Gingko biloba tree proposed to be removed is not native to North America; this type of tree did not grow here in the Pleistocene (Ice Age). Similarly, most of the plants currently in the atrium are exotic species that are representative of much older geologic periods. The addition of plant species that are more representative of the Pleistocene in the atrium would be supportive of the project's education objectives and would aid in public understanding of the Pleistocene period. It should be noted that the County will be recommending approval of Refined Alternative 3 of the Master Plan. Refined Alternative 3 would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. One of these refinements is keeping the atrium open and as a garden. The atrium would continue to have an open feel and include significant vegetation. Native vegetation would be prioritized. Relocation of the Gingko tree is not feasible due to its size. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. As discussed in response to comment JB-2, the County is prioritizing the protection of as many trees as possible, while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to feasibility of retention. Also, some trees will be removed because they are not consistent with the educational objectives of the project. As discussed above, the new plantings in the atrium would be more representative of the species present during Pleistocene period in North America. The County would prefer to existing Gingko specimen as Gingko biloba is not native to North America, nor was it present in the region during the Pleistocene period. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
JB-4	The commenter expresses an appreciation for the opportunity to comment. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.

2.4.3 Hannah Flynn

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☑ YES, I would like to stay up to date on this project.

NAME Hannah Flynn

AFFILIATION (if applicable) neighbor, recent MLA grad (USC)

COMMENTS: To start with my favorites, I love:
1. the outdoor classroom – it looks comfortable and well-designed to give a close look at the fascinating paleontological work being done here.
2. the tar bar! there isn't much right in the area. I think the hilltop position will feel special. Please keep the name Tar Bar because it's hilarious and I think a sense of humor about the tar pits is integral to the sense of place here already (the mammoth figure drawing in tar (please keep this), the tar-covered cones labeled "icky" + "gooey" covering emergent tar seeps. →

HF-1

the dinosaur figurine someone used tar to attach to a tree). Love tar bar.

• I like the shaded front entrance. **HF-1 (cont'd)**

• I am very concerned about retaining access to the portion of the hill adjacent to the green. I come to this park multiple times per week to walk my dog + sit there every time. I have talked to fellow park users about the plan to cut into it and they're all dismayed. **HF-2**

• I am also concerned about specific existing trees: all trees on the hill (vital for shade + atmosphere) facing the green, and all mature natives. Others are still important – in general, it is a waste of time, shade, + carbon emissions to cut down mature trees – but they are not vital like the first two categories. **HF-3**

• Finally, I'm concerned about losing existing native plant shrubs. They are used as habitat by many birds, insects, + rabbits. It's also a degree of biodiversity that's hard to find in the immediate area – vital for reshaping LA's sense of place in a biodiversity crisis! **HF-4**

2.4.3.1 Response to Letter from Hannah Flynn

Comment No.	Response
HF-1	The commenter lists features of the project that they approve of, including the outdoor classroom, the Tar Bar, and the redesigned front entrance. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.
HF-2	The commenter expresses concern with the potential for the project to reduce the recreational capacity and accessibility of the hill to the west of the Page Museum. As discussed in EIR Section 5.12, Recreation, implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification of the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. Further, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park would continue to serve as a park facility with implementation of the project. The proposed Master Plan seeks to retain and enhance most of the valuable open space and passive park orientation of the site. Additionally, the County will be recommending approval of Refined Alternative 3 of the Master Plan. This variation adjusts the footprint of the project to reduce the new museum building's contact with the Page Museum and also expands size the Central Green. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
HF-3	The comment expresses concern regarding the proposed removal of existing trees on the project site. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
HF-4	The comment expresses concern regarding the proposed removal of existing native shrubs on the project site. It should be noted that native species are prioritized in the plant palette and have been incorporated into the project design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. While removal of native vegetation can be significant, depending on the context, the proposed removal of existing native vegetation at the La Brea Tar Pits site is not a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding native vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. See **MR-3, Use of Native Plants and Vegetation,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.4 Robert Flynn

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☑ **YES, I would like to stay up to date on this project.**

NAME ROBERT FLYNN

AFFILIATION (if applicable) Owner of a duplex in area since 1989

COMMENTS:

· like the idea of a true entry.

- Really like the idea of the Tar Bar. Seems like something that the local community would enjoy. **RF-1**

· Think the idea of ~~any~~ seating right next to the tar pits is dubious. It's tar not water; a tar pit not a lake. It smells. It's not an enjoyable smell to hang out around. **RF-2**

My main comment is that this is above all a neighborhood park, so the main driver should be preserving that – the grass hill, the shade trees, etc – not making this a tourist destination **RF-3**

10

2.4.4.1 Response to Letter from Robert Flynn

Comment No.	Response
RF-1	The commenter lists features of the project that they approve of, including the Tar Bar and the redesigned front entrance. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.
RF-2	The commenter expresses their concern regarding the proposed seating next to the tar pits, as the odors from the pits may make the seating unenjoyable. The odors emitted from the tar pits are an existing condition of the project site. As described in EIR Section 5.2, Air Quality and Greenhouse Gas, implementation of the proposed project would not result in a significant impact related to the generation of adverse odors. Furthermore, the project would not exacerbate any existing issues associated with the odor generation of the site. However, the County will take this comment under advisement. No changes to the EIR were determined to be necessary in response to this comment.
RF-3	The comment expressed a concern regarding the reduction of usable open space in Hancock Park. As discussed in EIR Section 5.12, Recreation, implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification of the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. Further, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park would continue to serve as a park facility with implementation of the project. The project seeks to retain and enhance most of the valuable open space and passive park orientation of the site. Additionally, it is worth noting that the County will be recommending approval of Refined Alternative 3 of the Master Plan. This variation adjusts the footprint of the project to reduce the new museum building's contact with the Page Museum and expands the size of the Central Green. See **MR-1, Preferred Alternative,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.5 Kevin Glynn

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☐ YES, I would like to stay up to date on this project.

NAME Kevin Glynn

AFFILIATION (if applicable) Resident

COMMENTS:
Need A dog PARK!

KG-1

12

2.4.5.1 Response to Letter from Kevin Glynn

Comment No.	Response
KG-1	The commenter requests that a dog park be incorporated into the project design. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. As described in Chapter 3, Project Description, a dog park is identified as a possible use considered by the Master Plan and the analysis contained in the EIR (see pages 3-8 and 3-13 in Volume II of the Final EIR). The County can approve this use at the project site, consistent with the concept identified in the EIR. No changes to the EIR were determined to be necessary in response to this comment.

2.4.6 Cheryl Harrison

Addendum

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☒ **YES, I would like to stay up to date on this project.**

NAME Cheryl Harrison

AFFILIATION (if applicable) Yes my Great uncle James Allen worked here for years.

COMMENTS: Happy to see the site development since he was apart of this establishment

CH-1

6

2.4.6.1 Response to Letter from Cheryl Harrison

Comment No.	Response
CH-1	The commenter expresses support of the proposed project. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.

2.4.7 David Seidel

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☐ **YES, I would like to stay up to date on this project.**

NAME DAVID SEIDEL

AFFILIATION (if applicable) LOCAL RESIDENT & MANAGER JPL EDUCATION OFFICE

COMMENTS: MY CONCERN INVOLVES LONG-TERM MAINTANCE & VANDALISM. THE EIR (INCLUDING APPENDICES) MAKES NO MENTION OF "GRAFFITI" AND THE WORD "VANDALISM" APPEARS ONLY ONCE (IN RELATION TO CONSTRUCTION EQUIPMENT). EXPOSED FLAT SURFACES ARE VULNERABLE TO GRAFFITI & IF THEY ARE NOT SHIELDED BY PLANTS OR OTHER SEPARATIONS, ARE POTENTIALLY A MAJOR SOURCE OF DETERIORATION SHOULD MAINTENCE BE DEFERRED.

DS-1

9

2.4.7.1 Response to Letter from David Seidel

Comment No.	Response
DS-1	The commenter expresses a concern over the lack of analysis regarding the potential vandalism of the proposed project after completion. The commenter goes on to state that surfaces vulnerable to graffiti should be protected by landscaping or other barriers. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. The potential for vandalism will be addressed through material selection and the use of protective coatings such as anti-graffiti coatings or scratch-resistant films supported by the use of security cameras. The anticipated increase in park visitors will also help to further reduce the opportunities for vandalism. Currently, the park is lit for security and safety considerations and closes at 10 pm. The project does not propose to change these security protocols. Consistent with the California Supreme Court's decision in *California Building Industry Association v Bay Area Air Quality Management District* (S213478, December 17, 2015), CEQA generally does not require that public agencies analyze the impact existing conditions might have on a project. Further, vandalism is generally not considered an environmental consideration in a CEQA analysis. For these reasons, the EIR does not consider potential vandalism of future uses. No changes to the environmental evaluation contained EIR were determined to be necessary in response to this comment.

2.4.8 Alexander Wikstrom

LA BREA TAR PITS & MUSEUM

COMMENT CARD

☑ YES, I would like to stay up to date on this project.

NAME Alexander W. Kstrom

AFFILIATION (if applicable)

COMMENTS: I think the larger entrance at Curson, the screened pit viewing areas, and the Tar Bar are all welcome additions. I'm skeptical of having bridges over sulphur-odored tar or amphitheatre style seating by the lake. I think it's a mistake as a regular user of the park. My biggest concern is how the west hillside is getting eliminated. That's my picnic spot. I'm fine with an expansion, but I'd prefer it use the parking lot space instead. I'd also be sad to lose the native plant garden. I'd love to see my comments incorporated

AW-1

AW-2

AW-3

AW-4

2.4.8.1 Response to Letter from Alexander Wikstrom

Comment No.	Response
AW-1	The commenter lists features of the project that they approve of, including the Tar Bar and the redesigned pit viewing areas. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.
AW-2	The commenter expresses their concern regarding the proposed seating next to the tar pits, as the odors from the pits may make the seating unenjoyable. The odors emitted from the tar pits are an existing condition of the project site. As described in EIR Section 5.2, Air Quality and Greenhouse Gas, implementation of the proposed project would not result in a significant impact related to the generation of adverse odors. Furthermore, the project would not exacerbate any issues associated with the existing odor generation of the site. While the odors emitted from the tar pits may be unpleasant to some, they are a fundamental aspect of the unique conditions of the project site. However, the County will take this comment under consideration as these points may be relevant for consideration in the project approval process. No changes to the EIR were determined to be necessary in response to this comment.
AW-3	The commenter expresses concern regarding accessibility of the hill to the west of the Page Museum. As discussed in EIR Section 5.12, Recreation implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification to the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. Further, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park would continue to serve as a park facility with implementation of the project. The proposed Master Plan seeks to retain and enhance most of the valuable open space and passive park orientation of the site. Additionally, the County will be recommending approval of Refined Alternative 3 of the Master Plan. This variation adjusts the footprint of the project to reduce the new museum building's contact with the Page Museum and expands the size of the Central Green. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
AW-4	The commenter expresses concern over the loss of the garden within the Page Museum Atrium. The County will be recommending approval of Refined Alternative 3 of the Master Plan. Refined Alternative 3 would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. One of these refinements is to retain the atrium of the Page Museum as a garden. It would continue to have an open feel and include significant vegetation. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.

2.4.9 Jodi Dybala

From: **Jodi Dybala**
Date: Sun, Oct 1, 2023 at 9:38 PM
Subject: Tar Pits
To: Leslie Negritto

I am writing to contest the removal hundreds of mature trees in the park at the Tar Pits. We need all the trees we can grow. It would be a tragedy to remove them. Mature trees are extremely valuable by helping the city combat climate change, giving us oxygen, cleaning the air, sequestering carbon, giving us shade, providing home for the animals and providing beauty. **JD-1**

Did you know when a trees dies, it releases carbon back into the atmosphere? Our summers are only getting hotter. Our springs, autumns, and winters are getting hotter as well. It would be wise to let the trees live where they are and do their job of cooling the city. **JD-2**

Your website says "Part of our mission is to inspire responsibility for the natural world. Turning the dial down on the impacts of climate and habitat change means shifting our mindset to become aware of what we can do, as individuals and together, to build a more sustainable environment."

A more sustainable environment is one where mature trees stay in the park. **JD-3**

All the best,
Jodi Dybala

1

2.4.9.1 Response to Letter from Jodi Dybala

Comment No.	Response
JD-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site and emphasizes the benefits provided by mature trees such as shade and carbon sequestration. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
JD-2	The commenter states that the removal of trees on the La Brea Tar Pits site would result in the release of carbon into the atmosphere. Refer to response to comments JD-1 above. The comment is correct that mature trees are important for their carbon sequestering abilities. However, the project proposes to replace the removed trees with new trees which would eventually mature and sequester carbon as the removed trees did before. Therefore, potential release of carbon upon removal of existing trees would be compensated for by the planting of new trees. Furthermore, by relying on native and disease-resistant species, the new trees planted by the project may prove to be more resilient than some of the existing trees on the project site, thus resulting in longer term carbon sequestration. As discuss above, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. Further, the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. No changes to the EIR were determined to be necessary in response to this comment.
JD-3	The commenter provides a quote from the “About Us” section of the Natural History Museum website. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.

2.4.10 Michelle Pesce

From: **DJ Michelle Pesce**
Date: Mon, Oct 2, 2023 at 10:17 AM
Subject: Removal of trees around the ear pit. Please reconsider !!!!
To: Leslie Negritto

Save the trees. Thank you. I MP-1

-midcity homeowner.

Michelle

1

2.4.10.1 Response to Letter from Michelle Pesce

Comment No.	Response
MP-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.11 Will Tentindo

From: **Will Tentindo**
Date: Mon, Oct 2, 2023 at 5:20 PM
Subject: La Brea Tar Pits Master Plan
To: Leslie Negritto

Hello,

I am writing to submit a comment on the Master Plan for the La Brea Tar Pits. I am a resident of the Miracle Mile neighborhood, I live down the street from the Tar Pits on Wilshire Blvd. I also visit the Tar Pits practically every day while on walks with my dog. **WT-1**

I am completely supportive of the overall project to fix up the grounds and the Page museum. The museum needs updating desperately, and the city and county should invest urgently in fixing up this highlight in our community. Please also keep as much shade as possible. There are some really nice shady trees in the park right now, and those are going to be vital to our neighborhood as we experience global mass heating. **WT-2**

I am extremely excited to see that all the statues around the Tar Pits area will be retained somewhere within the park. While the mammoths get the spotlight, the other statues are great and add visual interest (and kitsch) to the park. I hope the planners do not change that plan. **WT-3**

I also write to encourage the planners to consider keeping the central atrium under alternative 2. The central atrium is a fantastic part of the museum, and truly surprises guests. It is also a really nice and unique feature to the museum, and I believe it is key to the museum's identity. Removing the garden inside would be a mistake. **WT-4**

I understand Alternative 2 would have some negative impacts on park space, although from my impression the master plan slightly overstates that impact. I would encourage the planners to add the additional space of the museum to the parking lot and not the park. The museum could easily take away some parking spots rather than the parkland as the future metro stop will be open by the time this opens, the parking lot is never full, and there is ample additional parking in the LACMA and Petersen garages, the pyramid buildings across from SAG, and in the neighborhood below Wilshire. The Petersen garage in particular is huge and never full. **WT-5**

I love the idea of using the top of the museum as a cafe and/or bar to activate the area more at night as well. If keeping the central atrium is not compatible with that plan, I would prefer the cafe/bar area. **WT-6**

To the extent this next point might be outside the scope of the project, I understand. If the Tar Pits are able at all to add some additional grass to the area surrounding "Levitated Mass," that would be fantastic. The sand is a bit hostile (and frankly, ugly) to those of us who use the Tar Pits area for recreation. **WT-7**

In general, I am excited to see this plan come to fruition and love that the planners have blended the old with the new! In implementing the plan, I hope the planners are able to keep the grounds walkable for as long as possible during construction and expedite the amount of time that the park is closed to visitors. The tar pits are a defining feature of LA and a great resource for the community! **WT-8**

Thank you!
Will Tentindo

2.4.11.1 Response to Letter from Will Tentindo

Comment No.	Response
WT-1	The commenter states their personal stake in the project and their overall support of the proposed improvements to the Page Museum. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.
WT-2	The commenter requests that shade producing trees should be retained as much as possible to provide relief for visitors during days with high temperatures. The County is prioritizing the protection of as many trees as possible, particularly important trees such as those which are shade-producing, and will avoid their removal if feasible while also meeting the budgetary and design needs for the project. However, retention of specific trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Visual impacts related to tree removal is also appropriately addressed within Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
WT-3	The commenter states that they are highly supportive of the retention of the Lake Pit Columbian mammoth statues. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment. However, it should be noted that the Lake pit statues will be retained, although they may need to be removed and reinstalled in order to implement the improvements surrounding their location.
WT-4	The commenter shares the opinion that the central atrium is an integral facet of the Page Museum and requests that project Alternative 2 should be adopted. The County will be recommending approval of Refined Alternative 3 of the Master Plan. Refined Alternative 3 would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. One of these refinements is to retain the atrium of the Page Museum would remain as an atrium garden. It would continue to have an open feel and include significant vegetation. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
WT-5	The commenter requests that the additional square footage being added to the Page Museum should be taken from the parking lot rather than from the open park space. As discussed in EIR Section 5.12, Recreation implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification to the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. Further, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park would continue to serve as a park facility with implementation of the project. The proposed Master Plan seeks to retain and enhance most of the valuable open space and passive park orientation of the site. Additionally, the County will be recommending approval of Refined Alternative 3 of the Master Plan. This variation adjusts the footprint of the project to reduce the new museum building's contact with the Page Museum and will expand the size of the Central Green. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
WT-6	The commenter expressed their support of the "Tar Bar." This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
WT-7	The commenter requests that the sand surrounding the “Levitated Mass” be replaced with grass to increase the recreational functionality of the park. The “Levitated Mass” is managed by the Los Angeles County Museum of Art and is not within the project boundaries of the proposed project. This is not a comment on the analysis contained in the EIR; therefore, a response is not required, and no changes to the EIR were determined to be necessary in response to this comment.
WT-8	The commenter again states their overall support of the project, and requests that the park remain accessible during construction. Refer to response to comments WT-5 above. While closure of portions of the park will be required in order to implement the park improvements while protecting the public, a construction sequencing plan will be developed for the purpose of maintaining public access to portions of the park throughout construction. No changes to the EIR were determined to be necessary in response to this comment.

2.4.12 Miriyam Glazer

From: **Miriyam Glazer**
Date: Thu, Oct 5, 2023 at 1:59 AM
Subject: do not remove the trees!!!
To: Leslie Negritto

As a resident of the area, I am appalled by the possibility of removing trees in order to expand the Tar Pits.NO NO NO NO NO NO NO! Given the reality of our area warming (like the rest of our planet), WE MUST PRESERVE EVERY PRECIOUS TREE WE HAVE!!!! **MG-1**

OR we ourselves will become the fossils subject to study by bewildered generations later.....

Prof. Dr. Miriyam Glazer

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2.4.12.1 Response to Letter from Miriyam Glazer

Comment No.	Response
MG-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.13 Marcia Lansford

October 5, 2023

Natural History Museums of Los Angeles County
Attn: Leslie Negritto, CEO
900 Exposition Blvd
Los Angeles CA 90007

Comment on the Draft EIR
La Brea Tar Pits Master Plan Project

As I understand it your plan includes removal of some 180 trees to put up a parking lot. ML-1

Are you mad?

You presented the need for additional lab space and it seems you have figured out a way to do that with the addition of more tiers within the existing museum. Good for you. Add a few tables and a bar to that marvelous space on top — seems like a nice touch. But why do we need covered pavilions? Why do we need another parking lot? The one we have is never full. This park is a rare and endangered ten thousand year old space. It doesn't need modernizing. It needs to be preserved. For god sake leave the park alone. ML-2 ML-3

I am a neighbor and frequent visitor. ML-4
Please keep me up to date on this project.
Sincerely,

Marcia Lansford

Marcia Lansford

2.4.13.1 Response to Letter from Marcia Lansford

Comment No.	Response
ML-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
ML-2	The commenter expresses their support of the additional lab space and the Tar Bar. This is not a comment on the analysis contained in the EIR; therefore, a response is not necessary, and no changes to the EIR were determined to be necessary in response to this comment.
ML-3	The comment questions the need for covered pavilions and the addition of more parking, and generally disapproves of the park being upgraded. The County will be recommending approval of Refined Alternative 3 of the Master Plan. Refined Alternative 3 would reconfigure the on-site surface parking to complement the adjusted building footprint and would add a new entrance to the lot. However, the project does not propose an increase in the on-site parking supply; the anticipated increase in visitors is anticipated to be accommodated by shared parking structures in the project vicinity. In addition, as part of Mitigation Measure TRA/mm-1.1, the County would be required to prepare and implement a Transportation Demand Management (TDM) Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. This mitigation measure consists of strategies to reduce the vehicle demand of both employees and visitors to the site and increase walking, bicycling, and transit trips. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
ML-4	The commenter states their personal stake in the project. This is not a comment on the analysis contained in the EIR; therefore, a response is not necessary, and no changes to the EIR were determined to be necessary in response to this comment.

2.4.14 Deatra Yatman

From: **DEATRA YATMAN**
Date: Mon, Oct 9, 2023 at 9:35 PM
Subject: Tree 🌲 removal for Museum
To: Leslie Negritto

Hello
I am deeply concerned with the proposal to remove 180 trees for museum expansion. Given the rapid temperature rises everywhere, it is of extreme importance to preserve trees that provide a multitude of benefits for climate health and oxygen for people and much-needed habitat for wildlife. **DY-1**

I implore you NOT to do this. We must do all we can to protect and enhance the environment for all! Sincerely

Deatra Yatman

Sent from my iPhone

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2.4.14.1 Response to Letter from Deatra Yatman

Comment No.	Response
DY-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature.. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.15 Lucy Bradley

From: **Lucy Bradley**
Date: Tue, Oct 10, 2023 at 11:00 AM
Subject: Do not remove mature trees at the Natural History Museum. Are you crazy!
To: Leslie Negritto@NHM.org

Do not remove mature trees at the Natural History Museum. Are you crazy! **LB-1**

Lucy Bradley
LA 90048

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2.4.15.1 Response to Letter from Lucy Bradley

Comment No.	Response
LB-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.16 Celine Burk

From: Celine Burk
Date: Tue, Oct 10, 2023 at 5:11 PM
Subject: Mature Tree Removal should be stopped
To: Leslie Negritto

Dear Leslie--As a community member and avid supporter of the Museum I would urge you to revisit the decision to remove 50 mature trees to make way for an expansion. Perhaps they could be incorporated in the design or the design modified so as not to remove them. With global warming and our worsening air quality, the removal of these trees is ill advised and a disservice to the community at large. CB-1

Please reconsider,

Celine Burk

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2.4.16.1 Response to Letter from Celine Burk

Comment No.	Response
CB-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.17 McCall Jones

From: **R. McCall Jones III**
Date: Tue, Oct 10, 2023 at 3:56 PM
Subject: Tar Pits Construction and tree removal
To: Leslie Negritto

To Whom It May Concern:

I am writing to contest the removal hundreds of mature trees in the park at the Tar Pits. We need all the trees we can grow. It would be a tragedy to remove
them. Mature trees are extremely valuable by helping the city combat climate change, giving us oxygen, cleaning the air, sequestering carbon, giving us shade, providing home for the animals and providing beauty.

Did you know when a trees dies, it releases carbon back into the atmosphere? Our summers are only getting hotter. Our springs, autumns, and winters are getting hotter as well. It would be wise to let the trees live where they are and do their job of cooling the city.

Your website says "Part of our mission is to inspire responsibility for the natural world. Turning the dial down on the impacts of climate and habitat change means shifting our mindset to become aware of what we can do, as individuals and together, to build a more sustainable environment."

A more sustainable environment is one where mature and still growing trees stay in the park.

MCJ-1

All the best,
McCall Jones

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2.4.17.1 Response to Letter from McCall Jones

Comment No.	Response
MCJ-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.18 Hadas Laureano

From: **hadas Laureano**
Date: Tue, Oct 10, 2023 at 9:51 PM
Subject: Do Not remove the trees of the natural history museum
To: Leslie Negritto

We Love tjose trees. Please do not hurt or remove them. Plant more if you can. Respect what we want and what Gd wants. Hadas Laureano **HL-1**
Sent from my iPhone

1

2.4.18.1 Response to Letter from Hadas Laureano

Comment No.	Response
HL-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. While tree removal can be significant, depending on the context, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.19 Elwarder Silas

From: **El Warder Silas**
Date: Tue, Oct 10, 2023 at 11:32 PM
Subject: LaBrea Tarpit Trees
To: Leslie Negritto

Hey There Please do it remove the 180 trees! ES-1
Elwarder Silas
Sent from my iPhone

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2.4.19.1 Response to Letter from Elwarder Silas

Comment No.	Response
ES-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. While tree removal can be significant, depending on the context, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.20 Angela Bradshaw

From: **Angela Bradshaw**
Date: Wed, Oct 11, 2023 at 12:11 PM
Subject: Museum expansion and destruction of trees
To: Leslie Negritto

I am writing to protest the proposed destruction of trees for your museum expansion. In light of global warming and all of the research showing the benefits of trees to our health and wellbeing, and the many years it takes for trees to become mature, whose idea was this?

While cities, towns and countries around the world plant as many trees as possible, the museum has decided that trees are disposable.

Please reconsider the destruction of our urban forest.

AB-1

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Enjoy your day.

Angela Bradshaw
323-919-9326

2.4.20.1 Response to Letter from Angela Bradshaw

Comment No.	Response
AB-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. While tree removal can be significant, depending on the context, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.21 Nancy Schwartz

From: **maria schwartz**
Date: Wed, Oct 11, 2023 at 11:49 AM
Subject: Tree removal
To: Leslie Negritto

Dear Miss Negritto; I was made aware of the plan by the NHM to remove a large number of trees to expand an exhibit; I hope it is misinformation; given the state of the environment and the urgent need to conserve natural resources it will be unconscionable to remove trees, source of air and shade. **NS-1**

If the removal of trees is indeed planned; please kindly let me know whom should be contacted about it.

Nancy Schwartz
Concern L.A. Resident

Sent from my iPhone

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2.4.21.1 Response to Letter from Nancy Schwartz

Comment No.	Response
NS-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. While tree removal can be significant, depending on the context, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.22 Paula Waxman

From: **Paula Waxman**
Date: Wed, Oct 11, 2023 at 5:30 PM
Subject: Removing trees at Tar Pit Expansion
To: Leslie Negritto

Dear M. Gritto,

It has come to my attention that the Natural History Museum plans to remove 180 mature trees. If this be correct, I would like to express my chagrin at this idea. We need MORE trees not less and we've lived with our current Natural History Museum for generations. **PW-1**

If you have to expand, please go up.

1

2.4.22.1 Response to Letter from Paula Waxman

Comment No.	Response
PW-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. While tree removal can be significant, depending on the context, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.23 Sandra Dashiel

From: **Sandra Dashiel**
Date: Wed, Oct 25, 2023 at 11:21 PM
Subject: La Brea Tar Pits Project DEIR - Public Comments
To: Leslie Negritto

Dear Ms. Negritto,

I live adjacent to the Tarpits Reimagining project, in Park La Brea.

My comments are as follows:

The DEIR contains no mention of the serious pedestrian hazard that exists on Curson. A crosswalk that gives safe passage to those who cross in the middle of the block is needed to make it safe for the public to visit your facility. **SD-1**

There are two pedestrian entrances on Curson— one is opposite One Museum Square, and the other is opposite Museum Terrace and the SAG parking lot entrance.

In all there are four major properties across from the Curson pedestrian entrances to the Tarpits:

1) Museum Terrace Apartment Complex;
2) the SAG parking lot where MANY visitors park because it's much cheaper than the museum parking lot;
3) One Museum Square apartment highrise; and
4) the SAG building with many restaurants whose entrances are across from the museum entrance on Curson, with no need to walk up to Wilshire **SD-2**

The amount of people who cross Curson between these four properties and the Tarpits is a cause for concern. The Environmental Impact Report did not study this. The danger will be made more severe by the opening of the "reimagined" La Brea Tarpits which will bring more people. More visitors = more chance of someone being hit by a car.

The tenants in the apartment complexes can walk out their doors and be directly opposite the entrance to walk their dogs, go for a walk, visit museums, etc.

Recently I saw a school bus parked in front of One Museum Square opposite the Curson entrance gate. The people were out of the bus and crossing the street to go in the Curson entrance gate.

The attached photo shows a family crossing to enter at the Curson entrance gate. This happens all day every day. **SD-3**

Please study this problem and address it. Except for that, I am excited about the plans to update and enhance the Tar Pits experience.

Sincerely,

Sandra Dashiel

1

SD-3
(cont'd)

2

3

SD-3
(cont'd)

2.4.23.1 Response to Letter from Sandra Dashiel

Comment No.	Response
SD-1	The commenter suggests the addition of a crosswalk in the middle Curson Ave to provide safe access to the park. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. The suggestion for a midblock pedestrian crossing at the pedestrian entrance along Curson Avenue was considered by the County. This type of crossing could conflict with bus loading curb space on the west side of Curson Avenue. As well, the curvature of the road along Curson Avenue north of Wilshire Boulevard and south of the pedestrian entrance may pose a potential northbound vehicle sight-distance issue as this location is very close to the merging area north of Wilshire Boulevard, where two streams of northbound vehicles merge. Driveways and utilities also act as a barrier to the placement of a safe crossing facility in this location. Further, the location in question does not exhibit a history of pedestrian crashes. According to the Transportation Injury Mapping System (TIMS), which is a database of California crash data, there was one midblock pedestrian crash for the 10-year period between 2013 and 2022. The crash occurred 110 feet south of the intersection with 6th Street, north of the location being referenced in this comment letter. In addition, this segment is not included as part of the City's high injury network, which is the focus of LADOT's comprehensive safety improvements where the highest concentration of traffic deaths and severe injury crashes occur. While the proposed project would likely increase the number of people who visit the site each day, there is no evidence that this would lead to an increase of pedestrians choosing to cross Curson Avenue at the midblock section rather than at an existing crosswalk facility. Overall, the improved circulation system proposed by the project would encourage visitors to enter and exit the site in proper locations located immediately near existing crosswalk facilities. The renovated Wilshire Avenue and 6th Street gateway entrances would encourage visitors to use the existing crosswalk facilities at the southeast and northwest corners of the site. Specifically, the improved visibility of the renovated Wilshire gateway entrance is anticipated to result in a decrease in the number of visitors accessing the site from Curson Avenue. The project also proposes a new school drop-off area immediately in front of the Curson Avenue entrance. This drop-off area would further discourage pedestrians from attempting to access the site through the Curson Avenue entrance and would potentially disrupt illegal pedestrian crossings. Additionally, the existing Page Museum entrance would be primarily used as an educational group and tour entrance, which would be connected to the new school drop-off area on South Curson Avenue. This is expected to discourage visitors from exiting the site using the Curson Avenue entrance, and therefore would further reduce the potential for illegal pedestrian crossings on Curson Avenue. As such, the combination of the renovated gateway entrances and the proposed school drop-off zone would discourage any new visitors generated by the project from attempting to enter the project site by illegally crossing Curson Avenue. Similar comments have been made by the Park La Brea Impacted Residents Group. Please refer to response to comments PLBIRG-3, PLBIRG-4, and PLBIRG-5 for similar information. The environmental analysis contained in EIR Section 5.13, Transportation, is an accurate assessment of the potential for significant environmental impacts regarding transportation and hazardous intersections. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. No changes to the EIR were determined to be necessary in response to this comment.
SD-2	The commenter explains their specific concerns regarding pedestrian access to the park via Curson Avenue Refer to response to comments SD-1, as well as PLBIRG-3, PLBIRG-4, and PLBIRG-5. Implementation of the project would not change the existing conditions of the pedestrian usage at the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. Further, a midblock pedestrian crossing at the location proposed by the commenter is likely not feasible. Additionally, the location in question does not exhibit a history of documented pedestrian-related accidents. No changes to the EIR were determined to be necessary in response to this comment.
SD-3	The commenter provides information, including photos, of pedestrians jaywalking across Curson Avenue to access Hancock Park. Refer to response to comments SD-1, as well as PLBIRG-3, PLBIRG-4, and PLBIRG-5. Implementation of the project would not change the existing conditions of the Curson Avenue midblock crossing; therefore, the project would not cause a transportation impact related to hazardous conditions for pedestrians. Further, a midblock pedestrian crossing at the location proposed by the commenter is likely not feasible. As well, the location in question does not exhibit a history of documented pedestrian-related accidents. No changes to the EIR were determined to be necessary in response to this comment.

2.4.24 Joanne D'Antonio

Joanne D'Antonio

October 26, 2023

Leslie Negritto, Chief Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007
Via e-mail: Leslie Negirtto, reimagine@tarpits.org

RE: Public Comment on Proposed La Brea Tar Pits Master Plan Project

Dear Chief Operating Officer Negritto:

I am the founder and chair of the Neighborhood Council Sustainability Alliance (NCSA) Trees Committee, and I wrote the first half of the NCSA comment letter that was voted on by the NCSA Board and voting Neighborhood Council Reps, which is being submitted today. Many in our Alliance, who are versed in the important assets of trees and native plants voiced concerns about tree removals to me and to representatives of the proposed La Brea Tar Pits Master Plan Project (the Project) over the past two+ years, and they were told by the spokesman for the project to wait for the EIR. And now the EIR has come out, and there are serious environmental issues with the Project as presented. Most strikingly, there is no tree inventory, and it appears the site will be losing between 140-180 trees. **JDA-1**

Every time I go to the Motion Picture Academy Museum Dolby Family Terrace and look at the view toward the La Brea Tar Pits, I see a beautiful park with a death sentence and wonder how long it has to live. Valuable mature trees will be chopped down to join the hardscape that is taking over our City and adding to our heat island problem – Los Angeles County will experience triple the number of hot days per year by 2053 according to this study cited in the LA Times in 2022 https://firststreet.org/press/press-release-2022-heat-model-launch/

The New York Times reported in September 2023 reported what Singapore is doing for its heat problem, came to a natural simple solution -- trees:
"If you wanted to invent the most effective kind of climate management technology from the ground up, you could spend a lot of time trying to do that. You would just engineer a tree," said Brian Stone Jr., director of the Urban Climate Lab at the Georgia Institute of Technology.
https://www.nytimes.com/interactive/2023/09/18/world/asia/singapore-heat.html **JDA-2**

Trees are more than an aesthetic element, and the science is telling us for the benefit of humans we need to put the ecosystem services of trees as our priority.

I provided this analysis of the DEIR in the NCSA comment letter and stand by these points:

From the DEIR Appendix B p. 29:

Existing trees and plantings throughout the park are scattered and achieve little sense of character or unity. The enhanced character of the park will require new plantings as well as existing trees and plantings that complement the concept design. Species such as the Western Sycamore, California Buckeye, and Redwood should be preserved. **JDA-3**

With the current heat crisis in Los Angeles, we need to retain every shade-producing tree. Replacement planting deprives the City of ecosystem services for 20 years while trees attain maturity. Dr. Beverly Law, Emeritus Professor of Global Change Biology, explains how new trees initially add carbon to the atmosphere and only mature trees sequester carbon, one of the chief environmental benefits from trees. https://www.youtube.com/watch?app=desktop&v=LDdKOmvIKyg&feature=youtu.be **JDA-3 (cont'd)**

Given the benefits of mature trees, the "c*haracter and unity*", stated in the above quote from the DEIR, should not be the deciding factor for tree elimination. While the palms and agaves at the project site may be expendable, there are numerous shade trees that should be preserved but will not in this Master Plan. **JDA-4**

Even more disturbing, the DEIR says, "Western Sycamore, California Buckeye, and Redwood should be preserved" BUT ACCORDING TO THE PRESENTATION ON SEPTEMBER 30, THESE VALUABLE NATIVE TREES ARE NOT BEING PRESERVED AND THIS IS NOT REVEALED IN THE DEIR. If the DEIR says the native trees "should be preserved", then it should have begun with an inventory of all these native trees / shrubs and designed around them. Native redwoods are on the grounds and are not preserved in this plan. A very large Western sycamore is in the footprint of the building. **JDA-5**

It is ironic that a project that is dedicated to educating the public about extinction does not begin with a mandate to preserve valuable specimens of extant but rare native trees and other native plants. Select highly precious native tree specimens on the Tar Pits site are cited in section 2) of this comment letter below. **JDA-6**

From the DEIR Appendix B p.19:

A picnic area under the canopy and shade trees provides new programming opportunities, from outdoor education and school lunches to orientation and gathering.

Again, new trees provide no appreciable shade for 20 years. At the picnic area there is an opportunity for tree preservation if the construction company is mandated to protect existing valuable trees. These trees border construction, and the builders must be sensitive to protecting existing trees instead of relying on a "planting plan." Tree preservation requires expert supervision to avoid harm to the trees. **JDA-7**

From the DEIR Appendix B p.28:

A woodland zone along the park's peripheral edges (northern, southern, eastern, and western) provides shade to the picnic areas and the parking lot to the north. These landscape zones are designed to maximize space for community, creating opportunities for the public to engage with the site's natural history and create a distinctive identity for the park to help tell La Brea's story. The planting scheme addresses the realities of Los Angeles's current and projected climate and aims to ease water consumption, ensure appropriate maintenance, promote sustainable growth, and provide a model for resilient site planning in the area. **JDA-8**

A museum dedicated to studying past extinctions should mitigate future extinctions by committing that **EVERY new plant and tree will be native**. Experts like Doug Tallamy, PhD professor in the Department of Entomology and Ecology at the University of Delaware, who has authored 80 research articles and 4 bestselling books who spoke at the City of Los Angeles Community Forest Advisory Committee at the October 2023 meeting, told us **we must do this in cities in all planting spaces**. (I serve as an official Representative – we are part of the City of Los Angeles Board of Public Works)

Other ecologists concur:

Native plants play a very important role in our ecosystems. As ecologists, wildlife biologists and entomologist have shown, native plant species are more favorable for supporting local wildlife, including insects such as bees and butterflies, amphibians, reptiles, and mammals. Native plants feed the creatures at the bottom of the food web that then provide meals for creatures on the next ring of the web, such as the birds. https://www.ecolandscaping.org/native-plants/ **JDA-8 (cont'd)**

Is this Project creating its contribution to wildlife extinction that will be featured in future natural history exhibits? I can't imagine that was the intent, but that could become the result. There is wildlife on the grounds, and birds rely on our ever-diminishing trees, especially the native trees. When we analyze the renderings, some of the oldest specimens extant of native trees are slated to removed. Perils are being created for birds – I endorse the LA Audubon DEIR comment letter on the Project with its supporting scientific citations. **JDA-9** **JDA-10**

The Los Angeles Sidewalk Repair Program EIR was successfully challenged, and the CEQA judge used as grounds the LA Audubon comment letter as well as the letter from the City of Los Angeles Community Forest Advisory Committee describing ill effects on bird population and migration. "The judge ruled that the impact report failed to thoroughly examine the effects on wildlife and the environmental consequences of trading mature trees for young replacement trees." https://spectrumnews1.com/ca/la-west/environment/2023/02/12/judge-halts-la-plan-to-destroy-trees-for-sidewalk-repairs **JDA-11**

The Project structure itself will have negative impacts on birds according to the LA Audubon letter. "More than 1000 birds were killed in one night after hitting the same Chicago building." https://www.cnn.com/2023/10/10/us/dead-birds-chicago-building-scn-trnd/index.html#:~:text=Follow%20CNN-,More%20than%201%2C000%20birds%20killed%20in%20one,hitting%20the%20same%20Chicago%20building&text=Workers%20at%20the%20Chicago%20Field,the%20McCormick%20Place%20Lakeside%20Center.
That is a headline you would not want for your new museum, but a glass building lit from within will cause this. Our bird population is rapidly diminishing, and The Museum of Natural History has apparently not learned from its past mistakes after constructing a bird-killing structure previously (the Otis Booth Pavilion). https://www.archpaper.com/2013/09/las-natural-history-museum-addition-not-for-the-birds/). **JDA-12**

This DEIR was due in the fall of 2022, so it is a year late, and in that year the project has gone too far. The excuse will be that the design has reached a point of no return. But the public was not heeded during scoping and afterward they were told to hold off objections until the EIR. There will be an outcry when this important beautiful park is destroyed, just from a public amenities point of view – let alone the irreparable environmental damage. You will need ecological landscapers, not regular landscapers, to even begin to do long term mitigation of the damage of this project. And I question if it is even possible. **JDA-13**

A more modest approach would have been sounder for the environment, but that does not appear the path that was taken. If you have alternatives, please consider them as the responsible choice. This unusual design may be showy, but in the end, it does not serve the health of the community which depends on proper environmental choices. **JDA-14**

Sincerely,
Joanne D'Antonio (submitted as an individual)
Neighborhood Council Sustainability Alliance (NCSA), Trees Committee Chair
Community Forest Advisory Committee (CFAC) Representative

2.4.24.1 Response to Letter from Joanne D'Antonio

Comment No.	Response
JDA-1	The commenter states their stake in the project and raises concerns regarding the lack of a tree inventory in the EIR, and the number of trees to be removed by the project. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The commenter is correct that the EIR does not provide identification of the exact trees to be removed through implementation of the project. However, the implication that this is required for a CEQA document is not correct. The project description for the EIR only needs to include the information necessary to conclude a project's potential for significant environmental impacts. The full range of potentially significant biological resource impacts, including those to trees, is provided in the EIR in Section 5.3, Biological Resources. The thresholds of significance address the full range of impacts that could occur with the project, including impacting tree specimens protected by local ordinances. In this case, the property is on County of Los Angeles land. The exact trees to be removed through implementation of the project have not yet been determined. The County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. In addition, retention of some trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
JDA-2	The commenter raises their personal observations and experiences of viewing the trees at La Brea Tar Pits and an article the commenter presents about Singapore's use of trees to address their heat problem. Any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics, which concluded a less than significant impact. The comment is correct that mature trees are important for their shade-producing abilities. As discussed in MR-2, the County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, retention of trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. In addition, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. Refer to JDA-1 and **MR-2, Impacts to Native and Mature Trees.** No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
JDA-3	This comment quotes language from Appendix B of the EIR and indicates that all the shade-producing tress should be retained. Specifically, the commenter claims that according to Dr. Beverly Law, there is evidence that newly planted trees initially emit carbon, and only mature trees sequester carbon. Refer to **MR-2, Impacts to Native and Mature Trees**, and response to comment NCSA-6. This comment does not critique the analysis contained in the EIR; rather, the commenter is noting that they disagree with the County's approach to the project. The comment is correct that mature trees are important for their carbon sequestering abilities. As discussed in MR-2, the County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, retention of trees may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. In addition, the County is planning to remove diseased or unhealthy trees from the park with implementation of the project. Newly planted trees would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. While there may be short term reductions to the amount of available shade at the project site, this loss will be recouped once the newly planted trees grow and mature. However, the comment's claim that new trees should be viewed as sources of carbon is not entirely accurate. According to the PBS video referenced by the comment, Dr. Beverly Law provides evidence that new *forests* may be net sources of carbon, and that mature *forests* sequester greater quantities of carbon. The study in questions takes the entire carbon cycle of forests into account, including decomposition on the forest floor, and assumes that every tree in the forest is newly planted. The purpose of the study was to provide evidence that retaining old growth forests is a more effective means of carbon sequestration than planting new forests. As the trees within the project site exist in a built-up urban environment, comparing the impacts of tree replacement by the project to the replacement of an entire old growth forest is erroneous. There is no reliable evidence that suggests that planting new trees would increase carbon emissions. It is true that the carbon sequestration abilities of the site would be reduced by removing mature trees, however, these losses would be recouped as the new trees mature. Furthermore, by relying on native and disease-resistant species, the new trees planted by the project may prove to be more resilient than some of the existing trees on the project site, thus resulting in longer term carbon sequestration. The EIR found that the project's greenhouse gas impacts would be less than significant after implementation of Mitigation Measures GHG/mm-1.1 and TRA/mm-1.1. As the EIR does not rely on the project's carbon sequestration potential to make an impact conclusion, the potential short-term reductions in carbon sequestration are not relevant to the analysis included in the EIR. Therefore, no changes to the EIR were determined to be necessary in response to this comment.
JDA-4	The commenter provides additional information supporting their opinion that the existing trees at the project site should not be removed. Specifically, the commenter references a quote from Appendix B of the DEIR and argues that the "character and unity" of the site should not be the deciding factor for tree removal. Refer to **MR-2, Impacts to Native and Mature Trees**, and JDA-1 and JDA-3. The quote referenced by the comment has been taken out of context. No trees are proposed to be removed solely because they do not add to the character and unity of the site. Instead, the quote is meant to demonstrate that there will be an emphasis on improving the character and unity of the site with the proposed new plantings. As discussed in MR-2, the County will strive to prioritize the protection of existing trees, particularly those that are native species and/or mature, and would avoid their removal if feasible, while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to several project requirements, including, the excavation requirements for construction of the new building, the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. No changes to the EIR were determined to be necessary in response to this comment.
JDA-5	The commenter quotes text in the Draft EIR that indicates that Western Sycamore, California Buckeye, and Redwood trees should be preserved but then indicates that a presentation on September 30 indicated that these native trees are not being preserved. In addition, the commenter further indicates that a tree inventory should be provided. The exact trees to be removed through implementation of the project have not yet been determined. The County will prioritize the protection of these trees and will avoid their removal if feasible while also meeting the budgetary and design needs for the project. Retention of all individuals of an important tree species may not be possible due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The County will continue to refine the designs as the project develops to account for the most protections possible for native and community resources. This may include protection on individual tree species noted as important to the community and/or increases in replacement ratios for trees that are particularly valued by the community. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. Refer to JDA-1, JDA-3, JDA-4 and **MR-2, Impacts to Native and Mature Trees**. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
JDA-6	The commenter indicates that the project should preserve valuable tree species to fulfill the project's dedication to educating the public about extinction. While this is not a comment specifically on the analysis contained in the Draft EIR, it should be noted that native species have been prioritized in the plant palette and incorporated into the design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. Furthermore, it should be noted that the plant palette also contains considerations for historical floral communities and pollinator resources. The County and the project design team will continue to refine the designs as the project develops to account for the most protections possible for native resources. Refer to **MR-2, Impacts to Native and Mature Trees**. No changes to the EIR were determined to be necessary in response to this comment.
JDA-7	The commenter provides additional feedback requesting the retention of shade-producing trees. Refer to JDA-1, JDA-5, JDA-6, and **MR-2, Impacts to Native and Mature Trees.** No changes to the EIR were determined to be necessary in response to this comment.
JDA-8	The commenter requests that all new plantings should be native species. While this is not a comment specifically on the project's environmental impacts as contained in the Draft EIR analysis, it should be noted that native species have been prioritized in the plant palette and incorporated into the design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. Refer to **MR-3, Use of Native Plants and Vegetation.** No changes to the EIR were determined to be necessary in response to this comment.
JDA-9	The commenter shares the opinion that the removal of the existing trees would diminish the available habitat for local bird species. They further provide their opinion that the project would create a contribution to wildlife extinction because birds rely on trees, especially native and mature trees. While tree removal can be significant, depending on the context, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Over the longer term, the habitat in the project area for migratory and native nesting birds, both sensitive and common, is anticipated to increase three to five years following construction, as the native plantings (which replace the removed trees) mature. These native plantings are much more desirable to native bird species than exotic and ornamental species. The landscaping palette will incorporate native trees, shrubs and herbs, providing a layered habitat that provides structure for a larger variety of native species than currently present. The temporary relatively small loss of trees relative to intact tree resources surrounding the project site and the implementation of nesting bird mitigation and replacement of plantings with native planting would reduce impacts to less than significant. Additionally, implementation of Mitigation Measure BIO/mm-5.1 would aid in the avoidance of impacts to nesting birds. Refer to response LAA-10 and **MR-2, Impacts to Native and Mature Trees**. No changes to the EIR were determined to be necessary in response to this comment.
JDA-10	The commenter provides their endorsement of the comments provided on the Draft EIR by the Los Angeles Audubon Society (Audubon). This is not a comment on the analysis contained in the EIR; therefore, a response is not necessary, and no changes to the EIR were determined to be necessary in response to this comment. However, responses to the Audubon letter can be found in this Final EIR in responses to comments LAA-1 through LAA-18.

Comment No.	Response
JDA-11	The commenter references a CEQA ruling regarding the Los Angeles Sidewalk Repair Program EIR where the Audubon and the City of Los Angeles Community Forest Advisory described ill effect on bird populations and migrations. Refer to response to comment LAA-10. The Sidewalk Repair Program proposed to streamline the sidewalk repair process across the entire City of Los Angeles, with the City allocating roughly $1.3 billion towards sidewalk repairs over a 30-year period. If implemented, the project would result in the removal of an estimated 12,860 street trees. In the Sidewalk Repair case, the Superior Court noted that it is undisputed that the Sidewalk Repair Program would affect certain bird species, including sensitive species. However, the petitioner disagreed with the City that the EIR provided a proper and legally adequate analysis of the impact. As raised by petitioners and agreed to by the court, the issue in the Sidewalk Repair case concerns the City's dismissal of impacts of the project to birds other than sensitive species. On the merits of petitioners' claim, the City argued that it was not required to consider the impacts of the Sidewalk Repair Program on non-sensitive status species. Unlike the City's position in the Sidewalk Repair Program, the County is not arguing that there should not be consideration of the impacts to non-sensitive status species. In the La Brea Tar Pits Master Plan EIR, the County uses the Appendix G checklist questions to guide the biological resources analysis and, broadly, uses the checklist questions as thresholds of significance. However, this does not mean that the County improperly limited its analysis to sensitive species. As provided for in EIR Section 5.3, Biological Resources, impact question (d), the EIR addresses effects of the project on non-sensitive species. Further, additional clarifying text has been added to the EIR to expand upon this consideration of non-sensitive species. Further, the commenter does not provide any substantial evidence to indicate why they believe the circumstances of the Sidewalk Repair Program should been seen as equivalent or related to the La Brea Tar Pits Master Plan project. While both projects would result in the removal of trees which could potentially impact local bird species, as noted above, the Sidewalk Repair Program EIR proposed to includes the removal of 12,860 trees across Los Angeles, which is several magnitudes larger than the 150 to 200 trees proposed for removal or replacement by the proposed project. For all the reasons noted above and described in more detail in EIR Section 5.3, Biological Resources, of the EIR, impacts to non-protected bird species by the implementation of the La Brea Master Plan would be considerably less than the impacts posed by the Sidewalk Repair Program. While the necessary tree removal proposed by the project may result in a temporary reduction in bird occurrence and viable habitat, the cumulative impact of the new native trees and plant species would eventually increase the amount of bird habitat supported by the site. Replanting of trees should result in no temporal loss of habitat for those individuals, while planting of new native shrubs should provide habitat within 2 to 3 years and trees in 5 to 10 years.
JDA-12	The commenter raises issues with a different development/building located outside of California that is not associated with the proposed La Brea Tar Pits Master Plan. Refer to response to comments LAA-4 through LAA-8. The illustrations and images provided in the Master Plan and Chapter 3, Project Description, of the EIR were not intended to imply the use of a specific type of material or amount of glass surface to be incorporated into the project design; they are conceptual illustrations developed early in the Master Plan design process. The following language has been added to Chapter 3, Project Description (added text shown in underline): "<u>To significantly reduce birds from striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.</u>" The County will continue to refine the project designs to decrease the extent of glazing and the need for bird deterrence. As more detailed construction documents are developed, appropriate bird deterrence methods will be studied and incorporated further to significantly reduce bird strikes resulting in mortality or injury. After receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including Audubon, and refined the design of the improvements proposed at the La Brea Tar Pits site. As a result, the County has proposed a variation of the Master Plan alternative. Refinements to the project will continue to be considered by the County as the design evolves. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs and Refined Alternative 3.

Comment No.	Response
JDA-13	The commenter alleges that the Draft EIR was due in the fall of 2022, so it is a year late and implied that the project has gone too far in that time. Further, the comment provides conjecture about what will happen regarding project approval (specifically, the commenter states "the excuse will be that the design has reached a point of no return"). The comment goes on to allege that the public was not heeded during scoping and afterward they were told to hold off objections until the EIR. The comment includes several inaccuracies and allegations that are not correct. While there was an estimated schedule presented to the public at the scoping meeting (held on March 2, 2022), this was not intended to be a due date. It is accurate that the County took additional time to complete the Final EIR beyond the estimate presented at the scoping meeting. Nonetheless, this will not affect whether the project is approved. The design of the project continues to undergo refinement; it is undetermined whether the Board of Supervisors will direct refinements to the design. While the commenter theorizes on what they believe the determinations of the County will be on the project, the commenter provides no substantiation of this theory. The comment stating that the public was not heeded during scoping is unclear. The comment does not provide specific information on how the public was not heeded. The County received input at the scoping meeting that was held on March 2, 2022. In addition, the County received specific comments in response to the Notice of Preparation (NOP), which was published on February 14, 2022.The purpose of scoping and the NOP was to seek input from public agencies and members of the public on the intended scope and contents of the environmental information and analysis in the EIR. The County used this information to define the scope of the EIR. While the commenter does not provide specific information regarding what aspect of comment provided during the scoping process was not addressed, it is important to note that the County is not obligated to necessarily accept every opinion or project preference that is provided in the scoping comments. Instead, the scoping process is a procedural process to ensure that input into the scope of the EIR analysis is attained. A summary matrix of written comments received during the NOP comment period as well as verbal comments recorded at the two public scoping meetings is provided as Appendix A to the EIR. The commenter does not provide any specific information about when they received this feedback, who dissuaded them from preparing comments on the project, or any other details regarding their experience of being told not to provide comments. These details are unclear from the information provided by the commenter. The County aware of any Foundation, County, or County consultant directing members of the public to "hold off objections until the EIR," as alleged by the commenter. The County encourages members of the public to provide input into the design of the project. The County also would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval.
JDA-14	The commenter requests that alternatives to the current project design be considered. Chapter 6, Alternatives Analysis, of the EIR provides the required CEQA analysis of alternatives. The County will be recommending approval of Refined Alternative 3 by the Board of Supervisors. Refer to **MR-1, Preferred Alternative** and **MR-2, Impacts to Native and Mature Trees** for more information. No changes to the EIR were determined to be necessary in response to this comment.

2.4.25 Marianne King

From: **Marianne King**
Date: Thu, Oct 26, 2023 at 3:39 PM
Subject: Public Comment On Proposed La Brea Tar Pits Master Plan Project
To: Leslie Negritto, <reimagine@tarpits.org>

Dear Chief Operating Officer Negritto,

I absolutely agree with the concerns raised by the Neighborhood Council Sustainability Alliance (NCSA) letter dated October 26, 2023 (attached herein). There needs to be an arborist report that quantifies the existing trees on site, including all the important data, size, height, species, condition, and each tree numbered and referenced on the existing and proposed landscape plans. The DEIR as presented regarding existing trees and what will happen to them is wholly insufficient. And the footnote, oh, we'll address that after the EIR? In addition there is inconsistent comments about how many trees exist and what the "plan" is. Please see attached examples highlighted in yellow. **MK-1** **MK-2**

Please take the time to come up with a real tree preservation plan. **MK-3**

Sincerely,

Marianne King

Tree Preservation Advocate, former Los Angeles City Planner.

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NEIGHBORHOOD COUNCIL
SUSTAINABILITY
ALLIANCE

October 26, 2023

Leslie Negritto, Chief Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007
Via e-mail: lnegritto@nhm.org, reimagine@tarpits.org

RE: Public Comment On Proposed La Brea Tar Pits Master Plan Project

Dear Chief Operating Officer Negritto:

The Neighborhood Council Sustainability Alliance (NCSA) has important concerns with the environmental impact of the Master Plan Project as presented by the Natural History Museums of Los Angeles County (NHM) to expand the Page Museum and facilities at the La Brea Tar Pits. Over the course of the past two years, objections have been voiced to project representatives regarding mature tree loss—especially native tree and other native plant removals that are crucial to the ecosystem. Many individual objections came from members of the NCSA Trees Committee who are versed in the value of these assets. Yet these concerns have had no discernible influence on the project.

We question why this DEIR is offered without a tree inventory, and why it provides no specific disclosure of which trees would be removed and which retained? These are standard elements of a CEQA document, and their absence leads us to challenge how this EIR can be accepted without this disclosure.

A representative of the NCSA Trees Committee who attended your September 30 outreach event and walked the site had positive engagement with several Gruen Associates including architect Debra Gerod and also members of the landscape design team including Ronnick Licudo and Nicholas Decker. The latter two representatives were joined by another associate, Dean Howell, at our NCSA Advocacy meeting of October 1. **MK-4**

Below we take issue with the environmental evaluation of the Master Plan Project as presented. Text from the DEIR is cited. A numbered list of minimum expectations for the project is presented later in this comment letter.

From the DEIR Appendix B p. 29:

Existing trees and plantings throughout the park are scattered and achieve little sense of character or unity. The enhanced character of the park will require new plantings as well as existing trees and plantings that complement the concept design. Species such as the Western Sycamore, California Buckeye, and Redwood should be preserved.

With the current heat crisis in Los Angeles, we need to retain every shade-producing tree. Replacement planting deprives the City of ecosystem services for 20 years while trees attain maturity. Dr. Beverly Law, Emeritus Professor of Global Change Biology, explains how new trees initially add carbon to the atmosphere and only mature trees sequester carbon, one of the chief environmental benefits from trees.†

Given the benefits of mature trees, the "c*haracter and unity,"* stated in the above quote from the DEIR, should not be the deciding factor for tree elimination. While the palms and agaves at the project site may be expendable, there are numerous shade trees that should be preserved but will not be in this Master Plan. Even more disturbing, the DEIR says, "Western Sycamore, California Buckeye, and Redwood should be preserved" BUT ACCORDING TO THE PRESENTATION ON SEPTEMBER 30, THESE VALUABLE NATIVE TREES ARE NOT BEING PRESERVED, AND THIS IS NOT REVEALED IN THE

DEIR. If the DEIR says native trees "should be preserved," then it should begin with an inventory of all these native trees / shrubs and demonstrate how the project will design around them. It is ironic that a project that is dedicated to educating the public about extinction does not begin with a mandate to preserve valuable specimens of extant but rare native trees and other native plants. Select highly precious native tree specimens on the Tar Pits site are cited in section 2) of this comment letter below.

From the DEIR Appendix B p.19:

A picnic area under the canopy and shade trees provides new programming opportunities, from outdoor education and school lunches to orientation and gathering.

Again, new trees provide no appreciable shade for 20 years. At the picnic area there is an opportunity for tree preservation if the construction company is mandated to protect existing valuable trees. These trees border construction, and the builders must be sensitive to protecting existing trees instead of relying on a "planting plan." Tree preservation requires expert supervision to avoid harm to the trees.

From the DEIR Appendix B p.28:

A woodland zone along the park's peripheral edges (northern, southern, eastern, and western) provides shade to the picnic areas and the parking lot to the north. These landscape zones are designed to maximize space for community, creating opportunities for the public to engage with the site's natural history and create a distinctive identity for the park to help tell La Brea's story. The planting scheme addresses the realities of Los Angeles's current and projected climate and aims to ease water consumption, ensure appropriate maintenance, promote sustainable growth, and provide a model for resilient site planning in the area.

A museum dedicated to studying past extinctions should mitigate future extinctions by committing that **EVERY new plant and tree will be native**. Experts like Doug Tallamy, PhD professor in the Department of Entomology and Ecology at the University of Delaware, author of 80 research articles and 4 bestselling books, spoke at the City of Los Angeles Community Forest Advisory Committee in the October 2023 meeting, telling us we must plant native in cities in all planting spaces. Other ecologists concur:

Native plants play a very important role in our ecosystems. As ecologists, wildlife biologists and entomologist have shown, native plant species are more favorable for supporting local wildlife, including insects such as bees and butterflies, amphibians, reptiles, and mammals. Native plants feed the creatures at the bottom of the food web that then provide meals for creatures on the next ring of the web, such as the birds.††

We believe there are specific adjustments to the landscaping plan that will improve the sustainability, historical value, and cultural significance of the project. Accordingly, we request that the following changes be incorporated into the design.

1) Allow biofiltration areas to recharge groundwater and irrigate lawn.

As outlined in DEIR Section 3.4.7.2, the three biofiltration spaces will be lined with an impermeable liner, and water will be routed to the city stormwater drains. This is a missed opportunity. Central to the function of a true bioswale is the absorption of water for groundwater recharge. This can only be accomplished if the bioswale (or biofiltration planter) does not reside over an impermeable barrier. Therein, an unlined or partially unlined bottom in each of the three biofiltration spaces would have greater benefit to the community and the urban ecosystem by allowing some groundwater recharge. Of particular significance is that Oil Creek is a naturally occurring spring that is a fundamental component of the very system and unique phenomenon that the park celebrates. To add impermeable barriers to such a system undermines the functionality of a unique historical site, diminishing its educational value and threatening

MK-4
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the existence of the Oil Creek spring. Importantly, it is counterintuitive to use natural systems to filter onsite water, only to dump it back into the city stormwater drain system, where it will be polluted again before reaching our local watershed. Certainly any flooding concerns could be addressed with overflow drainage in the bioswale and bioplanter designs. Groundwater flow is an inherent element of Oil Creek.

The immense footprint of grass lawn in the project underscores the need to utilize onsite water sources rather than dumping naturally cleaned water into the stormwater drain. Overflow water cleaned by the biofiltration spaces should be captured as an irrigation source to offset the significant impact of using potable water to irrigate the grass lawn in the project.

2) Redesign the landscaping plan to save / incorporate four historically significant tree specimens.

The area to the northwest of the current Central Green, south of the current Pleistocene garden, contains two old-growth *Rhus ovata* (Sugarbush) and one old-growth *Heteromeles arbutifolia* (Toyon). These are visible (albeit difficult to identify) in Existing Site Figure 3-3 in the DEIR. We believe the two *Rhus ovata* are the largest specimens in the City of Los Angeles and among the largest in existence for this regionally local species. Likewise, the *Heteromeles arbutifolia*, a species declared the official native plant of Los Angeles by City Council in 2012 and a protected tree species via Los Angeles Ordinance 186873, has historical and cultural significance. A 1924 overhead photo of the site in the Los Angeles Public Library archives shows probable evidence of these three trees existing on the site a century ago. Further northwest of these three trees, north of Oil Creek and a few feet northwest of the current Pleistocene garden, is an exceptional example of *Aesculus californica* (California Buckeye) that also carries significance as being among the largest examples in the City of Los Angeles. Though the DEIR lacks a tree inventory and specifics on exactly which trees will be preserved, preliminary documents suggest all four of these trees are slated for removal. Due to their age and size, these four trees are poor candidates for survival if moved, even if the large expense and effort to do so was undertaken. However, an overlay of the Conceptual Site Plan in Figure 3-4 onto Figure 3-3 suggests these four trees are outside the proposed new building footprint and could be accommodated and preserved with minor alterations to the landscaping design.

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Consider that the project site also includes two mature *Sequoia sempervirens* (Coast Redwood), two mature *Umbellularia californica* (California Bay Laurel), and several mature *Pinus torreyana* (Torrey Pine). These native trees are among the largest trees on the site, and a superior plan would have designed around them. *Umbellularia californica* is a protected species in Los Angeles and *Pinus torreyana* is an endangered species that is the rarest pine species in the United States. However, because they are within the footprint of a new building in the DEIR, we don't see how they can be saved without a major redesign of the project. The loss of these trees will constitute a significant harm to the ecosystem of the area and the cultural heritage of the region. This makes it all the more imperative that the four trees listed in the prior paragraph (which can be saved with comparatively minimal effort) be saved.

3) Removal of any native tree protected by Los Angeles Ordinance 186873 should result in the full 4:1 replacement ratio planted on site within the project boundaries.

Though this is a County facility, it is situated in the City of Los Angeles, which has a Protected Tree Ordinance in place to discourage the removal of native trees and shrubs. The fact that the Tar Pits are a County facility is insufficient reason to ignore City law supported by the stakeholders of the community. The existing site contains multiple healthy mature specimens of these five protected tree species (*Heteromeles arbutifolia* (Toyon), *Platanus racemosa* (Western Sycamore), *Umbellularia californica* (California Bay Laurel), *Sambucus mexicana* (Blue Elderberry), and *Juglans californica* (Southern California Black Walnut)) and one protected tree genus *Quercus* (Oaks) of native origin as defined in Los Angeles Ordinance 186873. Many of these are slated for removal. The project site is noteworthy for having all these species in a relatively small area that is easily walkable and accessible, and

consequently serves as an extremely valuable education tool in addition to having the biodiversity benefits these native trees provide. Section 3.4.7.1 of the DEIR estimates that 135 to 180 trees (including many non-native trees) in the existing site will be removed, assuming the calculation that an additional 10 percent will be relocated. This is a significant loss of mature tree canopy for the community, with decades-long loss of shade, carbon capture, and heat-island effect offset. Installing the full 4:1 replacement ratio of our protected species on site as part of the new design is an important long term mitigation to these losses.

4) The removal of any *Berberis nevinii* (Nevin's Barberry) should also result in a 4:1 replacement ratio planted on site within the project boundaries.

Berberis nevinii is a federally and state listed endangered species. Several large, mature examples of this shrub are at the existing site, specifically within the current Pleistocene garden—an area slated for removal in current plans. Though these plants were planted by humans, they are well established at the location. The new plant palette designs in Figures 3-12, 3-13, and 3-14 of the DEIR do not include plans for *Berberis nevinii.* While relocation of the existing on site mature shrubs is technically possible, this may have a low success rate beyond the short term. By incorporating new plantings of this species into the design, a long term presence for this endangered species can be secured.

5) All new plantings, other than functional lawn, must be native species, with a preference for species from the tar pits fossil record.

The original vision of this park as articulated by naturalist Theodore Payne and landscape architect Ralph Cornell over a century ago was to feature an exclusively native plant habitat. This project offers a singular opportunity to bring that vision closer to reality, and there are extremely important reasons to do so. Los Angeles is experiencing a biodiversity crisis, having lost over 90% of our local pollinators since the beginning of the twentieth century. Key Lepidoptera species (butterflies and moths) are disappearing to extinction at the rate of two regional species per year. Because many specialist fauna depend on the native plants with which they have evolved, native landscaping plants and trees provide essential support for local biodiversity. There is not a better case for an all-native urban landscaping design than that of Hancock Park in the La Brea Tar Pits Master Plan Project, a space noteworthy for being the most important Pleistocene fossil site on the planet. The tar pits have established a fossil record with tens of thousands of years of evidence of our native plants surviving climate change and varying carbon levels that exceed those anticipated from anthropogenic climate change. These changes were a factor in wiping out the famous megafauna displayed in the Page Museum at the tar pits, yet our surviving local native plants endured these changes.

As a demonstration of the power of adaptability within the DNA of our local native plants in our unique biodiversity hotspot, the project site has unparalleled importance as an education tool for climate change and biodiversity, but only if the landscaping design utilizes those native plant species. Happily, the creators of the DEIR document seem to get this, as all the proposed species in Sections 3.4.7 and 3.4.7.1 and the aforementioned Figures of the DEIR exclusively reference native species. However, suggested plant palettes are different from actual detailed landscaping plans. In conversations with several members of the landscape design team, our members were repeatedly told that new landscaping installations would be "90 to 95 percent native" with some members of the design team going on to mention plans to install multiple exotic trees such as *Tipuana tipu.* There is no scientific, cultural, or practical justification for including non-native tree species in the planting palette of this project. With well over 70 locally native tree and shrub species and hundreds of local herbaceous plant species providing ample choices for both drought resistant landscaping as well as the project's riparian biofiltration areas, no credible argument can be made that it is biologically valuable or necessary to add more ornamental non-native species to this site (a site that will still contain over 100 mature non-native trees slated for preservation in the current plan).

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(cont'd)

Furthermore, even the "90 to 95 percent" natives suggested by designers is greatly misleading. Consider that a large percentage of the 13 acres in both the existing site and proposed site in the DEIR consists of non-native grass species for open lawn. Thus, the native percentage estimate by designers omits the lawn that will constitute the highest percentage of planted biomass for the project. While lawn has a functional green space value for the community, the ornamental landscaping trees and other non-lawn plants added to this site, going forward, should be exclusively native in recognition of the historical significance of the plants in the fossil record that make this site a true treasure for the local community, region, and world.

Thank you for this opportunity for public comment. We hope the NCSA, an alliance that includes members with extensive ecological and native plant expertise, can serve as an advisor on this project as it moves forward. We applaud NHM for its ambitious goals in this exciting endeavor.

Sincerely,

The Neighborhood Council Sustainability Alliance of Los Angeles
www.ncsa.la

cc: HollyJMitchell@bos.lacounty.gov
FourthDistrict@bos.lacounty.gov
ThirdDistrict@ bos.lacounty.gov
FirstDistrict@bos.lacounty.gov
Kathryn@bos.lacounty.gov
Councilmember.Yaroslavsky@lacity.org
LAMayorNews@lacity.org
Karen.Bass@lacity.org

MK-4
(cont'd)

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† https://www.youtube.com/watch?app=desktop&v=LDdKOmvIKyg&feature=youtu.be

†† https://www.ecolandscaping.org/native-plants/

Table 5.10-7. Preliminary Project Consistency Evaluation—SCAG 2020-2045 RTP/SCS

Goals and Principles	Analysis of Project Consistency
Goal 5. Reduce greenhouse gas emissions and improve air quality	**Consistent with Mitigation.** The project would not conflict with the GHG reduction policies strategies and regulations of this plan; however, to further reduce the project's potential GHG emissions, the project would implement Mitigation Measure TRA/mm-1.1 requiring development of a Transportation Demand Management (TDM) program with specific strategies aimed to reduce project employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and ridesharing. In addition, Mitigation Measure GHG/mm-1.1 would ensure the project would not include the installation of natural gas infrastructure. In addition, Mitigation Measure GHG/mm-1.1 would ensure the project provides more electric vehicle charging stations than the mandatory requirements set forth in the Los Angeles County Code, Title 31, Green Building Standards (Code Section 5.106.5.3.3). Further, Mitigation Measure AQ/mm-3.1 would require all SCAQMD rules and regulations to serve as mitigation measures for the project during construction. Operation of the project would not result in adverse impacts to air quality.
Goal 6. Support healthy and equitable communities	**Consistent.** The project would support the health of visitors by improving existing and creating new outdoor public spaces and improved landscaping that would support visitors and employees' mental health, encourage community interaction, and improve air quality. The project would also encourage pedestrian mobility via the proposed easily accessible paved pedestrian path linking the existing elements of the site. Each loop of the pathway would contain distinct themes and programming. The new museum building design would use sustainable design features such as enhanced daylighting, rainwater collection leading to bioswales, and a sloped green roof.
Goal 10. Promote conservation of natural and agricultural lands and restoration of habitats	**Consistent with Mitigation.** The project site is dominated by a large lawn surrounding the museum consisting of primarily non-native planted trees and shrubs. It provides limited wildlife habitat due to the combination of high levels of human activity, the lack of surface water, and the low quantity of native plants. However, there are currently over 300 trees on-site, both non-native and native species, including the Coast live oak which is a species protected under the Los Angeles Oak Tree Ordinance. The Master Plan's proposed planting strategy includes the introduction or relocation of 150 to 200 trees on-site. Tree species selected for planting would be drought-tolerant and/or of a native tree species and would primarily require moist to dry soil conditions. The trees provide potential nesting habitat for birds as well as in the native plant area of Oil Creek. Oil Creek supports a community of hydrophytic and riparian vegetation. The project would be required to implement the following mitigation measures to protect and preserve the biological resources on-site: BIO/mm-2.1 to protect sensitive and regulated resources at and along Oil Creek; BIO/mm-3.1 to protect sensitive and regulated resources at and around the Lake Pit; BIO/mm-4.1 and BIO/mm-4.2 to avoid impacts to nesting birds; and BIO/mm-5.1 and BIO/mm-5.2 to avoid conflicts with the County of Los Angeles Oak Tree Ordinance.

MK-4
(cont'd)

5.10.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project could result in significant adverse environmental impacts related to land use and planning if it would:

a) Physically divide an established community.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

5.10.4 Methodology

Sources used in the assessment of land use and planning impacts include the County's General Plan, the City's General Plan, the Wilshire Community Plan, and the 2020-2045 SCAG RTP/SCS. The project's potential consistency with relevant County and City General Plan policies are evaluated in Table 5.10-4 through Table 5.10-7. Only project elements that have the potential to conflict with an applicable goal,

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Policy LU 11.2 Support the design of developments that provide substantial tree canopy cover and utilize light-colored paving materials and energy-efficient roofing materials to reduce the urban heat island effect.	**Consistent**. The Master Plan's proposed planting strategy includes the introduction or relocation of at least 150 to 200 trees on-site.[2] Tree species selected for planting would be drought-tolerant and/or of a native tree species and would primarily require moist to dry soil conditions. The project's contribution to the urban heat island effect would be minimal due to the surrounding existing park and recreational areas, including Central Green, and the proposed site design and landscaping plan, which includes a canopy of shade trees for the entry plaza at Wilshire Gateway and 6th Street Gateway. Additionally, photovoltaic solar panels would be installed on the roof of the Page Museum along with sloped green roofs to reduce building heating during the day. In addition, refer to the consistency analysis for Policy LU 10.4.
Policy LU 11.3 Encourage development to optimize the solar orientation of buildings to maximize passive and active solar design techniques.	**Consistent**. The project would maximize solar design techniques by adding extensive sustainability features to the Page Museum, including a sloped green roof and rooftop solar photovoltaic panels.
Policy LU 11.7 Encourage the use of design techniques to conserve natural resource areas.	**Consistent.** See the consistency analysis for LU 11.2.
Mobility Element	
Goal M 2 Interconnected and safe bicycle- and pedestrian-friendly streets, sidewalks, paths and trails that promote active transportation and transit use.	**Consistent with Mitigation**. The project would include the implementation of a paved pedestrian path within the project site that would be accessible to members of the public during park operating hours. The project site is currently served by a complete network of sidewalks around the project site block and adjacent street network, with signalized intersections and crosswalks. The project would not involve changes to the existing bikeways or introduce features that would remove pedestrian facilities or increase pedestrian crossing distances. In addition, the project would implement Mitigation Measure TRA/mm-1.1, requiring development of a Transportation Demand Management (TDM) program to coordinate on multimodal improvements in the study area and to reduce employee and visitor vehicle trips and related effects on project access safety and circulation.
Policy M 2.6 Encourage the implementation of future designs concepts that promote active transportation, whenever available and feasible.	**Consistent**. See the consistency analysis for Goal M 2.
Air Quality Element	
Goal AQ 1 Protection from exposure to harmful air pollutants.	**Consistent with Mitigation**. Mitigation Measure AQ/mm-3.1 would ensure that the project would not result in harmful air pollutants that would exceed the localized South Coast Air Quality Management District (SCAQMD)-recommended localized significance thresholds during construction or operation. In addition, the project would also implement Mitigation Measure HAZ/mm-2.1 requiring additional controls to address the effects of subsurface hazardous materials that may be present, including methane.
Policy AQ 1.1 Minimize health risks to people from industrial toxic or hazardous air pollutant emissions, with an emphasis on local hot spots, such as existing point sources affecting immediate sensitive receptors.	**Consistent**. The project's construction activities would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards. In addition, the project would not result in operational impacts that would expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards, increase the cancer risk, increase the cancer burden, or create any carbon dioxide hot spots.
Policy AQ 1.2 Encourage the use of low or no volatile organic compound (VOC) emitting materials.	**Consistent with Mitigation**. Mitigation Measure AQ/mm-3.1 would require adherence to SCAQMD Rule 1113, which limits the VOC content of architectural coating and other emitting materials.

[2] The La Brea Tar Pits Master Plan does not provide an exact number of trees to be relocated versus new trees introduced to the site. The Los Angeles County Museum of Natural History Foundation will develop additional detail when the construction plans are more fully developed, likely after the CEQA process is complete.

MK-4
(cont'd)

Pedestrian Path and Recreation

The project would reconfigure the existing pedestrian pathways on-site into a continuous 1-kilometer paved pedestrian path linking the disparate existing elements of the site: the Lake Pit and Wilshire Gateway in the southeast, Central Green, museum, tar seeps, and 6th Street Gateway in the northwest. The path would feature three distinct loops, each one reflecting distinct themes (Figure 12).

The Central Green would be at the center of the project site, directly to the southwest of the Page Museum and new museum building. This large common grass lawn provides a setting for community activities, recreation, events, and public gathering. The project would improve the infrastructure to create a drivable path for food trucks to access the Central Green. To the west of the 6th Street Gateway, the project would add a children's play area, picnic areas, and a small dog park. Vegetated berms around recreation areas would create seating areas and elevated vantage points.

Landscaping

As shown in Figure 13, the planting and landscaping concept for Hancock Park is divided into three distinct zones encircled by the looping path system. Each loop of the pedestrian path has its own usage and distinguishing theme representing different geologic epochs—Pleistocene in the southeastern loop, Holocene in the northwestern loop, and Anthropocene in the central loop. As noted above, the Pleistocene Garden would be approximately 10,000-11,000 square feet in size, located directly east of the Lake Pit, and incorporate a biofiltration area to help manage stormwater. It would be planted with herbaceous and woody species. The western loop would consist of a Holocene landscape with climate-appropriate native plantings to ease water consumption, ensure appropriate maintenance, and promote sustainable growth. A forested woodland consisting of Torrey Pine and Coast Live Oak would be planted with the intention of providing a focal area and shade. The western loop also contains Oil Creek, which will be developed into a biofiltration zone for stormwater management and would be planted with Sequoia and Monterey Pine trees in wetter pockets. The Central Lawn would be a common lawn.

MK-4
(cont'd)

The woodland forest zone of the western loop would be extended along the park's peripheral edges (northern, southern, eastern, and western) to provide shade to the picnic areas and the parking lot to the north. Tree species are expected to include Torrey Pine, Coast Live Oak, Western Sycamore, and Valley Oak and would support the development of a unified canopy across the site.

As stated above, there are 197 trees currently on the project site. The planting strategy includes the introduction or relocation of approximately 84 trees on-site. The relocated trees would be from existing locations within the project site. New plantings would be consistent with the planting and landscape concept and plant palette included in the Master Plan. New plantings would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. Trees that would be removed include non-native trees and/or trees that have been diseased or are not in good health. Species such as the Western Sycamore, California Buckeye, and Redwood would be preserved, unless they are diseased or in locations where new built features are planned, specifically the museum expansion and shifted parking lot on the northern side of the site. If healthy, these trees could be moved to the west of the parking lot, adjacent to the maintenance and support building.

At this juncture of the planning process, a tree assessment and landscaping plan have not been developed. More detailed plans for tree removal and planting would not be developed until after the EIR is completed.

2.4.25.1 Response to Letter from Marianne King

Comment No.	Response
MK-1	The commenter provides their endorsement of the comments provided by the Neighborhood Council Sustainability Alliance and raises concerns regarding the lack of a tree inventory in the Draft EIR and the number of trees to be removed as a result of the project. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. Appendix N has been added to the Final EIR which provides the tree inventory completed by the design team for the project. Appendix N includes tree locations and species identification. The commenter is correct that the EIR does not provide identification of the exact trees to be removed through implementation of the project. However, the implication that this is required for a CEQA document is not correct. The project description for the EIR only needs to include the information necessary to conclude a project's potential for significant environmental impacts. The full range of potentially significant biological resource impacts, including those to trees, is provided in the EIR in Section 5.3, Biological Resources. The thresholds of significance address the full range of impacts that could occur with the project, including impacting tree specimens protected by local ordinances. In this case, the property is on County of Los Angeles land. The exact trees to be removed through implementation of the project have not yet been determined. The County is prioritizing the protection of as many trees as possible, while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to several issues related to feasibility of retention. These include the excavation requirements for construction of the building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. While tree removal can be significant, depending on the context, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
MK-2	The commenter states that there are inconsistencies in regarding the exact number of trees to be removed by the project and provides several highlighted pages of the Draft EIR and the Historic Resources Technical Report that provide counts of the existing trees, anticipated numbers of trees to be removed, and the proposed tree planting strategy outlines by the proposed project. On the pages provided by the commenter, all the pages, except one, provide the correct information. All pages provided of the September 2023 Draft EIR correctly indicate that there are over 300 trees on-site. More specifically, as documented on page 3-8 of the EIR (Chapter 3, Project Description), more than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the planting (introduction or relocation) of a similar number of trees as would be removed. It is estimated that <u>up to</u> 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. The citations have been verified in the main body of the EIR. The last page of highlighted text provided by the commenter is from page 16 of the Historic Resources Technical Report, which is provided as an appendix to the EIR (Appendix D). This report was published in January 2023, which is eight months prior to the main body of the EIR. Between January and September 2023, the County and the design team provided updated information regarding trees. Because the count of trees does not affect the findings of the historic analysis, the County elected to not update the count of trees contained in the January 2023 Historic Resources Technical Report. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree removal. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information regarding the effects of the proposed project on native and mature trees and the proposed tree planting plan. No changes to the EIR were determined to be necessary in response to this comment.
MK-3	The commenter states that a tree preservation plan should be prepared. Refer to response to comment MK-1 above. The County is prioritizing the protection of as many trees as possible while also meeting the budgetary and design needs for the project. No changes to the EIR were determined to be necessary in response to this comment.
MK-4	The commenter has attached the letter from the Neighborhood Council Sustainability Alliance. Please refer to responses to comments NCSA-1 through NCSA-28. No changes to the EIR were determined to be necessary in response to this comment.

2.4.26 Ann Rubin

From: **Ann Rubin**
Date: Thu, Oct 26, 2023 at 5:27 PM
Subject: RE: DEIR for LA Tar Pits Master Plan Project - SCH #2022020344
To: Leslie Negritto

Leslie Negritto, Chief Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007

RE: DEIR for LA Tar Pits Master Plan Project - SCH #2022020344

Dear COO Negritto and Natural History Museum team,

In March 2022, I submitted a letter expressing my three concerns in response to public scoping meetings for the La Brea Tar Pits remodeling project. Prior to that, as well as in the period since, I have joined other residents and concerned citizens in making similar comments to Dr. Richard Hayden and other museum representatives. I am disheartened that our public input doesn't seem to have had much impact, based on information in the DEIR. **AR-1**

I live a few blocks west of the Tar Pits in Carthay Circle HPOZ. I grew up to the east of Highland and frequently visited the Tar Pits and LACMA as a youth. For fun — and to underscore that I care and have great regard for the area — I attach a family photo from probably 1965. I am the kid in the middle.

This location has always been an invaluable green area for residents and that's more important than ever with increasing density on Wilshire Blvd. — with proposed Dubai-high 50-story buildings — and LACMA's sprawled redevelopment, including a concrete structure over Wilshire Blvd. Roof top amenity decks with trees and apartment balconies with potted plants are not adequate substitutes for nature at the ground level and in the ground. The area is already quite dense with historic and newer multi-tenant buildings. The park is critical to quality of life and healthy living here. We need a cool, green park with mature tree coverage as respite to air-conditioned living and our heat island. **AR-2**

My primary concerns are now five:

1) We must save more or all of the mature, large shade trees proposed for removal, including native species and rare and historically significant examples. This is in keeping with the educational work of the institution. Park and building plans should incorporate more or all of the existing trees for the sake of the environment, our health, our non-commercial communal life, and our sense of place. Planting new trees means decades will pass before they can provide the same benefits in terms of shade, cooling, cleaning our air, buffering sound, and habitat for wildlife. **AR-3**

2) The design needs more trees for shade over pedestrian pathways, including around the perimeter for comfortably walking to and from the new subway stop. Trees should be native to maximize ecological benefits and minimize water demands and to set an example for teaching purposes. **AR-4**

1

3) The plan needs to eliminate the proposed light blight at night. Please don't add more artificial light that would mar our beautiful night sky with the stars and moon. With the growth of high-rises and commercial buildings on Wilshire Blvd. and LED technology, this struggle to reduce superfluous and polluting artificial light is a serious challenge. The neighborhoods here need the advocacy of the NHM on this issue — in terms of their own building, as well as insisting that the adjacent luxury apartment on Curson remove the decorative ring of light on its top floor. **AR-5**

4) The redevelopment of the park and structures must prioritize the safety of birds. Again, this is in keeping with institution's purpose and relates to maintaining the existing tree canopy and preference for CA natives in new plantings. **AR-6**

5) The plan is concerning in how drainage water will be sent to the ocean, instead of being filtrated back into the ground and used for park irrigation in a sustainable process. **AR-7**

Thank you for your consideration,

Ann Rubin

2

2.4.26.1 Response to Letter from Ann Rubin

Comment No.	Response
AR-1	The commenter states they have previously voiced their concerns regarding the project. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. This is not a comment on the analysis contained in the EIR; therefore, a response is not required and no changes to the EIR were determined to be necessary in response to this comment.
AR-2	The commenter states expressed their personal stake in the project and discusses the importance of the park. As discussed in EIR Section 5.12, Recreation, implementation of the project would not impede public access to Hancock Park and impacts to recreation would be less than significant. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification to the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points. Further, it should be noted that the vast amount of parkland provided by the 13-acre Hancock Park would continue to serve as a park facility with implementation of the project. The proposed Master Plan seeks to retain and enhance most of the valuable open space and passive park orientation of the site. Additionally, the County will be recommending approval of Refined Alternative 3 of the Master Plan. This variation adjusts the footprint of the project to reduce the new museum building's contact with the Page Museum and will expand the size of the Central Green. See **MR-1, Preferred Alternative,** for further information regarding the County's preferred alternative. No changes to the EIR were determined to be necessary in response to this comment.
AR-3	The commenter expresses concern regarding the proposed removal of existing trees on the project site and states that more or all the large shade trees should be saved. The County is prioritizing the protection of as many trees as possible while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to several issues related to feasibility of retention. These include the excavation requirements for construction of the new museum building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
AR-4	The commenter states that additional new trees should be incorporated into the project's design, with a focus on native species. As discussed above in response to comment AR-3, the proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis regarding impacts to trees that is contained in the EIR is an accurate assessment of the potential for significant environmental impacts. Furthermore, it should be noted that native species are prioritized in the plant palette and have been incorporated into the project design where appropriate. The plant palette was developed based on the native vegetation of the Los Angeles Basin and was informed by research gathered from the La Brea Tar Pits fossil record. Refer to **MR-2, Impacts to Native and Mature Trees,** and **MR-3, Use of Native Plants and Vegetation,** for further information. No changes to the EIR were determined to be necessary in response to this comment.

Comment No.	Response
AR-5	The commenter requests that the amount of artificial lighting in the park should be minimized at night. The lighting of the park would not change demonstrably from existing conditions with implementation of the proposed project. Only warm-white toned LEDs would be incorporated into lighting regimes during the nighttime (between dawn and dusk). The park is currently lit for security and safety concerns. The park also closes at 10 pm. Lighting would continue to be provided for security and safety concerns. Light shields that limit the light flux only to required areas and thereby avoiding as much light trespass into potential transitory pathways. In addition to the consideration of lighting on the park grounds, through on-going management and operation of the property, the County will ensure that lighting from within is reduced to the extent feasible while retaining enough lighting for security and safety needs. This commitment is made for both existing and new facilities. The new museum building is not anticipated to be lit from within to any greater degree than the existing Page Museum. Lighting from within would be limited to dim security lighting, like the existing conditions at the Page Museum. As discussed in EIR Section 5.1, Aesthetics, implementation of Mitigation Measures AES/mm-4.1 and AES/mm-4.2 would reduce light-related impacts to less than significant. These measures would ensure that the project would not substantially worsen the existing lighting conditions of the site. No changes to the EIR were determined to be necessary in response to this comment.
AR-6	The commenter request that the park and existing buildings be redeveloped to prioritize the safety for birds. Refer to responses to comments LAA-4 through LAA-17. The following language has been added to Chapter 3, Project Description (added text shown in underline): "To significantly reduce birds from striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing." The County will continue to refine the project designs to decrease the extent of glazing and the need for bird deterrence. As more detailed construction documents are developed, appropriate bird deterrence methods will be studied and incorporated further to prevent bird strikes resulting in mortality or injury. After receiving comments on the Draft EIR, the County considered the comments made by the commenting entities, including Audubon, and refined the design of the improvements proposed at the La Brea Tar Pits site. As a result, the County has proposed a variation of the Master Plan alternative. Refinements to the project will continue to be considered by the County as the design evolves. Refer to **MR-1, Preferred Alternative,** for more information regarding the additional information provided by the updated designs and Refined Alternative 3.
AR-7	The commenter expresses a concern that water runoff from the project would be diverted to City's storm water system rather than being retained on site for irrigation purposes. The County requires that all captured stormwater must be re-used within 96 hours to reduce the potential for vector control issues. Since the project will be landscaped with low-water use plants, it is anticipated that the demand required for reused water would not be met. EIR Section 5.9, Hydrology and Water Quality, and EIR Section 5.15, Utilities, include analyses with the assumption that water on the project site would not be recycled. The EIR concluded that the project would have less than significant impacts to hydrology and water quality as well as utility and service systems, with the implementation of identified mitigation measures. Refer to responses to comments TCRP-2,TCRP-3, and TCRP-4 for additional information regarding the project's bioswales and water use. No changes to the EIR were determined to be necessary in response to this comment.

2.4.27 Lois DeArmond

From: **Lois DeArmond**
Date: Fri, Oct 27, 2023 at 8:41 AM
Subject: Tar Pits renovation
To: <Lnegritto@nhm.org>
Cc: <info@nhm.org>

Dear Ms Negritto;
I am writing in concern for the proposed removal of up to180 mature trees currently in the Hancock Park La Brea Tar Pits proposed re-configuration area. **LDA-1**
I attended 2 public meetings at which three design firms presented their proposals. The firm chosen was, supposedly, the one proposing the least tree removal. I am now shocked and dismayed to learn that, as in every other development in Los Angeles, the trees have to go. **LDA-2**
It should matter what we, the people who live here, want and need.
Thank you for your attention to this matter.
Sincerely yours,
Lois DeArmond,
Lifetime resident of Los Angeles

2.4.27.1 Response to Letter from Lois DeArmond

Comment No.	Response
LDA-1	The commenter expresses concern regarding the proposed removal of existing trees on the project site. The County would like to thank the commenter for participating in the public review process of the Draft EIR. A copy of this comment letter will be included in the Final EIR, which will be provided to the Board of Supervisors for review when the project is considered for approval. The County is prioritizing the protection of as many trees as possible while also meeting the budgetary and design needs for the project. However, many trees would not be able to be retained due to several issues related to feasibility of retention. These include the excavation requirements for construction of the new museum building and the relative proximity of the trees to the new building location, planned park accessibility improvements, and fire access requirements. The proposed removal of trees at the La Brea Tar Pits site is not considered a significant impact on the environment. The environmental analysis contained in EIR Section 5.3, Biological Resources, is an accurate assessment of the potential for significant environmental impacts regarding tree and vegetation removal. Furthermore, any visual impacts related to tree removal is appropriately discussed within EIR Section 5.1, Aesthetics. It should also be noted that the project would result in an increase in the number of native trees at the project site. These native trees are more resilient and likely to survive and thrive over the long term as they are uniquely adapted to the local southern California climate. Refer to **MR-2, Impacts to Native and Mature Trees,** for further information. No changes to the EIR were determined to be necessary in response to this comment.
LDA-2	The commenter states that they attended a public meeting where it was discussed that the design firm selected for the project had proposed the least amount of tree removal of the potential firms. This is not a comment on the analysis contained in the EIR; therefore, a response is not necessary, and no changes to the EIR were determined to be necessary in response to this comment.

CHAPTER 3. REVISIONS, CLARIFICATIONS, AND CORRECTIONS TO THE DRAFT EIR

3.1 PREFACE

This chapter presents revisions, clarifications, and corrections that have been made since publication of the Draft EIR. No significant changes have been made that would result in a new or substantially increased environmental impact, and no significant new information has been added that would require recirculation of the document under State CEQA Guidelines Section 15088.5. According to State CEQA Guidelines 15088.5:

> Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.

The changes highlighted in this section merely clarify, amplify, or make minor modifications to the information provided in the Draft EIR. According to State CEQA Guidelines 15088.5, the four conditions which require an EIR to be recirculated are as follows:

> (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
>
> (2) A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
>
> (3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant environmental impacts of the project, but the project's proponents decline to adopt it.
>
> (4) The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

The information and revisions included in the Final EIR do not constitute “significant” new information because no additional substantial environmental effect of the project has been identified, nor has the severity of an environmental impact been increased. There has been no disclosure of any feasible alternatives or mitigation measures that would clearly lessen the impacts of the project that the County has declined to adopt. Lastly, there has been no evidence provided which demonstrates that the Draft EIR was inadequate or conclusory in nature. Therefore, none of the conditions for recirculation of the EIR, as specified above in State CEQA Guidelines 15088.5, have been met.

The information provided in this chapter is intended only to provide a summary of the modifications to the Draft EIR, and are demonstrated below under the respective chapter, section, and page number. The actual location of each revision within Volume II of the Final EIR should be referred for a complete representation of the revisions to the Draft EIR. Paragraph reference is to the first full paragraph on the page and references to table rows do not include headers. Deletions are shown with ~~strikethrough~~ and additions are shown with <u>underline</u>.

3.2 SUMMARY OF REVISIONS CONTAINED WITHIN FINAL EIR VOLUME II

3.2.1 Chapter 1. Introduction

1. Page 1-1. The first paragraph has been revised as follows:

   This chapter provides an overview of the purpose and intended uses of Volume II of this Final Environmental Impact Report (EIR) for the La Brea Tar Pits Master Plan (project). It explains the organization of this volume of the Final EIR and includes a description of the environmental and public review process for the project. The Final EIR includes two volumes: Volume I, which contains responses to comments received on the Draft EIR as well as information regarding the Final EIR process, and Volume II (this volume), which contains the full text and analysis of the EIR, including the incorporation of changes to the Draft EIR since its publication on September 11, 2023.

2. Page 1-3: Header 1.3 has been revised as "Final EIR Volume II Contents."

3. Page 1-3: The third paragraph has been revised as follows:

   This volume of the Final EIR is organized into the following chapters, sections, and appendices:

4. Page 1-4: The first reference to the California Department of Fish and Wildlife was removed as it was erroneously duplicated.

5. Page 1-4: The second paragraph has been revised as follows:

   The CDFW is a potential responsible agency and trustee agency, as defined by Sections 15381 and 15386, respectively, of the State CEQA Guidelines. While CDFW does not have regulatory authority over approval of the broader La Brea Tar Pits Master Plan, CDFW could have regulatory authority over project activities within the riparian habitat and/or aquatic resources in and along Oil Creek and at the Lake Pit. Similarly, USACE could also have discretionary authority over activities in these features. These considerations are further discussed under thresholds "b)" and "c)" ~~b and c~~ in Section 5.3.5 of this volume of the EIR.

6. Page 1-6: Leslie Negritto's title has been updated as "Chief Financial and Operating Officer."

7. Page 1-5: The discussion regarding review of the Draft EIR has been revised as follows:

   The Notice of Availability of ~~this~~ the Draft EIR was distributed to responsible and trustee agencies, other affected agencies, interested parties, and all parties requesting a copy of the Draft EIR in accordance with PRC Section 21092(b)(3). The Notice of Completion and Notice of Availability of the Draft EIR are distributed and posted as required by CEQA.

   ~~The public review period is 45 days. During this 45-day period, the EIR and its appendices will be available for review on the Natural History Museum's website: https://tarpits.org/reimagine. Printed copies of the documents with attached electronic appendices are also available for review during the 45-day public review period at the following locations and hours, as listed in Table 1-1.~~

   The public review period was from September 11, 2023 through October 26, 2023. During the review period, the Draft EIR and its appendices were available for review on the Natural History Museum's website: https://tarpits.org/reimagine.

   A newspaper advertisement of the NOA and Draft EIR comment period and information regarding the public meeting was also placed in the Los Angeles Times. Printed copies of the documents with attached

electronic appendices were also available for review during the public review period at the following locations and hours, as listed in Table 1-1.

8. Page 1-6: The first paragraph has been revised as follows:

On behalf of the County of Los Angeles as the Lead Agency, comments on the ~~Draft~~ EIR should be addressed to:

Leslie Negritto, Chief Financial and Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007
Email: lnegritto@nhm.org

Written responses to all significant environmental issues raised during the Draft EIR review period were ~~will be~~ prepared and included as part of the Final EIR and the administrative record for consideration by decision makers for the project. The County may approve the project if the EIR has been certified per State CEQA Guidelines 15090.

3.2.2 Chapter 2. Summary

1. Page 2-2: The second paragraph has been revised as follows:

The 13-acre La Brea Tar Pits site is located within the eastern and northwestern portions of the 23-acre Hancock Park (Assessor's Parcel Number [APN] 5508-016-902) at 5801 Wilshire Boulevard. The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to the Los Angeles County Museum of Art (LACMA). Both LACMA and the Museum of Natural History ~~Museum~~ are responsible for managing separate and distinct portions of the 23 acres in Hancock Park, with the Museum of Natural History ~~Museum~~ responsible for the 13-acre project site and LACMA responsible for the remainder of Hancock Park to the south and west of the project boundaries. LACMA's facilities are not included in the project.

2. Page 2-3: The eight row of Table 2-1 has been revised as follows:

Landscaping Concept Plan	Establish three distinct landscaping zones encircled by a looping pedestrian path. More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. Create three biofiltration areas for stormwater management.

3. Page 2-6: A new citation has been added to Objective 1:

   1. Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019; County of Los Angeles 2024).

4. Page 2-16: Mitigation Measure BIO/mm-5.3 has been added to Table 2-2. Further information regarding this new mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.3, Biological Resources.

BIO/mm-5.3: To prevent birds from striking or colliding with the new museum building, new construction shall include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.

5. Page 2-16: Mitigation Measure BIO/mm-6.1 has been revised within Table 2-2. Further information regarding the changes to this mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.3, Biological Resources.

BIO/mm-6.1: For oak trees within the project site that are to be retained in their current location, prior to construction, chain-link fencing shall be installed around the protected zone of the trees (5 feet beyond the dripline, the outermost extent of the tree's branches, or 15 feet from the trunk, whichever is greater). The fencing shall remain in place throughout the entire period of construction. Any excavation or grading allowed within the protected zone shall be limited to hand tools or small hand-powered equipment. This measure shall only apply to existing trees where the limits of construction work are within 20 feet of the protected zone.

In addition, one of the following measures (BIO/mm-6.1a or BIO/mm-6.1b) shall be implemented:

a. If possible, removal, relocation, trimming, or replacement of the oak trees at the Tar Pits site shall be avoided.

b. If modification (removal, relocation, trimming, or replacement) of protected oaks is required, coordination with the County of Los Angeles Department of Regional Planning shall occur prior to commencement of any work on-site. Any encroachment or removal requests must be reviewed by the County of Los Angeles Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Although an oak tree permit is not required, measures to mitigate for impacts to oak trees shall include the following:

- Removed oak trees shall be mitigated by planting coast live oaks at a 2:1 ratio on the project site. Each replacement tree shall be at least a 15-gallon specimen.
- The replacement oaks shall be monitored for a period of 5 years, with any failures resulting in a new oak being planted and initiation of a new 5-year monitoring period for the replanted tree.

6. Page 2-21: Mitigation Measure CR-ARCH/mm-1.2 has been revised within Table 2-2. Further information regarding the changes to this mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.4, Cultural Resources – Archeological Resources.

CR-ARCH/mm-1.2: Prepare an Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan).

a. Prior to commencing ground-disturbing activities, an AR-TCR Management Plan shall be prepared by the Qualified Archaeologist and submitted to the Page Museum curators and the NHMLAC Curator of Anthropology, who shall review and approve the AR-TCR Management Plan on behalf of the County. The AR-TCR Management Plan shall be prepared in conformance with Public Resources Code Section 5024.1, Title 14 California Code of Regulations, Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1.

b. The AR-TCR Management Plan shall include but not be limited to the following elements:

i. Historical context statement, research design, the specific types of archaeological sites likely to be encountered.

ii. Construction worker training program (described in CR-ARCH/mm-1.3).

iii. Monitoring protocol for ground-disturbing activities that includes a framework for assessing the geoarchaeological setting to determine whether sediments capable of preserving archaeological remains are present in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment and include a protocol for identifying the conditions under which additional or reduced levels of monitoring (e.g., spot-checking) may be appropriate. The duration and timing of the monitoring shall be determined based on the rate of excavation, geoarchaeological assessment, and, if present, the quantity, type, and spatial distribution of archaeological resources identified.

iv. Limited program of archaeological presence/absence testing within naturally deposited asphaltic or non-asphaltic alluvial sediments before they are mechanically excavated. In particular, the area of the new museum, promenade, and parking lot expansion shall be further investigated. These investigations shall be conducted via a combination of archaeological units, hand tools, and mechanical trenching. The methods used to conduct the limited archaeological testing shall be coordinated with contractors to ensure that sufficient time is afforded to evaluate the significance of any identified resources, and if they are found to be significant, time to develop and implement a

treatment plan appropriate to the type of resource. The timing of any such efforts shall be conducted in localized areas so that delays to project earthwork activities are minimized while allowing archaeological materials to be identified in a manner that retains the scientific integrity of the discovery.

v. An approach to evaluate newly identified site components, if applicable, as contributors to the significance of LAN-159/H as a "historical resource" pursuant to CEQA Guidelines Section 15064.5(a) or a "unique archaeological resource" pursuant to PRC 21083.2(g). If any archaeological resources are identified and are found not to be significant or do not retain integrity, then they shall be recorded to a level sufficient to document the contents and condition.

vi. Potential treatment plans to be implemented in the event a newly discovered archaeological resource is determined by the Qualified Archaeologist to contribute to the significance of the site as a historical resource based on California Register of Historical Resources criteria or a unique archaeological resource in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. The AR-TCR Management Plan shall require that if the treatment plans outlined therein are found to be infeasible or other alternatives are proposed, the Qualified Archaeologist shall coordinate with the project proponent and the County to amend the AR-TCR Management Plan with a formal treatment plan that would reduce impacts to the resource(s). The treatment plans stated in the AR-TCR Management Plan or prepared after the discovery of a historical resource, shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment and if it is determined avoidance is not feasible, treatment may include but not be limited to any of the following depending on the type of resource and the significance evaluation:

- Native American archaeological site components. Data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant where significance is determined under CRHR Criterion 4 or as a unique archaeological resources and integrity is retained. Additional treatment measures to mitigate potentially significant impacts to the component as a tribal cultural resource, which is to be carried out in consultation with the Tribal Consultants and after considering the status of the discovery as a tribal cultural resource.
- Historical archaeological site components. If a historical archaeological component of the site is present and found to retain integrity, data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant.

vii. Discovery and processing protocol for inadvertent discoveries of archaeological resources that are encountered when an Archaeological Monitor is not present.

viii. A process by which recovered materials will be prepared for curation at the Page Museum or the Research and Collections Department at the Natural History Museum of Los Angeles County ~~at the Los Angeles Exposition Park~~, as directed by Page Museum curators and collections managers, and in consultation with Tribal Consultants. The curation shall ensure their long-term preservation and allow access to interested scholars and shall be done at the expense of the County and/or the Foundation. If the materials are Native American in origin or any item of cultural patrimony, the manner of their handling and long-term curation may require additional consultation with the appropriate Native American community that shall be determined as part of a tribal consultation process to be conducted by the County who shall be responsible for the disposition of these materials.

ix. The AR-TCR Management Plan shall summarize the requirements for tribal coordination ~~during~~ in the event of an inadvertent discovery of Native American archaeological resources, including the applicable regulatory compliance measures or conditions of approval for the inadvertent discovery of archaeological resources to be carried out in concert.

7. Page 2-26 through 2-28: Mitigation Measures CR-HIST/mm-1.3 and CR-HIST/mm-1.4 have been revised within Table 2-2. Further information regarding the changes to these mitigation measures is provided in the summary of revisions to Final EIR Volume II, Section 5.5, Cultural Resources – Historical Resources.

CR-HIST/mm-1.3: ~~A Historic American Buildings Survey (HABS) like Documentation Package~~ A historic documentation package shall be prepared to document the contributing features of the La Brea Tar Pits Historic District and Page Museum prior to the authorization of demolition or construction activities. The documentation package shall emulate and include elements of the Historic American Building Survey (HABS) and/or the Historic American Landscape Survey (HALS). The HABS/HALS-like Documentation Package shall adhere to best professional practices promulgated by the National Park Service and shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. Documentation shall be in accordance with the applicable standards described in the Secretary of the Interior's Standards for Architectural and Engineering Documentation.

Prior to the commencement of construction activities, a historian or architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History shall be retained to prepare HABS/HALS -like documentation for the La Brea Tar Pits Historic District and Page Museum.

Required contents for the HABS/HALS-like package include the following:

- Photographs: Photographic documentation will focus on the Page Museum and, within the historic district, those contributing elements (built, landscape, hardscape, paleontological, and natural features) slated for demolition, alterations, or adjacent new construction. Photographs shall include detail shots of contributing features and components slated for demolition, with overview and context photographs for the adjacent setting. Photographs shall be taken using a professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Digital photographs will be provided in electronic format.
- Descriptive and Historic Narrative: The historian or architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each contributing component, with accompanying photographs, and information on how the resource fits within the broader historic district during its period of significance. The historic narrative shall draw upon previously prepared studies, including the Historical Resources Technical Report prepared for the La Brea Tar Pits Master Plan, as well as the La Brea Tar Pits Inventory and Treatment Plan prepared under Mitigation Measure CR-HIST/mm-1.2. The narrative shall also include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate.

Upon finalization of the HABS/HALS-like Documentation Package, a hard copy and digital copy shall be prepared and offered to the Seaver Center for Western History Research at the Natural History Museum of Los Angeles County ~~Seaver Center for Western History Research~~, University of Southern California Special Collections, and the Los Angeles Public Library.

CR-HIST/mm-1.4: A Retrospective Exhibit and Interpretive Program shall be prepared and implemented. The Retrospective Exhibit and Interpretive Project shall be prepared by a qualified historic preservation professional who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History. The exhibit materials shall be drawn from previous studies including but not limited to the Inventory and Treatment Plan described in Mitigation Measure CR-HIST/mm-1.2 and the HABS/HALS-like documentation package described in Mitigation Measure CR-HIST/mm-1.3, as well as other supplemental research materials as needed.

The retrospective exhibit and interpretive program shall focus on the history of the site, the people involved in the early ownership, development, and scientific discoveries and excavations, and the events leading to its donation to the County of Los Angeles, as well as on the site's development through the end of the period of significance for the La Brea Tar Pits Historic District, 1977.

The retrospective exhibit and interpretive program may include but not be limited to exhibit materials and interpretive panels, both exterior (e.g., as a series of panels in the park), interior (e.g., as a permanent exhibit in the Page Museum or new museum building), and online (on the museum website). The exhibit and interpretive program shall be designed for maximum public accessibility.

The plan for the interpretive and commemorative program shall be detailed in an Interpretive Program Plan Memorandum to be prepared with the guidance of a qualified historic preservation professional. The retrospective exhibit and interpretive program shall be completed within three (3) years of commencement of initial construction activities. The Draft Interpretive Program Plan Memorandum shall be reviewed by interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for comment.

8. Page 2-34: Mitigation Measure GEO/mm-6.2 has been revised within Table 2-2. Further information regarding the changes to this mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.6, Geology & Soils.

GEO/mm-6.2: Prepare a Paleontological Resources Management Plan: After finalization of the engineering, design, and grading plans for the project and prior to the start of preconstruction ground-disturbing activities, a Paleontological Resources Management Plan (PRMP) shall be prepared by the Project Paleontologist and submitted to the Page Museum curators, who shall review and approve the final PRMP on behalf of the County ~~and Natural History Museum~~. The PRMP shall define the processes and procedures for paleontological monitoring and fossil excavation based on the nature of ground-disturbing activities required for project. The PRMP shall: […]

9. Page 2-36: Mitigation Measure GEO/mm-6.4 has been revised within Table 2-2. Further information regarding the changes to this mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.6, Geology & Soils.

GEO/mm-6.4: Monitor for Paleontological Resources: Full-time monitoring shall be required during all ground-disturbing activities (including artificial fill or previously disturbed sediments), regardless of depth. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations, including but not limited to the paleontological screening of tar sands prior to disposal or

treatment. Procedures and protocols for paleontological monitoring and fossil salvage shall be outlined in the PRMP. Monitoring shall:

a. Be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist, who shall coordinate with the Page Museum curators and collections managers and County officials. The Project Paleontologist may periodically inspect construction activities to recommend adjusting the level of monitoring in response to subsurface conditions; however, modifications, such as increasing, reducing, or ceasing of paleontological monitoring, or any changes of the implementation of the PRMP, should be approved by Page Museum curators and the County ~~Natural History Museum~~.

b. […]

10. Page 2-37: Mitigation Measure GEO/mm-6.5 has been revised within Table 2-2. Further information regarding the changes to this mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.6, Geology & Soils.

GEO/mm-6.5: Prepare a Paleontological Resources Monitoring Report: Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing the implementation of the PRMP, including paleontological monitoring and fossil salvaging, shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Page Museum and the Research and Collections Department at the Natural History Museum of Los Angeles County within 90 days after construction is completed. If the project is developed in phases, the final report is only necessary at the completion of the last phase to be constructed. At the discretion of the County, if there are unanticipated gaps in the phases of construction or other reasons why the County would prefer phased final reports, multiple final reports could be prepared.

11. Page 2-46: Mitigation Measure NOI/mm-1.1 has been revised within Table 2-2. Further information regarding the changes to this mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.11, Noise and Vibration.

NOI/mm-1.1: The following measures shall be implemented to reduce construction-related noise impacts:

a. Operation of equipment used in construction, alteration, drilling, or demolition work shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and any time on Sundays or legal holidays.

b. A temporary barrier shall be erected around active construction areas. The placement and height of the barrier shall be adjusted based on the specific location of construction activities within the site, ensuring that the barriers are positioned as close as feasible to the work area and are sufficiently tall to maximize effectiveness in minimizing direct noise transmission to surrounding areas, such that a sound reduction of 10 dBA is achieved at the property lines on the east side of Curson Avenue and north side of 6th Street. Prior to the commencement of each construction phase, a phase-specific acoustic analysis shall be conducted to determine the optimal placement and configuration of noise barriers. In consultation with an acoustical engineer, the barrier configuration may be modified to address the specific conditions of phased construction, provided that the adjustments achieve an equivalent noise reduction outcome. ~~and impermeable 12-foot-high temporary barrier designed to provide a 10 dBA noise reduction, shall be erected along the eastern and northern sides of the project site boundary. This barrier shall be constructed in one of the following ways:~~

   - ~~from acoustical blankets hung over or from a supporting frame, or~~
   - ~~from commercially available acoustical panels lined with sound-absorbing material, or~~
   - ~~from common construction materials such as plywood, provided that the barrier is designed with overlapping material at the seams to ensure that no gaps exist between the panels.~~

c. […]

12. Page 2-51: Mitigation Measure TRA/mm-4.1 has been revised within Table 2-2. Further information regarding the changes to this mitigation measure is provided in the summary of revisions to Final EIR Volume II, Section 5.13, Transportation.

TRA/mm-4.1: A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, ~~and~~ the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions:

- Prohibition of construction worker parking on nearby residential streets.
- Prohibition of construction-related vehicles parking or staging on surrounding public streets.
- Prohibition of construction-related parking or staging on streets with bus service.
- Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways.
- Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate.
- Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible.
- Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible.
- Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible.

13. Page 2-61: Table 2-3 has been updated to indicate that the Hydrology and Water Quality impacts of the "No Project/No Build" alternative would in fact be similar to the impacts of the proposed project, rather than decreased as originally described.

14. Page 2-61 through 2-63: "Alternative 3" is now referred to as "Refined Alternative 3." Refer to Final EIR Volume II, Chapter 6, Alternatives for further information regarding this revision. This revision is also summarized in Final EIR Volume I, Section 1.3, Revised Alternative 3.

15. Page 2-62: The first paragraph has been revised as follows:

> As detailed in Chapter 6 and based strictly on an analysis of the relative environmental impacts, Alternative 1, Renovate the Page Museum Only, would be the Environmentally Superior Alternative because it would be the built alternative that minimizes the project's adverse impacts on the environment. The Foundation and the Museum of Natural History, as a departmental unit of the County, will consider the whole of the record when considering the project including, but not limited to, public comment and testimony ~~related to the size and design of the residence~~. The Foundation and the Museum of Natural History may select the project as proposed, an alternative, or a specified combination of particular elements identified in the alternatives, as the approved project.

16. Page 2-63: The second paragraph has been revised as follows:

> Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar environmental impacts as the project for each issue area analyzed in this EIR, as shown in Table 2-3, except for historical resources and land use and planning. While Refined Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District thereby reducing the overall severity of the impacts to historical resources, it would not avoid the project's significant and unavoidable impacts. One of the primary character-defining features of the Page Museum is its visual primacy on the grounds of the Tar Pits; the design refinements presented in the refined version of Alternative 3 would result in less of an impact to the Page Museum's visual primacy. Refined Alternative 3 would reduce impacts to the Page Museum to the extent that the building would continue to convey its historic significance and retain its eligibility as a historical resource. However, the site plan changes would continue to result in a significant and unavoidable impact to the La Brea Tar Pits Historic District. The overall severity of the significant and unavoidable impacts to the historic district would be reduced because of the separation of the new museum building from the Page Museum, the narrowing of the transition area connection between the two buildings, and the design refinements that retain more of the Page Museum's character-defining features such as the existing structural space frame, frieze, and courtyard. Similarly, the design refinements in this alternative would help to further support the land uses plans and policies applicable to the project as they relate to the protection and alternation of historical resources, but not in such a way to avoid the project's related significant and unavoidable impacts. This alternative would also result in the project's significant and unavoidable impacts related to increased regional VMT. However, Refined Alternative 3 is the alternative

that meets all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project.

3.2.3 Chapter 3. Project Description

1. Page 3-4: Paragraph seven, which continues onto page 3-5, has been revised as follows:

   The County acquired Hancock Park in 1924, through a donation by George Hancock (Natural History Museums of Los Angeles County 2022). Recognizing the site as scientifically valuable, Hancock donated the site under the condition that the County would develop the park as a scientific monument known as La Brea Tar Pits. After Hancock Park was established in 1924, little in the way of formal excavation was accomplished for the next 45 years (Natural History Museums of Los Angeles County 2022). In 1969, the Rancho La Brea Project began by resuming excavation of a major deposit of fossils in Pit 91 that had been discovered in 1915. In 1960, a portion of the land within Hancock Park was dedicated to the creation, development and maintenance of the LACMA campus.[2] Over several decades, the LACMA portion of the site has been altered and undergone expansion. In 1975, philanthropist George C. Page donated funds to construct an on-site museum within the La Brea Tar Pits portion of Hancock Park. The Page Museum opened to the public in 1977.

2. Page 3-5: A new footnote has been added corresponding to the revision above:

   [2] Originally part of the Los Angeles Museum of History, Science, and Art, which opened in 1910 in Exposition Park, LACMA was established in 1961 as a separate, art-focused institution.

3. Page 3-7: A new citation has been added to Objective 1:

   2. Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019; County of Los Angeles 2024).

4. Page 3-8: The eighth row of Table 3-1 has been revised, as displayed above in Chapter 2, Revision 1.

Landscaping Concept Plan	Establish three distinct landscaping zones encircled by a looping pedestrian path. More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. Create three biofiltration areas for stormwater management.

5. Page 3-12: The following paragraph has been added after the third paragraph:

   To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.

6. Page 3-12: Paragraph six has been revised as follows:

   There would be pedestrian entrances leading into the central lobby from the Central Green and from the parking lot. The façade of the new museum building would be constructed using nonreflective materials, consistent with the exterior materials of nearby buildings, and would rely on protective coatings such as anti-graffiti coatings or scratch-resistant films to reduce the potential for vandalism. The new museum building would also include safety measures including surveillance cameras and security lighting.

7. Page 3-19: The second paragraph has been revised as follows:

> More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. The relocated trees would be from existing locations within the project site. New plantings would be consistent with the planting and landscape concept and plant palette included in the La Brea Tar Pits Master Plan. New plantings would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. Trees that would be removed include non-native trees and/or trees that are diseased or are not in good health. Species such as the western sycamore and California buckeye would be preserved, unless they are diseased or in locations where new built features are planned (e.g., the pathway, museum expansion, and shifted parking lot on the northern side of the project site). Trees could be relocated to other locations of the 13-acre site if the trees are healthy and if it is determined through the more detailed design process that relocation is feasible. ~~It is estimated that 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced.~~

8. Page 3-24: The first and second paragraph have been removed as they were an erroneous duplication of the seventh and eighth paragraphs on page 3-23:

> ~~The proposed project includes a new school drop-off area from South Curson Avenue, adjacent to the Wilshire Gateway picnic area. This inset loading area would be 215 to 230 feet long to accommodate school buses. School buses would also be able to access the parking lot from South Curson Avenue and drop-off in the loading area in the parking lot.~~
>
> ~~Emergency vehicle access into the project site would be provided from the two site entrances off South Curson Avenue and off West 6th Street.~~

3.2.4 Chapter 4. Environmental Setting

1. Page 4-2: The third paragraph has been revised as follows:

> The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits, which includes the George C. Page Museum (Page Museum). The entirety of the 23-acre Hancock Park is enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when La Brea Tar Pits, the Page Museum, and LACMA are closed in the evenings. In 1960, a portion of the land within Hancock Park was dedicated to the creation, development and maintenance of the LACMA campus.[1] Over several decades, the LACMA portion of the site has been altered and undergone expansion. In 1975, philanthropist George C. Page donated funds to construct an on-site museum within the La Brea Tar Pits portion of Hancock Park. The Page Museum opened to the public in 1977.

2. Page 4-2: A new footnote has been added corresponding to the revision above:

> [1] Originally part of the Los Angeles Museum of History, Science, and Art, which opened in 1910 in Exposition Park, LACMA was established in 1961 as a separate, art-focused institution.

3.2.5 Chapter 5. Environmental Impact Analysis

As detailed below, revisions have been made to the following Sections of Volume II of the Final EIR: Section 5.3 Biological Resources, Section 5.13 Transportation, and Section 5.16, Mandatory Findings of Significance.

No changes have been made to the following Sections of Volume II of the Final EIR: Section 5.1, Aesthetics, Section 5.2, Air Quality, Section 5.4, Cultural Resources – Archaeological Resources, Section

5.5, Cultural Resources – Historical Resources, Section 5.6, Geology and Soils, Section 5.7, Greenhouse Gas Emissions, Section 5.8, Hazards and Hazardous Materials, Section 5.9, Hydrology and Water Quality, Section 5.10, Land Use and Planning, Section 5.12, Recreation, Section 5.14, Tribal Cultural Resources, or Section 5.15, Utilities and Service Systems.

Section 5.3 Biological Resources

1. Page 5.3-5: The second and third paragraphs have been revised as follows:

> Birds were the only wildlife encountered (seen, heard, and/or flying over the site) during the field survey conducted on March 18, 2022, and all were species typical of urban areas: Anna's hummingbird (*Calypte anna*); American crow (*Corvus brachyrhynchos*); house finch (*Haemorhous mexicanus*); dark-eyed junco (*Junco hyemalis*); bushtit (*Psaltriparus minimus*); black phoebe (*Sayornis nigricans*); and yellow-rumped warbler (*Setophaga coronata*). No records of birds in or immediately adjacent to the park are recorded in the California Natural Diversity Database (CNDDB). Over the last 10 years, citizen scientists and professional scientists on staff at the Natural History Museum have reported over 90 native bird species (and several non-native species) flying over, foraging, or otherwise detected in and around Hancock Park.
>
> No amphibians, reptiles, mammals, or indication of site use by wildlife (burrows, tracks, scat, etc.) were found during the March 18 field survey. Common urban wildlife expected to occur includes eastern fox squirrel (*Sciurus niger*), desert cottontail rabbit (*Sylvilagus audobonii*), mice, rats, and lizards. It is assumed that the hydrocarbon content in Oil Creek is too high for wildlife use; no wildlife was seen in or near this drainage. Table 5.3-2 lists the bird species observed by SWCA at the project site (2022).

2. Page 5.3-6: The first paragraph has been revised as follows:

> A query of the ~~California Natural Diversity Database (~~CNDDB~~)~~ for a 1-mile radius of the project site yielded three recent records (within 20 years) of special-status species: Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*); coastal California gnatcatcher (*Polioptila californica ssp. californica*); and Nevin's barberry (*Berberis nevinii*) (CDFW 2022a). The online community science database iNaturalist (2022) reports observations of adult monarch butterflies. No birds listed as sensitive by the Los Angeles Audubon Society (2009) or other sensitive wildlife or plants were observed during the field survey conducted for the project. Table 5.3-3 and Table 5.3-4 summarize these results. The sections following the table provide an assessment of the potential for the six ~~three~~ species that were identified in the records search within the 1-mile radius of the site.

3. Page 5.3-7: A fourth and fifth row has been added to Table 5.3-4:

Yuma myotis *Eumops perotis*	G5 S4 ICUN:LC BLM:S	Common and widespread across California, generally below 8,000 feet. Preferred habitats include open forests and woodlands with sources of water providing foraging habitat. Known to roost in warm and dark sites in buildings, mines, caves, or natural crevices. Generalist invertebrate forager including moths, midges, flies, termites, ants, homopterans and caddisflies.	**Absent (roosting) – Low (foraging)** No roosting habitat is present on-site and site presents limited opportunities for foraging. The only known occurrence is documented from Natural History Museum of Los Angeles article published October 9, 2014 (Foundation 2014).

Hoary bat *Lasiurus cinereus*	G3G4 S4 ICUN:LC	Common and widespread across North America, generally below 13,200 feet. Preferred habitats for bearing young include forests and woodlands with medium to large-sized trees. Primarily feeds on moths, although various flying insects are taken.	**Absent (roosting) – Low (foraging)** No roosting habitat is present on-site and site presents limited opportunities for foraging. The only known occurrence is documented from Miguel Ordeñana, Natural History Museum of Los Angeles staff biologist, dated February 3, 2024 (Foundation 2024).

Note: Records within 1-mile radius of project site (all within U.S. Geological Survey 7.5-minute Hollywood quadrangle) and within previous 20 years (CNDDB [CDFW 2022a]; iNaturalist 2022).

Status Definitions: FC = Federal candidate; FT = Federally listed as Threatened; SSC = Species of Special Concern (CDFW); WL = Watch List (North American Bird Conservation Initiative); IUCN:LC = International Union for Conservation of Nature: Least Concern; BLM:S = Bureau of Land Management: Sensitive; S4 = State Ranking - Vulnerable (CDFW); G3 = Global Ranking – Vulnerable (CDFW); G4 = Global Ranking - Apparently Secure (CDFW); G5 = Global Ranking - Secure (CDFW) (CDFW 2022c)

4. Page 5.3-8: The first paragraph has been revised as follows:

Nevin's barberry (*Berberis nevinii*) is a plant that is both state- and federally listed as endangered. Wild plants occur on steep north-facing slopes and low-grade sandy washes in chaparral, cismontane woodland, and coastal and riparian scrub communities. ~~Because this plant is available at plant nurseries and widely planted, it can be difficult to distinguish natural from introduced plants. This species would have been observable and was not found on the project site during the site visit of March 18, 2022.~~ This plant is available at plant nurseries and widely planted. Planted specimens are included in the landscape, but no natural occurrences of Nevin's barberry were found at the project site during the site visit of March 18, 2022, and are not expected to occur.

5. Page 5.3-9: A new subsection has been added:

BAT SPECIES

Initial background database reviews did not indicate known bat presence at, or within the vicinity of the project site and no CNDDB records less than 30 years old were found within 5-miles of the site. Additionally, during the initial reconnaissance survey on March 18, 2022, no species of bats nor obvious signs indicating potential bat roosts, were detected within the project area. The project site includes open water features which may present suitable foraging habitat and nearby trees which may provide suitable roosting habitat for some bat species.

Between 2014 and 2024, Natural History Museum staff biologists have documented the presence of five bat species in the park, but their abundance and persistence are unknown. The following five species of bats have been identified: big brown bat (*Eptesicus fuscus*), canyon bat (*Parastrellus hesperus*), Mexican free-tailed bat (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), and hoary bat (*Lasiurus cinereus*) (Foundation 2014; Foundation 2024). Based on the habitat requirements and habits of these species, it is likely that these bats are transient foragers of the project area.

None of these species are listed under the CESA or the ESA and of the five species discussed, only the Yuma myotis and the hoary bat occur on the CDFW Special Animals List. Yuma myotis has a NatureServe Global rank of G5 (Secure; at very low risk of extinction due extensive range, abundant populations or occurrences, and little to no concern from declines or threats) and State Rank of S4 (Apparently secure; uncommon but not rare; no immediate conservation concern). The hoary bat has a NatureServe Global rank of between G3 (Vulnerable; At moderate risk of extinction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors) and G4 (Apparently secure; at fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors) and State Rank of S4 (Apparently secure; uncommon but not rare; no immediate conservation concern).

6. Page 5.3-13: The second header under section 5.3.2.2 has been revised as "California Fish and ~~F~~ Game Code"

7. Page 5.3-17: The third paragraph has been revised as follows:

> One candidate species for listing under the ESA ~~federal Endangered Species Act~~ monarch butterfly—has been recorded on the project site in iNaturalist between 2014 and 2023 ~~2019~~, including results as part of the 2017 La Brea Wildlife Survey (iNaturalist 2017). ~~No~~ The potential for other candidate, sensitive, or special-status species of flora or fauna ~~are expected~~ to occur at the project site is low or unlikely. As such, direct and indirect impacts to other sensitive wildlife species during construction (from temporary noise, dust, construction personnel, and equipment) and project operation are not anticipated because no other special-status species are present or expected to occur at the project site.

8. Page 5.3-18: The following paragraph has been added after the first paragraph:

> Bats potentially use the project area for foraging but are not known to roost in the project area and current proposed construction activities would have little to no direct impact on bat species. Potential indirect impacts to existing bat populations may be sustained from changes to the exiting habitat including those related to the removal of vegetation and changes to lighting. However, no significant change in the amount of lighting from within buildings is proposed. The new museum building would close at 5 pm, as the Page Museum closes now. Thus, no change in the timing of building illuminations would occur. In addition, only warm-white toned LEDs would be incorporated into lighting regimes during the nighttime (between dawn and dusk). Light shields that limit the light flux only to required areas and thereby avoiding as much light trespass into potential transitory pathways of the bats may be used. Lighting in areas of highest sensitivity where bats are most likely to occur (i.e., any ponding or surface water and areas of dense canopy) would be limited. For these reasons, impacts created by the proposed project would not result in a demonstrable change from existing conditions and would not be significant.

9. Page 5.3-18: The fourth paragraph has been revised as follows:

> Given the project site does not support overwintering aggregations of monarch butterflies and ~~no~~ the potential for other candidate, sensitive, or special-status species of flora or fauna is low or unlikely ~~are expected~~ to occur at the project site, operation of the project would not result in impacts, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Impacts during project operation would be *less than significant*.

10. Page 5.3-24 through 5.3-26: The analysis under impact question (d) "*Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*" has been revised to include a more in-depth discussion regarding impacts to non-special status wildlife. The updated analysis also discusses potential impacts related to potential bird collisions with the new museum building.

11. Page 5.3-26 through 5.3-27: Mitigation Measure BIO/mm-5.3 has been added, as displayed above in Chapter 2, Revision 2. It should be noted that while the impact related to bird collisions would be less than significant prior to mitigation, the County recommends a mitigation measure to provide assurances that appropriate features would be integrated into new construction to reduce bird collision incidents.

BIO Impact 5	
The project could directly impact nesting birds during project construction and temporally impact nesting bird habitat during project operation. Impacts during construction and operation of the project could be significant. The project would not create a significant impact related to bird collisions. While this impact would be less than significant prior to mitigation, the County recommends a mitigation measure to provide assurances that appropriate features would be integrated into new construction to reduce bird collision incidents. (CEQA Checklist Appendix G Threshold IV. d)	
Mitigation Measures	
BIO/mm-5.1	*To avoid impacts to nesting birds, one of the following measures (BIO/mm-5.1a or BIO/mm-5.1b) shall be implemented:* a. *If possible, no vegetation trimming, pruning, removal, construction, or grading shall occur during the nesting and breeding season (January 1 through September 15).* *OR* b. *If activities associated with vegetation trimming, pruning, removal, construction, or grading are necessary during the bird nesting and breeding season (January 1 through September 15), the following measures shall be implemented:* • *A qualified biologist shall conduct surveys for active nests weekly, beginning 14 days prior to initiation of any new construction activities, with the last survey conducted no more than 3 days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional pre-construction surveys should be conducted so that no more than 3 days have elapsed between the survey and ground-disturbing activities.* • *Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. The size of the buffer zone shall be at the discretion of the qualified biologist and shall be no less than 25 feet. Raptors may require a larger buffer zone, up to 300 feet. Installation of the exclusionary material shall be completed by construction personnel under the supervision of a qualified biologist prior to initiation of construction activities. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by a qualified biologist. The barrier shall be removed by construction personnel only at the direction of the biologist.*
BIO/mm-5.2	*New and replacement trees shall be 24-inch box specimen trees or larger to reduce temporary impacts to nesting birds.*
BIO/mm-5.3	*To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.*
Impacts Following Mitigation	
Implementation of BIO/mm-5.1 and BIO/mm-5.2 would reduce construction and operation impacts to nesting birds to less than significant. Beneficial impacts would result from the addition of ground cover, shrubs, and trees native to California. While the project would not create a significant impact related to bird collisions, BIO/mm-5.3 would provide for assurances that appropriate features would be integrated into new construction to reduce bird collision incidents.	

These revisions do not affect any conclusions or significance determinations provided in the Draft EIR and do not necessitate the recirculation of the EIR. According to CEQA Guidelines 15088.5, recirculation is only required if the new mitigation results in a new significant impact:

> *"Significant new information" requiring recirculation include, for example, a disclosure showing that: (1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.*

Mitigation Measure BIO/mm-5.3 would not result in a new significant environmental impact; therefore, the incorporation of Mitigation Measure BIO/mm-5.3 does not necessitate the recirculation of the EIR.

12. Page 5.3-27: Mitigation Measure BIO/mm-6.1 has been revised, as shown above in the summary of revisions to Final EIR Volume II Chapter 2, Summary.

> ***BIO/mm-6.1:*** *For oak trees within the project site that are to be retained in their current location, prior to construction, chain-link fencing shall be installed around the protected zone of the trees (5 feet beyond the dripline, the outermost extent of the tree's branches, or 15 feet from the trunk, whichever is greater). The fencing shall remain in place throughout the entire period of construction. Any excavation or grading allowed within the protected zone shall be limited to hand tools or small hand-powered equipment. This measure shall only apply to existing trees where the limits of construction work are within 20 feet of the protected zone.*
>
> *In addition, one of the following measures (BIO/mm-6.1a or BIO/mm-6.1b) shall be implemented:*
>
> *a. If possible, removal, relocation, trimming, or replacement of the oak trees at the Tar Pits site shall be avoided.*
>
> *b. If modification (removal, relocation, trimming, or replacement) of protected oaks is required, coordination with the County of Los Angeles Department of Regional Planning shall occur prior to commencement of any work on-site. Any encroachment or removal requests must be reviewed by the County of Los Angeles Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Although an oak tree permit is not required, measures to mitigate for impacts to oak trees shall include the following:*
>
> - *Removed oak trees shall be mitigated by planting coast live oaks at a 2:1 ratio on the project site. Each replacement tree shall be at least a 15-gallon specimen.*
> - *The replacement oaks shall be monitored for a period of 5 years, with any failures resulting in a new oak being planted and initiation of a new 5-year monitoring period for the replanted tree.*

These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5:

> *Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.*

As demonstrated above, the revised text in Mitigation Measure BIO/mm-6.1 does not differ considerably from the original measure that was described in the Draft EIR. Instead, the revision merely include further detail and refinements to better achieve the goal of the measure, which is to protect existing trees located near construction work. As no significant modifications have been made, recirculation of the EIR is not required.

Section 5.5 Cultural Resources – Archaeological Resources

1. Page 5.4-16: Mitigation Measure CR-ARCH/mm-1.2 has been revised, as shown above in the summary of revisions to Final EIR Volume II Chapter 2, Summary.

CR-ARCH/mm-1.2: *Prepare an Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan).*

a. *Prior to commencing ground-disturbing activities, an AR-TCR Management Plan shall be prepared by the Qualified Archaeologist and submitted to the Page Museum curators and the NHMLAC Curator of Anthropology, who shall review and approve the AR-TCR Management Plan on behalf of the County. The AR-TCR Management Plan shall be prepared in conformance with Public Resources Code Section 5024.1, Title 14 California Code of Regulations, Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1.*

b. *The AR-TCR Management Plan shall include but not be limited to the following elements:*

   i. *Historical context statement, research design, the specific types of archaeological sites likely to be encountered.*

   ii. *Construction worker training program (described in CR-ARCH/mm-1.3).*

   iii. *Monitoring protocol for ground-disturbing activities that includes a framework for assessing the geoarchaeological setting to determine whether sediments capable of preserving archaeological remains are present in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment and include a protocol for identifying the conditions under which additional or reduced levels of monitoring (e.g., spot-checking) may be appropriate. The duration and timing of the monitoring shall be determined based on the rate of excavation, geoarchaeological assessment, and, if present, the quantity, type, and spatial distribution of archaeological resources identified.*

   iv. *Limited program of archaeological presence/absence testing within naturally deposited asphaltic or non-asphaltic alluvial sediments before they are mechanically excavated. In particular, the area of the new museum, promenade, and parking lot expansion shall be further investigated. These investigations shall be conducted via a combination of archaeological units, hand tools, and mechanical trenching. The methods used to conduct the limited archaeological testing shall be coordinated with contractors to ensure that sufficient time is afforded to evaluate the significance <u>of</u> any identified resources, and if they are found to be significant, time to develop and implement a treatment plan appropriate to the type of resource. The timing of any such efforts shall be conducted in localized areas so that delays to project earthwork activities are minimized while allowing archaeological materials to be identified in a manner that retains the scientific integrity of the discovery.*

   v. *An approach to evaluate newly identified site components, if applicable, as contributors to the significance of LAN-159/H as a "historical resource" pursuant to CEQA Guidelines Section 15064.5(a) or a "unique archaeological resource" pursuant to PRC 21083.2(g). If any archaeological resources are identified and are found not to be significant or do not retain integrity, then they shall be recorded to a level sufficient to document the contents and condition.*

   vi. *Potential treatment plans to be implemented in the event a newly discovered archaeological resource is determined by the Qualified Archaeologist to contribute to the significance of the site as a historical resource based on California Register of Historical Resources criteria or a unique archaeological resource in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. The AR-TCR Management Plan shall require that if the treatment plans outlined therein are found to be infeasible or other alternatives are proposed, the Qualified Archaeologist shall coordinate with the project proponent and the County to amend the AR-TCR Management Plan with a formal treatment plan that would reduce impacts to the resource(s). The treatment plans stated in the AR-TCR Management Plan or prepared after the discovery of a historical resource, shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment and if it is determined avoidance is not feasible, treatment may include but not be limited to any of the following depending on the type of resource and the significance evaluation:*

      - *Native American archaeological site components. Data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant where significance is determined under CRHR Criterion 4 or as a unique archaeological resources and integrity is retained. Additional treatment measures to mitigate potentially significant impacts to the component as a tribal cultural resource, which is to be carried out in consultation with the Tribal Consultants and after considering the status of the discovery as a tribal cultural resource.*

      - *Historical archaeological site components. If a historical archaeological component of the site is present and found to retain integrity, data recovery shall*

be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant.

vii. Discovery and processing protocol for inadvertent discoveries of archaeological resources that are encountered when an Archaeological Monitor is not present.

viii. A process by which recovered materials will be prepared for curation at the Page Museum or the Research and Collections Department at the Natural History Museum of Los Angeles County ~~at the Los Angeles Exposition Park~~, as directed by Page Museum curators and collections managers, and in consultation with Tribal Consultants. The curation shall ensure their long-term preservation and allow access to interested scholars and shall be done at the expense of the County and/or the Foundation. If the materials are Native American in origin or any item of cultural patrimony, the manner of their handling and long-term curation may require additional consultation with the appropriate Native American community that shall be determined as part of a tribal consultation process to be conducted by the County who shall be responsible for the disposition of these materials.

- *The AR-TCR Management Plan shall summarize the requirements for tribal coordination ~~during~~ in the event of an inadvertent discovery of Native American archaeological resources, including the applicable regulatory compliance measures or conditions of approval for the inadvertent discovery of archaeological resources to be carried out in concert.*

These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5:

> *Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.*

As demonstrated above, the revised text in Mitigation Measure CR-ARCH/mm-1.2 does not differ considerably from the original measure that was described in the Draft EIR. As no significant modifications have been made, recirculation of the EIR is not required.

Section 5.5 Cultural Resources – Historical Resources

1. Page 5.5-1: The third paragraph has been revised as follows:

> The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits, which includes the George C. Page Museum (Page Museum). In 1960, a portion of the land within Hancock Park was dedicated to the creation, development and maintenance of the LACMA campus.[1] Over several decades, the LACMA portion of the site has been altered and undergone expansion. LACMA's portion of the 23-acre Hancock Park has been almost entirely developed. In contrast, the property known as La Brea Tar Pits is generally a park-like setting.

2. Page 5.5-1: A new footnote has been added corresponding to the above revision:

> [1] Originally part of the Los Angeles Museum of History, Science, and Art, which opened in 1910 in Exposition Park, LACMA was established in 1961 as a separate, art-focused institution.

3. Page 5.5-36: Mitigation Measures CR-HIST/mm-1.3 and CR-HIST/mm-1.4 have been revised, as shown above in the summary of revisions to Final EIR Volume II Chapter 2, Summary.

CR-HIST/mm-1.3: *~~A Historic American Buildings Survey (HABS)-like Documentation Package~~ A historic documentation package shall be prepared to document the contributing features of the La Brea Tar Pits Historic District and Page Museum prior to the authorization of demolition or construction activities. The documentation package shall emulate and include elements of the Historic American Building Survey (HABS) and/or the Historic American Landscape Survey (HALS). The HABS/HALS-like Documentation Package shall adhere to best professional practices promulgated by the National Park Service and shall be provided to interested parties such*

[1] Originally part of the Los Angeles Museum of History, Science, and Art, which opened in 1910 in Exposition Park, LACMA was established in 1961 as a separate, art-focused institution.

as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. Documentation shall be in accordance with the applicable standards described in the Secretary of the Interior's Standards for Architectural and Engineering Documentation.

Prior to the commencement of construction activities, a historian or architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History shall be retained to prepare HABS/HALS-like documentation for the La Brea Tar Pits Historic District and Page Museum.

Required contents for the HABS/HALS-like package include the following:

- *Photographs: Photographic documentation will focus on the Page Museum and, within the historic district, those contributing elements (built, landscape, hardscape, paleontological, and natural features) slated for demolition, alterations, or adjacent new construction. Photographs shall include detail shots of contributing features and components slated for demolition, with overview and context photographs for the adjacent setting. Photographs shall be taken using a professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Digital photographs will be provided in electronic format.*
- *Descriptive and Historic Narrative: The historian or architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each contributing component, with accompanying photographs, and information on how the resource fits within the broader historic district during its period of significance. The historic narrative shall draw upon previously prepared studies, including the Historical Resources Technical Report prepared for the La Brea Tar Pits Master Plan, as well as the La Brea Tar Pits Inventory and Treatment Plan prepared under Mitigation Measure CR-HIST/mm-1.2. The narrative shall also include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate.*
- *Upon finalization of the HABS/HALS-like Documentation Package, a hard copy and digital copy shall be prepared and offered to the Seaver Center for Western History Research at the Natural History Museum of Los Angeles County ~~Seaver Center for Western History Research~~, University of Southern California Special Collections, and the Los Angeles Public Library.*

CR-HIST/mm-1.4: *A Retrospective Exhibit and Interpretive Program shall be prepared and implemented. The Retrospective Exhibit and Interpretive Project shall be prepared by a qualified historic preservation professional who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History. The exhibit materials shall be drawn from previous studies including but not limited to the Inventory and Treatment Plan described in Mitigation Measure CR-HIST/mm-1.2 and the HABS/HALS-like documentation package described in Mitigation Measure CR- HIST/mm-1.3, as well as other supplemental research materials as needed.*

The retrospective exhibit and interpretive program shall focus on the history of the site, the people involved in the early ownership, development, and scientific discoveries and excavations, and the events leading to its donation to the County of Los Angeles, as well as on the site's development through the end of the period of significance for the La Brea Tar Pits Historic District, 1977.

The retrospective exhibit and interpretive program may include but not be limited to exhibit materials and interpretive panels, both exterior (e.g., as a series of panels in the park), interior (e.g., as a permanent exhibit in the Page Museum or new museum building), and online (on the museum website). The exhibit and interpretive program shall be designed for maximum public accessibility.

The plan for the interpretive and commemorative program shall be detailed in an Interpretive Program Plan Memorandum to be prepared with the guidance of a qualified historic preservation professional. The retrospective exhibit and interpretive program shall be completed within three (3) years of commencement of initial construction activities. The Draft Interpretive Program Plan Memorandum shall be reviewed by interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for comment.

These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5:

> *Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.*

As demonstrated above, the revised text in Mitigation Measures CR-HIST/mm-1.3 and CR-HIST/mm-1.4 does not differ considerably from the original measures that were described in the Draft EIR. As no significant modifications have been made, recirculation of the EIR is not required.

Section 5.6 Geology and Soils

4. Page 5.6-8: The first paragraph has been revised as follows:

> Table 5.6-3 summarizes the results from a museum records search that was requested and conducted in early 2022. The search was led by the Research and Collections Department at Natural History Museum of Los Angeles County (Natural History Museum) and was completed on February 5, 2022. The records search highlights several known fossil localities within the project site and its vicinity. See the Paleontological Resources Technical Report (Appendix F) for additional information regarding the records search.

5. Page 5.6-25 and Page 5.6-27: Mitigation Measures GEO/mm-6.1, GEO/mm-6.4, and GEO/mm-6.5 have been revised, as displayed above in Chapter 2, Revisions 7, 8, and 9.

GEO/mm-6.2: Prepare a Paleontological Resources Management Plan: *After finalization of the engineering, design, and grading plans for the project and prior to the start of preconstruction ground-disturbing activities, a Paleontological Resources Management Plan (PRMP) shall be prepared by the Project Paleontologist and submitted to the Page Museum curators, who shall review and approve the final PRMP on behalf of the County ~~and Natural History Museum~~. The PRMP shall define the processes and procedures for paleontological monitoring and fossil excavation based on the nature of ground-disturbing activities required for project. The PRMP shall:*

a. *Incorporate the results of the Paleontological Resources Technical Report (SWCA 2023), the final geotechnical investigation, and the final engineering/grading plans for the project.*

b. *Require all construction personnel to attend a Worker Environmental Awareness Program (WEAP) training to be presented by the Project Paleontologist, or their designee.*

c. *Define the processes and procedures for coordinating and communicating with responsible parties and stakeholders (including but not limited to the contractors, consultants, County officials, and the Page Museum curators and collections managers), when construction activities would be halted due to discovery and subsequent salvage efforts during ground-disturbing activities, and when regularly scheduled meetings between the Project Paleontologist and the Page Museum curators and collections managers would be required.*

d. *Outline a procedure whereby mechanical excavation is conducted to remove any non-fossil-bearing sediments or soils subject to environmental soil remediation, such that adequate time is afforded to identify fossil localities and to conduct scientific salvage operations to a feasible extent (see Millington and Dietler 2023); the timing of scientific fossil salvage operations during initial grading should be given special considerations in the PRMP such that delays to earthwork activities are minimized while allowing paleontological material to be salvaged at an acceptable level that retains the scientific integrity of the discoveries.*

e. *Require full-time paleontological monitoring by qualified paleontological monitors who meet the standards of the SVP (2010) and shall be supervised by the Project Paleontologist; qualified paleontological monitors shall have the authority to temporarily halt construction activities to record and salvage fossil discoveries as they are unearthed to allow for potentially significant fossils to be collected with their scientific integrity intact to the extent feasible and practical.*

f. *Discuss unanticipated fossil discovery and communication protocols if paleontological resources are discovered by non-paleontology staff working on the project in instances where paleontological monitors are documenting or recording paleontological resources discovered elsewhere within the project site.*

g. *Discuss feasible monitoring procedures for each of the different ground-disturbing activities, including but not limited to active observation or inspection of sediments during active ground disturbances, whether they be trenching, grading, excavating, drilling, or some other activity that disturbs sediments; inspection of sedimentary spoils spiles or cuttings, as well as backfill originating from Hancock Park that may contain asphaltum or fossil material; and/or matrix screening of spoils for small or microfossils as needed.*

h. *Define fossil salvaging procedures, including but not limited to outlining the treebox method for asphaltum bearing large accumulations of fossils, salvaging of isolated fossils, matrix screening in the field for microfossils, and chain-of-custody procedures for transferring the fossil discoveries to the Page Museum curators or collection managers as they are exhumed from the project site. Because of the unique conditions of La Brea Tar Pits and the chemical considerations of working with asphaltum fossil deposits, any paleontological resource discoveries shall remain on-site with the Page Museum. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities.*

Require the Project Paleontologist to prepare a report of the findings of the monitoring efforts within 90 days after construction is completed.

GEO/mm-6.4: Monitor for Paleontological Resources: *Full-time monitoring shall be required during all ground-disturbing activities (including artificial fill or previously disturbed sediments), regardless of depth. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations, including but not limited to the paleontological screening of tar sands prior to disposal or treatment. Procedures and protocols for paleontological monitoring and fossil salvage shall be outlined in the PRMP. Monitoring shall:*

a. Be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist, who shall coordinate with the Page Museum curators and collections managers and County officials. The Project Paleontologist may periodically inspect construction activities to recommend adjusting the level of monitoring in response to subsurface conditions; however, modifications, such as increasing, reducing, or ceasing of paleontological monitoring, or any changes of the implementation of the PRMP, should be approved by Page Museum curators and the County ~~Natural History Museum~~.

b. Include inspection of exposed sedimentary units during active excavations, grading, tar sand removal, and any other ground-disturbing activity that has the potential to impact sediments capable of preserving significant fossils. The Page Museum curators (or their representatives) and the paleontological monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, shall the fossils be determined significant or likely significant, professionally and efficiently recover the fossil specimens and collect associated data while minimizing delays. Data collection procedures may require the support of construction contractors to carefully and efficiently collect field data and extract the fossils to allow construction to continue.

c. Require grading and earthwork contractors to follow the guidance of Page Museum staff or the Project Paleontologist regarding the collection and/or extraction of paleontological resources. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be directly retained by the Page Museum for later analysis, laboratory preparation, and eventual curation if deemed significant or important by the Page Museum curators or collection managers.

GEO/mm-6.5: Prepare a Paleontological Resources Monitoring Report: *Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing the implementation of the PRMP, including paleontological monitoring and fossil salvaging, shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Page Museum and the Research and Collections Department at the Natural History Museum of Los Angeles County within 90 days after construction is completed. If the project is developed in phases, the final report is only necessary at the completion of the last phase to be constructed. At the discretion of the County, if there are unanticipated gaps in the phases of construction or other reasons why the County would prefer phased final reports, multiple final reports could be prepared.*

These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5:

> *Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.*

As demonstrated above, the revised text in Mitigation Measures GEO/mm-6.1, GEO/mm-6.4, and GEO/mm-6.5 does not differ considerably from the original measures that were described in the Draft EIR. As no significant modifications have been made, recirculation of the EIR is not required.

Section 5.11 Noise and Vibration

1. Page 5.11-21 and 5.11-22: Mitigation Measure BIO/mm-6.1 has been revised, as shown above in the summary of revisions to Final EIR Volume II Chapter 2, Summary.

NOI/mm-1.1: *The following measures shall be implemented to reduce construction-related noise impacts:*

a. *Operation of equipment used in construction, alteration, drilling, or demolition work shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and any time on Sundays or legal holidays.*

b. *A temporary barrier shall be erected around active construction areas. The placement and height of the barrier shall be adjusted based on the specific location of construction activities within the site, ensuring that the barriers are positioned as close as feasible to the work area and are sufficiently tall to maximize effectiveness in minimizing direct noise transmission to surrounding areas, such that a sound reduction of 10 dBA is achieved at the property lines on the east side of Curson Avenue and north side of 6th Street. Prior to the commencement of each construction phase, a phase-specific acoustic analysis shall be conducted to determine the optimal placement and configuration of noise barriers. In consultation with an acoustical engineer, the barrier configuration may be modified to address the specific conditions of phased construction, provided that the adjustments achieve an equivalent noise reduction outcome.* ~~*and impermeable 12-foot-high temporary barrier designed to provide a 10-dBA noise reduction, shall be erected along the eastern and northern sides of the project site boundary. This barrier shall be constructed in one of the following ways:*~~

   - ~~*from acoustical blankets hung over or from a supporting frame, or*~~
   - ~~*from commercially available acoustical panels lined with sound-absorbing material, or*~~
   - ~~*from common construction materials such as plywood, provided that the barrier is designed with overlapping material at the seams to ensure that no gaps exist between the panels.*~~

c. *Noise levels from powered equipment or powered hand tools at a distance of 50 feet from the noise source or within 500 feet of a residential zone will be limited to 75 dBA, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment.*

d. *All construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise-suppression devices.*

e. *Pneumatic tools used at the site shall be equipped with an exhaust muffler on the compressed air exhaust to minimize noise levels.*

f. *Stationary noise sources shall be located as far from adjacent sensitive receptors as possible and shall be muffled and enclosed within temporary sheds or insulated barriers when possible.*

g. *Prior to commencement of construction, a designated project contact person will directly notify the management of any surrounding residential properties located within 100 feet of the project site about the construction schedule and activities and provide a contact number to address any noise-related complaints during construction.*

h. *A designated point of contact shall be identified to address noise-related complaints during construction. The noise disturbance coordinator will be responsible for responding to any local complaints about construction noise.*

These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5:

> *Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.*

As demonstrated above, the revised text in Mitigation Measure BIO/mm-6.1 does not differ considerably from the original measure that was described in the Draft EIR. Instead, the revisions merely include further detail and refinements to better achieve the goal of the measure, which is to erect a temporary noise barrier around active construction areas. As no significant modifications have been made, recirculation of the EIR is not required.

2. Page 5.11-23: The footnotes for Table 5.11.14 have been revised as follows:

Source: SWCA (2022)

* Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

† Assumes an estimated noise reduction of 10 dBA due to noise barrier~~/wall~~.

Section 5.13 Transportation

6. Pages 5.13-8 and 5.18-9: The following text has been added as follows:

- **Line 20 (Downtown Los Angeles – Westwood/Santa Monica via Wilshire Boulevard)** runs between Downtown Los Angeles and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs 7 days a week; the bus runs 24 hours, with 15-minute headways during daylight hours and 30-minute headways during overnight every day of the week. Stops near the project site are located at Wilshire/Spaulding and Wilshire/Curson for both directions of travel. As part of its NextGen Bus Plan, LA Metro proposes to merge Line 20 and 720 between Downtown Santa Monica and Downtown Los Angeles. The new Line 20 would have 5-minute headways during weekday peak periods. Bus stop consolidation includes the removal of the Wilshire/Masselin bus stops approximately 750 feet east of the project site.
- **Line 217 (Hollywood/Vine Station – La Cienega Station via Hollywood Boulevard-Fairfax Avenue)** runs between Los Angeles' Los Feliz and Baldwin Hills neighborhoods, on Vermont Avenue, Hollywood Boulevard, and Fairfax Avenue along the west side of the project site. Service runs 7days a week; the bus runs on 12- to 15-minute headways for the majority of the day every day of the week, with longer headways at the beginning and end of service. Stops near the project site are located at Fairfax/West 6th and Fairfax/Wilshire for both directions of travel. As part of its NextGen Bus Plan, LA Metro proposes to merge Lines 180, 181, 217, and 780; Line 217 would be discontinued south of La Cienega/Jefferson Station to Howard Hughes Center. The new Line 180 would have 7.5-minute headways during weekday peak periods. Bus stop consolidation is not proposed for this route.
- **Line 720 (Santa Monica – Downtown Los Angeles via Wilshire Boulevard)** runs between Downtown Los Angeles and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs 7days a week; the bus runs on 5- to 10-minute headways for the majority of the day, with 15-minute headways during overnight hours of service. This is an express bus with limited stops, so the closest bus stops to the project site are at Wilshire/Cloverdale and at Wilshire/Crescent Heights. As part of its NextGen Bus Plan, LA Metro proposes to merge Line 20 and 720 between Downtown Santa Monica and Downtown Los Angeles. The new Line 720 would continue to operate weekday peak periods with 10-minute headways, serving only between Downtown Los Angeles and Westwood.

7. Page 5.13-24: Mitigation Measure TR/mm-5.1 has been revised, as shown above in the summary of revisions to Final EIR Volume II Chapter 2, Summary.

TRA/mm-4.1: *A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, ~~and~~ the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions:*

- *Prohibition of construction worker parking on nearby residential streets.*
- *Prohibition of construction-related vehicles parking or staging on surrounding public streets.*
- *Prohibition of construction-related parking or staging on streets with bus service.*
- *Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways.*
- *Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate.*
- *Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible.*
- *Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible.*
- *Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible.*

These revisions do not affect any conclusions or significance determinations provided in the Draft EIR. According to State CEQA Guidelines 15088.5:

> *Recirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.*

As demonstrated above, the revised text in Mitigation Measure TRA/mm-4.1 does not differ considerably from the original measure that was described in the Draft EIR. Instead, these revisions merely include further detail and refinements to better achieve the goal of the measure, which is to require the County to prepare a thorough construction traffic management plan. As no significant modifications have been made, recirculation of the EIR is not required.

Section 5.15 Utilities and Service Systems

1. Page 5.15-20: The mitigation measures listed for Utilities Impact 6 (Cumulative) have been updated to reflect the addition of BIO/mm-5.3, as addressed above in Section 5.3 Biological Resources.

Implement Mitigation Measures AES/mm-4.1; AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 through ~~and~~ 5.3 ~~5.2~~, and BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; CR-HIST/mm-1.1 through 1.5; GEO/mm-3.1 and 3.2, GEO/mm-4.1, and GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.2, and HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1 and TRA/mm-4.1 through 4.3; TCR/mm-1.1 through 1.4; and UTL/mm-1.1.

Section 5.16 Mandatory Findings of Significance

2. Page 5.16-1: A reference to Mitigation Measure BIO/mm-5.3 has been added to the second paragraph.

3. Page 5.16-1: A reference to Mitigation Measure BIO/mm-5.3 has been added to Table 5.16-1.

3.2.6 Chapter 6. Alternatives Analysis

1. Page 6-3: Th eighth row of Table 6-1 has been revised, as shown above in the summary of revisions to Final EIR Volume II Chapter 2, Summary.

Landscaping Concept Plan	Establish three distinct landscaping zones encircled by a looping pedestrian path. More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. Create three biofiltration areas for stormwater management.

2. Page 6-3: A new citation has been added to Objective 1:

> Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019; County of Los Angeles 2024).

3. Page 6-4: The first paragraph has been revised as follows:

> Alternatives to be considered under CEQA are those that would avoid or substantially lessen one or more of the significant environmental effects identified during evaluation of the project. The environmental impact issue areas described in Chapter 5, Environmental Impact Analysis, were determined to be potentially significant but could be reduced to less than significant through the implementation of mitigation measures. ~~Three~~ For the proposed project, three impacts were found to be significant and unavoidable after implementation of the feasible mitigation measures. A summary of impacts identified for the project by issue area is provided in Table 6-2.

4. Page 6-4: The footnote of Table 6-2 of has been revised as follows:

> * Based on the evaluation in Section 7.5, Environmental Effects Found Not to be Significant, the County determined that the project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire. ~~Issues evaluated in Section 7.5, Environmental Effects Found Not to be Significant. Based on preliminary analysis and discussions with the Los Angeles County Museum of Natural History Foundation, it was determined that the project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire.~~

5. Page 6-9 through 6-61: "Alternative 3" is now referred to as "Refined Alternative 3."

6. Page 6-15: The second and third paragraphs have been revised as follows:

> Under the No Project/No Build Alternative, existing buildings and features on-site would remain as they are under current conditions, there would be no changes to the amount of impervious or pervious surfaces on the project site, and no modifications to the existing drainage patterns would be made. This alternative would not implement the project's proposed Low Impact Development (LID) Best Management Practices (BMPs), including the project's three proposed biofiltration areas, or the project's related mitigation measure to further reduce the volume of runoff or improve the quality of runoff from the project site.~~; however, even without the benefit of the project's LID BMPs and mitigation measure for non-structural BMPs, impacts from this alternative would be decreased when compared to those of the project.~~
>
> Therefore, impacts of the No Project/No Build Alternative related to hydrology and water quality would be ~~*decreased*~~ *similar* in comparison to the project. This is because the No Project/No Build Alternative would not result in short-term, less-than-significant, construction-related water quality and hydrology impacts; however, this alternative would also not result in the permanent hydrology and water quality improvements that are contemplated for the site under the proposed project.

7. Page 6-24: The fourth paragraph has been revised as follows:

> Therefore, impacts of the Alternative 1, Renovate Page Museum Only related to hydrology and water quality would be *similar* in comparison to the project. This is because Alternative 1 would not result in short-term, less-than-significant, construction-related water quality and hydrology impacts; however, this alternative would also not result in the permanent hydrology and water quality improvements that are contemplated for the site under the proposed project.

8. Page 6-38 through 6-40: The following text has been added regarding "Refined Alternative 3: Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green." Further information regarding why the revisions to Alternative 3 do not require recirculation are presented in the revisions to Page 6-47, below.

> Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum, including retaining the courtyard (also referred to as the "atrium") as an exterior space and retaining the space frame that supports the frieze ~~refining the materiality~~

~~and size of the expansion atrium pop-up to better compliment the frieze, preserving a larger portion of the existing berm on the west side of the Page Museum, and detailing the second-floor glass enclosure underneath the Page Museum frieze to be as transparent as possible.~~ This alternative would also include constructing a new museum building of approximately 40,000 square feet, similar to the project, but would adjust the building footprint further to the north and west of the project's proposed footprint (Figure 6-3). This adjustment would allow for more separation of the new museum from the existing Page Museum ~~by narrowing the transition area connection between the two buildings~~. Adjusting the footprint of the new museum to the north would also allow for approximately 4,000 square feet of open space to be added to the Central Green. In this alternative, the on-site surface parking would be reconfigured to complement the adjusted building footprint, extending west of the new museum building as with the project, but this alternative would maintain the number of parking spaces that currently exist on-site and would not add additional parking spaces.

After completion of the Draft EIR, the County, acting through the Foundation, considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals. Many comments noted that the full build out of the Master Plan, as reflected in the Draft EIR, would result in historic resources losing their eligibility. Additionally, some comments opined that the footprint of the project was too large and expressed that alternatives should be considered which would result in fewer impacts to the Page Museum. As a result, the County conducted further feasibility studies of the original Alternative 3; the County determined that further exploration of Alternative 3 should occur to determine if additional improvements could be made to the alternative to address the comments received on the Draft EIR. As a result of this process, this section of the EIR expands the consideration of the original Alternative 3 with a refined version of the alternative. Additional figures showing Refined Alternative 3 are presented in Figures 6-4, 6-5, and 6-6. Refined Alternative 3 would not create additional or more intense environmental impacts than those previously disclosed when compared to the original Alternative 3 concept, as further detailed in each of the expanded environmental evaluations that follow. Below are some key variations in Refined Alternative 3 that are considered in this alternatives analysis:

- The central, open courtyard of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would no longer be covered and converted to indoor space; it would remain as an open courtyard. The landscaping and hardscaping features of the courtyard would be renovated to create a more usable public space and include climate-appropriate and native vegetation relevant to interpretive themes of the tar pits. This differs from the original Alternative 3, which replaced the open courtyard with research laboratory space.
- The structural space frame that supports the frieze (the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped, as had been proposed in the original Alternative 3. Instead, the existing space frame and open-air grid roof would remain intact as it is currently but would be repainted and repaired.
- The Page Museum and the new museum building would be connected only with a covered, open-air breezeway; the original Alternative 3 proposed a physical connection/joining of the two buildings. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway. The open-air breezeway that is proposed in the Refined Alternative 3 is a contrast to the previous concept of an enclosed entrance space joining the two buildings, which was proposed by the original Alterative 3. This change in the Refined Alternative 3 design means the connection between the two buildings would be scaled down, and demolition at the northwest corner of the Page Museum would be reduced, thereby retaining more of the original character-defining features and materials of the historical Page Museum resource.
- Removal of a portion of the berm would be focused at the northwest corner to accommodate a new entrance to the Page Museum, and modification of the west and north sides of the berm would still be necessary, albeit in a scaled down manner. The modifications would result in a new version of the berm that would allow for an Americans with Disabilities Act (ADA) ramp up to the terrace level on the west, and a change in elevation on the north allowing for access to the new entrance.

- As described above, the on-site surface parking would be reconfigured to complement the adjusted building footprint. The original Alternative 3 proposed two driveways along 6th Street and one driveway on South Curson Avenue for public vehicular access to the parking lot. However, it has been determined that it would be operationally preferred to eliminate the driveway at the far western end of the parking lot on 6th Street. The result is that Alternative 3 would have one driveway on 6th Street and one driveway on South Curson Avenue. This modification has been further addressed in the Transportation analysis contained in Section 6.4.4.2, below.
- The programming for interior spaces of the Page Museum and the new museum building would be revised, resulting in changes to the location of the theater, classrooms, the retail store, the café, and other interior elements. The Page Museum would also feature less staff office space than originally proposed.
- The canopy above the existing main entrance to the Page, which was envisioned in the proposed project and the original Alternative 3, would not be included in Refined Alternative 3, and would be replaced with trees to shade the proposed stepped seating.
- The reduced footprint of Refined Alternative 3 would require less ground disturbance during construction and would result in less soil import and export. The features retained by Refined Alternative 3 would be maintained and repaired as needed.
- Like the project, Refined Alternative 3 would include renovations to address deferred maintenance of the building and systems and to meet modern seismic, electrical, building code standards, and universal design standards.

9. Page 6-41: Figure 6-3 has been renamed as "Original Alternative 3: Museum plan and section diagrams" and text has been added to the figure itself to emphasize that it is the original plan diagram for Alternative 3.

10. Page 6-42: "Figure 6-4 Refined Alternative 3: Hancock Park site plan" has been added.

11. Page 6-43: "Figure 6-5. Refined Alternative 3: Aerial illustration" has been added.

12. Page 6-44: "Figure 6-6. Refined Alternative 3: Courtyard" has been added.

13. Page 6-45: The fourth row of Table 6-8 has been revised as follows:

Circulation and Parking	Reconfigure parking lot, extending it west of the new museum building footprint while maintaining the existing number of on-site parking spaces. This would require removing and, where possible, relocating existing trees on-site.

14. Page 6-45: The second row of Table 6-9 has been revised as follows:

Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**Yes.** This alternative would include constructing an additional 2,000 square-foot satellite maintenance and support building dedicated to ~~fossil~~ storage, maintenance, and service facilities along the northern boundary of the project site.

15. Page 6-46: The eighth row of Table 6-9 has been revised as follows:

Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes.** This alternative would allow for renovating and expanding the existing Page Museum and the remainder of the project site within Hancock Park in a way that would further the fundamental mission of La Brea Tar Pits as a site and facility dedicated to research, education, and exhibition. Under this alternative, the project site would continue to be recognized and protected as a National Natural Landmark. Furthermore, this alternative would result in the preservation of several character-defining features of the Page Museum and the La Brea Tar Pits Historic District. Specifically, the central atrium of the Page Museum would remain as an open atrium garden, the existing space frame of the frieze would not be altered or capped, the Page Museum and the new museum would only be connected by a covered open-air breezeway, and demolition of the northwest corner of the Page Museum would be avoided.

16. Page 6-47: The following text has been added after the first paragraph:

> Further, Refined Alternative 3 does not differ significantly from the original Alternative 3 that was described in the Draft EIR. None of the conditions for recirculation of the Draft EIR specified in State CEQA Guidelines 15088.5 have been met, and this new information merely amplifies and expands upon the broad intent of the original Alternative 3. The adjustments made in the Refined Alternative 3 do not constitute "significant" new information because no additional substantial environmental effect of the project has been identified, nor has the severity of an environmental impact changed.

17. Page 6-47 through 6-59: Additional detail has been provided regarding Refined Alternative 3. The within this section of Chapter 6 are too extensive for direct reproduction. In summary, each impact analysis under Section 6.4.4.2 *Comparison of Significant Effects of the Alternative to the Project,* has been revised to incorporate the adjustments made to Refined Alternative 3. As previously discussed, Refined Alternative 3 would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum. As discussed in Chapter 6, Refined Alternative 3 merely amplifies and expands upon the broad intent of the original Alternative 3. As reflected in edits made to Chapter 6 in this Final EIR, differences between the Refined Alternative 3 and the original concept are not substantial from an environmental perspective.

18. Page 6-60: Table 6-10 has been updated to indicate that the Hydrology and Water Quality impacts of the "No Project/No Build" alternative would in fact be "similar" to the impacts of the proposed project, rather than "decreased" as originally described.

19. Page 6-61: The first, second, and third paragraphs have been revised as follows:

> Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar environmental impacts as the project for each issue area analyzed in this EIR, as shown in Table 6-10, with the exception of historical resources and land use and planning. ~~While~~ Refined Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District thereby reducing the overall severity of the impacts to historical resources; however, it would not avoid the project's significant and unavoidable impacts. One of the primary character-defining features of the Page Museum is its visual primacy on the grounds of the Tar Pits; the design refinements presented in the refined version of Alternative 3 would result in less of an impact to the Page Museum's visual primacy. Refined Alternative 3 would reduce impacts to the Page Museum to the extent that the building would continue to convey its historic significance and retain its eligibility as a historical resource. However, the site plan changes would continue to result in a significant

and unavoidable impact to the La Brea Tar Pits Historic District. The overall severity of the significant and unavoidable impacts to the historic district would be reduced because of the separation of the new museum building from the Page Museum, the narrowing of the transition area connection between the two buildings, and the design refinements that retain more of the Page Museum's character-defining features such as the existing structural space frame, frieze, and courtyard.

Similarly, the design refinements in this alternative would help to further support the land uses plans and policies applicable to the project as they relate to the protection and alternation of historical resources, but not in such a way to avoid the project's related significant and unavoidable impacts. This alternative would also result in the project's significant and unavoidable impacts related to increased regional VMT. However, Refined Alternative 3 is the alternative that meets all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project.

Based strictly on an analysis of the relative environmental impacts, Alternative 1, Renovate the Page Museum Only, is considered the Environmentally Superior Alternative. The Foundation and the Museum of Natural History, as a departmental unit of the County, will consider the whole of the record when considering the project including, but not limited to, public comment and testimony ~~related to the size and design of the residence~~. The Foundation and the Museum of Natural History may select the project as proposed, an alternative, or a specified combination of particular elements identified in the alternatives, as the approved project. In all scenarios, the Mitigation Monitoring and Reporting Program (MMRP) would be applied to the approved project.

3.2.7 Chapter 7. Other CEQA Considerations

No changes have been made to Chapter 7 of Volume II of the Final EIR.

3.2.8 Chapter 8. References and Report Preparation

1. Pages 8-1, 8-6, and 8-7: The following references have been added:

County of Los Angeles. 2024. *2045 Climate Action Plan*. Available at: https://planning.lacounty.gov/wp-content/uploads/2024/07/gp_2045_Climate_Action_Plan_June-2024.pdf. Accessed August 2024.

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2. Pages 8-23 and 8-24: Table 8-1 has been updated to include additional staff who assisted with preparation of the Final EIR.

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LA BREA TAR PITS MASTER PLAN

FINAL ENVIRONMENTAL IMPACT REPORT

JANUARY 2025

SCH NO. 2022020344

Volume II: Final EIR

LEAD AGENCY: COUNTY OF LOS ANGELES

PREPARED BY: SWCA ENVIRONMENTAL CONSULTANTS
320 NORTH HALSTEAD STREET, SUITE 120, PASADENA, CA 91107

LA BREA TAR PITS & MUSEUM

LA BREA TAR PITS MASTER PLAN

FINAL ENVIRONMENTAL IMPACT REPORT

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Volume II: Final EIR

JANUARY 2025

LEAD AGENCY: County of Los Angeles

PROJECT PROPONENT: Los Angeles County Museum of Natural History Foundation on behalf of the County of Los Angeles Museum of Natural History
900 Exposition Boulevard, Los Angeles, CA 90007
Contact: Leslie Negritto, Chief Operating Officer

PREPARED BY: SWCA Environmental Consultants
320 North Halstead Street, Suite 120, Pasadena, CA 91107
(626) 240-0587 | www.swca.com
Contact: Bobbette Biddulph, SWCA Project No. 63953

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ACRONYMS AND ABBREVIATIONS

µg/g	microgram(s) per gram
µg/m³	microgram(s) per cubic meter
µPa	micropascal(s)
2035 General Plan	County of Los Angeles 2035 General Plan
AAM	annual arithmetic mean
AB	Assembly Bill
ADA	Americans with Disabilities Act
AHERA	Asbestos Hazard Emergency Response Act
Air Basin	South Coast Air Basin
APE	area of potential effects
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
AR	Assessment Report
ARG	Architectural Resources Group
AR-TCR	Archaeological Resource-Tribal Cultural Resource
ASCE	American Society of Civil Engineers
Azusa Land Reclamation	Azusa Land Reclamation Company Landfill
B.P.	years before present
Basin Plan	*Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*
bgs	below ground surface
BMP	best management practice
Building and Safety	County of Los Angeles Department of Public Works Building and Safety
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
cal	calibrated
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health Administration
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CalGEM	State of California Department of Conservation, Geologic Energy Management Division
CALGreen	California Green Building Standards Code

CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	California Action Team
CBC	California Building Code
CCAA	California Clean Air Act
CCI	Code Consultants, Inc.
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERS	California Environmental Reporting System
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHL	California Historical Landmark
CHR	California Historical Resource
CHRIS	California Historical Resources Information System
City	City of Los Angeles
City of L.A. Thresholds Guide	*L.A. CEQA Thresholds Guide: Your Resource for Preparing CEQA Analyses in Los Angeles*
City RAP	City of Los Angeles Department of Recreation and Parks
CIWMP	Countywide Integrated Waste Management Plan
CLABC	County of Los Angeles Building Code
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide

CO_2e	carbon dioxide equivalent
County	County of Los Angeles
County Code	Los Angeles County Code
County Public Works	Los Angeles County Department of Public Works
CPHI	California Point of Historical Interest
CPS-SLIC	Cleanup Program Site – Spills, Leaks, Investigations and Cleanups
CRHR	California Register of Historical Resources
CTMP	construction traffic management plan
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWC	California Water Code
dB	decibel(s)
dBA	A-weighted decibel(s)
dbh	diameter at breast height
DDT	dichlorodiphenyltrichloroethane
DPM	diesel particulate matter
DSOD	Division of Safety of Dams
DTSC	California Department of Toxic Substance Control
DWR	California Department of Water Resources
EDR	Environmental Data Resources, Inc.
EIR	environmental impact report
Emergency Response Plan	Los Angeles County Operational Area Emergency Response Plan
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EWMP	Enhanced Watershed Management Program
FAR	floor area ratio
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
Foundation	Los Angeles County Museum of Natural History Foundation
FTA	Federal Transit Administration
General Plan	*Los Angeles County General Plan 2035*

GHG	greenhouse gas
gpd	gallons per day
gsf	gross square feet
GWh	gigawatt-hours
GWP	global warming potential
H_2S	hydrogen sulfide
HABS	Historic American Buildings Survey
HASP	Health and Safety Plan
HCM	Historic-Cultural Monument
HFC	hydrofluorocarbon
HPO	Historic Preservation Ordinance
HPOZ	Historic Preservation Overlay Zone
HQTA	high-quality transit area
HRA	health risk assessment
HSC	California Health and Safety Code
HVAC	heating, ventilation, and air conditioning
Hydrology Manual	County of Los Angeles Department of Public Works Hydrology Manual
I-10	Interstate 10
IBC	International Building Code
in/sec	inch(es) per second
IPCC	Intergovernmental Panel on Climate Change
IRWMP	Integrated Regional Water Management Plan
KHSRA	Kenneth Hahn State Recreation Area
KPFF	KPFF Consulting Engineers
kWh	kilowatt-hours
L_0	highest ambient noise level that occurred at the site
$L_{1.7}$	ambient noise level exceeded for 1.7% of the time of the measurement duration
L_{25}	ambient noise level exceeded for 25% of the time of the measurement duration
L_{50}	ambient noise level exceeded for 50% of the time of the measurement duration
$L_{8.3}$	ambient noise level exceeded for 8.3% of the time of the measurement duration
LA County Parks	Los Angeles County Department of Parks and Recreation

LACFCD	Los Angeles County Flood Control District
LACMA	Los Angeles County Museum of Art
LADOT	Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAMC	City of Los Angeles Municipal Code
LAPD	Los Angeles Police Department
LARWQCB	Los Angeles Regional Water Quality Control Board
LASAN	Los Angeles Sanitation and Environment
LCFS	Low Carbon Fuel Standard
L_{dn}	Day-Night Sound Level
LEL	Lower Explosive Limit
L_{eq}	Equivalent noise level
LID	Low Impact Development
L_{max}	root-mean-squared maximum noise level
LOS	Level of Service
LST	localized significance threshold
LUST	leaking underground storage tank
LV	Vibration Velocity Level
L_{xx}	percentile-exceeded sound level
m	meter(s)
MATES V	Multiple Air Toxics Exposure Study V
MBTA	Migratory Bird Treaty Act
Metro	Los Angeles County Metropolitan Transportation Authority
mg/cm^2	milligram(s) per square centimeter
MLD	most likely descendent
MMT CO_2e	million metric tons carbon dioxide equivalent
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
$MTCO_2e$	metric tons CO_2e
Museum of Natural History	County of Los Angeles Museum of Natural History
Mw	Moment Magnitude Scale

MWD	Metropolitan Water District of Southern California
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHMLAC	Natural History Museums of Los Angeles County
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OEM	Los Angeles County Office of Emergency Management
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
Page Museum	George C. Page Museum
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyls
PCE	perchloroethylene
PCE	perchloroethylene
PF	Public Facilities
PFC	perfluorocarbons
PM	particulate matter
PM_{10}	particulate matter 10 microns or less in diameter
$PM_{2.5}$	particulate matter 2.5 microns or less in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
ppmv	parts per million volume

PPV	peak particle velocity
PRC	Public Resources Code
PRMP	Paleontological Resources Management Plan
project	La Brea Tar Pits Master Plan
PROW	Public Right-of-Way
PVS	peak vector sum
RCRA	Resource Conservation and Recovery Act
RMS	Root Mean Square
ROC	reactive organic gases
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCOTUS	Supreme Court of the United States
SCS	Sustainable Community Strategy
SEA	Significant Ecological Area
sf	square feet or square foot
SF_6	sulfur hexafluoride
SFHA	Special Flood Hazard Area
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SMP	Soil Management Plan
SNAP	Supplemental Nutrition Assistance Program
SO_2	sulfur dioxide
SoCalGas	Southern California Gas Company
SOx	sulfur oxides
SQMP	stormwater quality management program
SRA	source receptor area

SVP	Society of Vertebrate Paleontology
SWCA	SWCA Environmental Consultants
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
Tanner Air Toxics Act	Toxic Air Contaminant Identification and Control Act of 1983 (Assembly Bill 1807)
Tar Pits	La Brea Tar Pits
TCE	trichloroethylene
TDM	Transportation Demand Management
TMDL	Total Maximum Daily Loads
Transportation Assessment	*La Brea Tar Pits Master Plan Final Transportation Assessment*
TSCA	Toxic Substances Control Act
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USPS	U.S. Postal Service
UST	underground storage tank
UWMP	urban water management plan
VC	vinyl chloride
VdB	vibration velocity decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
WDR	Waste Discharge Requirement
WEAP	Worker Environmental Awareness Program
WMA	Watershed Management Area
WMC	Watershed Management Committee
ZEV	zero-emission vehicle

CHAPTER 1. INTRODUCTION

This chapter provides an overview of the purpose and intended uses of Volume II of this Final Environmental Impact Report (EIR) for the La Brea Tar Pits Master Plan (project). It explains the organization of this volume of the Final EIR and includes a description of the environmental and public review process for the project. The Final EIR includes two volumes: Volume I, which contains responses to comments received on the Draft EIR as well as information regarding the Final EIR process, and Volume II (this volume), which contains the full text and analysis of the EIR, including the incorporation of changes to the Draft EIR since its publication on September 11, 2023.

La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County of Los Angeles (County) but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation for the County of Los Angeles Museum of Natural History (Museum of Natural History), including La Brea Tar Pits and the Page Museum under the oversight of the County.

The County, as Lead Agency, acting through the Foundation proposes a redevelopment, or "reimagining," of the 13-acre La Brea Tar Pits site. The proposed project is referred to as the La Brea Tar Pits Master Plan. The project includes a reimagined site design, expansion, and upgrades for the Tar Pits complex, including renovations to the Page Museum, and development of a new museum building. The project site is located at 5801 Wilshire Boulevard in Los Angeles. The project site is within Hancock Park and is adjacent to the Los Angeles County Museum of Art (LACMA).

1.1 PURPOSE OF THE EIR AND THE ENVIRONMENTAL REVIEW PROCESS

The County has prepared this EIR to assess the environmental impacts of the project. The California Environmental Quality Act (CEQA) Guidelines identify the Lead Agency as the public agency with the principal responsibility for carrying out or approving a project (State CEQA Guidelines Section 15367). The County is the CEQA Lead Agency for the project because the project is on County-owned land; the Museum of Natural History is a County departmental unit.[1] Thus, the County is responsible for the coordination and direct oversight of the environmental review process.

This EIR has been prepared in compliance with CEQA, codified as California Public Resources Code (PRC) Section 21000 et seq., and the State CEQA Guidelines in the California Code of Regulations, Title 14, Division 6, Chapter 3. The basic purposes of CEQA are to: 1) inform decision makers and the public about the potential significant environmental effects of proposed activities, 2) identify the ways that environmental effects can be avoided or significantly reduced, 3) prevent significant, avoidable environmental effects by requiring changes in projects through the use of alternatives or mitigation

[1] In accordance with Chapter 2.94 of the Los Angeles County Code and ~~various~~ other operating agreements, the County Museum of Natural History is a department of the County and has administrative charge and control over all County matters relating to history and science, and shall also include the administration of Hancock Park (except that area of said park devoted to the Los Angeles County Museum of Art [LACMA]), and the care, safeguarding, and maintenance of all exhibits, equipment, and structural improvements directly relating to exhibits, the administration and maintenance of Los Angeles County Museum~~LACMA~~, and other property hereafter acquired for or devoted to history and science. For consistency with the Los Angeles County Code, this document refers to this governmental department as the "Museum of Natural History." In addition, when it is important to specify that the document is referring to the physical museum location rather than the governmental department, this document refers to the Natural History Museum of Los Angeles County (Natural History Museum), which is located at 900 Exposition Boulevard, Los Angeles, California, 90007.

measures when feasible, and 4) disclose to the public the reasons an implementing agency may approve a project even if significant unavoidable environmental effects are involved.

An EIR uses a multidisciplinary approach, applying social and natural sciences to make a qualitative and quantitative analysis of all the foreseeable environmental impacts that a project would exert on the project's surrounding area and environs. As stated in State CEQA Guidelines Section 15151:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.*

As described in Section 15121(a) of the State CEQA Guidelines, this EIR is intended to serve as an informational document for public agency decision makers and the public. In accordance with State CEQA Guidelines Section 15126, this EIR describes the project and the existing environmental and regulatory setting, identifies environmental impacts associated with project implementation, identifies mitigation measures for potentially significant impacts, and provides an analysis of alternatives. Thresholds of significance for each environmental resource analyzed in this EIR are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. The thresholds of significance are defined within each impact analysis section. The environmental impact analyses in this EIR are based on a variety of sources, including agency consultation, technical studies, and field surveys. The County would consider the information presented in this EIR, public comments received on the Draft EIR, and other factors, prior to approving the project. The Final EIR would be submitted for consideration and certification to the Los Angeles County Board of Supervisors (Board) prior to the Board's consideration of the project for approval.

1.2 SCOPING AND NOTICE OF PREPARATION PROCESS

Pursuant to Section 15082 of the State CEQA Guidelines, the Lead Agency is required to send a Notice of Preparation (NOP) stating that an EIR would be prepared to the State Office of Planning and Research, responsible and trustee agencies, and federal agencies involved in funding or approving the project. The NOP must provide sufficient information for responsible agencies to make a meaningful response. At a minimum, the NOP must include a description of the proposed project, location of the proposed project, and probable environmental effects of the proposed project (State CEQA Guidelines Section 15082(a)(1)). Within 30 days after receiving the NOP, responsible and trustee agencies and the State Office of Planning and Research shall provide the Lead Agency with specific detail about the scope and content of the environmental information related to that agency's area of statutory responsibility that must be included in the EIR (State CEQA Guidelines Section 15082(b)).

On February 14, 2022, in accordance with Sections 15063 and 15082 of the State CEQA Guidelines, the County published an NOP for the EIR and circulated it to governmental agencies, organizations, and persons who may be interested in the proposed project, including nearby landowners, homeowners, and tenants. The NOP requested comments on the scope of the EIR and asked interested parties for their suggestions regarding ways the project could be revised to reduce or avoid any significant environmental impacts. The NOP provided a general description of the proposed project, a description of the project site, and a preliminary list of potential environmental effects.

The 30-day NOP comment period extended through March 16, 2022. Copies of the NOP were made available for public review on the project's website, available at https://tarpits.org/reimagine. In addition, the NOP was also distributed via the following methods: direct mailings to residents in the 90036 zip

code; two rounds of email blasts sent to residents in the 90036 and 90048 zip codes; and a full-page advertisement placed in the *Beverly Press/Park La Brea News* on February 17 and February 24, 2022.

Two public scoping meetings were held virtually via Zoom on March 2, 2022, at 2:30 p.m. and 5:30 p.m. to provide a description of the project and solicit input from any interested parties on the scope and content of the EIR in conformance with PRC Section 21083.9. Live language interpretation of the presentation and scoping meeting input was provided in Spanish and Korean during both scoping meetings.

A summary matrix of written comments received during the NOP comment period as well as verbal comments recorded at the two public scoping meetings is provided as an appendix to this EIR (Appendix A).

1.3 FINAL EIR VOLUME II CONTENTS

This volume of the Final EIR is organized into the following chapters, sections, and appendices:

1. **Introduction.** The introduction includes the purpose of an EIR and procedural information.
2. **Summary.** The summary provides a synopsis of the proposed project's potential impacts. It identifies, in an overview fashion, the project under consideration and its objectives; presents a summary of areas of controversy and issues to be resolved; and summarizes the proposed project's impacts and mitigation measures. This chapter also contains a summary analysis of the alternatives to the project, as well as a summary of environmental impacts in table format.
3. **Project Description.** This chapter includes information about the project location, the existing setting, the project site history, project objectives, project characteristics, and project construction.
4. **Environmental Setting.** This chapter describes the project's environmental setting, including existing physical characteristics of the project site. This chapter also provides a discussion of the cumulative context considered for the project, including growth projections and a list of past, present, and reasonably foreseeable future projects in the vicinity of the project.
5. **Environmental Impact Analysis.** This chapter discusses the environmental setting as it relates to the various issue areas, regulatory settings, thresholds of significance, impact assessment methodology, project-specific impacts and mitigation measures, and cumulative impacts. The EIR analyzes the potentially significant impacts to the following resource areas, as identified during the preparation of the NOP:

    - Aesthetics
    - Air Quality
    - Biological Resources
    - Cultural Resources – Archaeological Resources
    - Cultural Resources – Historic Resources
    - Geology and Soils
    - Greenhouse Gas Emissions
    - Mandatory Findings of Significance
    - Hazards and Hazardous Materials
    - Hydrology and Water Quality
    - Land Use and Planning
    - Noise
    - Recreation
    - Transportation
    - Tribal Cultural Resources
    - Utilities and Service Systems

Environmental issue areas not identified in the list above are discussed in Chapter 7, Other CEQA Considerations, Section 7.4 Environmental Effects Found Not to be Significant. These include agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire.

6. **Alternatives Analysis.** The analysis summarizes the environmental advantages and disadvantages associated with the project and alternatives. As required, the "No Project Alternative" is included among the alternatives considered. An "Environmentally Superior Alternative" is identified.
7. **Other CEQA Considerations.** Identifies other potential environmental effects for which CEQA requires analysis, including the potential for the project to result in growth-inducing impacts, significant irreversible environmental changes, unavoidable significant environmental impacts, and effects found not to be significant and not discussed in detail in the EIR.
8. **References and Report Preparation.** This chapter provides a list of the references cited in the EIR. This chapter also provides a list of individuals who contributed to the preparation of the EIR.
9. **Appendices.** The appendices contain important information used to support the analyses and conclusions made in the EIR. Among the appendices that are included are technical reports addressing air quality and greenhouse gas emissions, biological resources, archaeological and tribal resources, historic resources, geology and soils, noise and vibration, and traffic and transportation.

1.4 AGENCY USE OF THE DOCUMENT

Lead Agency reviewers and decision makers (i.e., the County Board of Supervisors) will use the EIR as an informational document to assist in the decision-making process, ultimately resulting in approval, denial, or conditions of approval for the project. The following jurisdictions may also use this EIR in reviewing and issuing their respective authorizations (if applicable) and/or making recommendations during the project review process:

- Los Angeles Department of Water and Power
- Los Angeles Sanitation and Environment
- City of Los Angeles Department of Transportation
- ~~California Department of Fish and Wildlife~~
- South Coast Air Quality Management District
- Los Angeles Regional Water Quality Control Board
- California Department of Fish and Wildlife (CDFW)
- U.S. Army Corps of Engineers (USACE)

The CDFW is a potential responsible agency and trustee agency, as defined by Sections 15381 and 15386, respectively, of the State CEQA Guidelines. While CDFW does not have regulatory authority over approval of the broader La Brea Tar Pits Master Plan, CDFW could have regulatory authority over project activities within the riparian habitat and/or aquatic resources in and along Oil Creek and at the Lake Pit. Similarly, USACE could also have discretionary authority over activities in these features. These considerations are further discussed under thresholds "b)" and "c)" ~~b and c~~ in Section 5.3.5 of this volume of the EIR.

Lead Agency: County of Los Angeles
Natural History Museums of Los Angeles County
Leslie Negritto, Chief Financial and Operating Officer
Phone: (213) 763-3303
Email: lnegritto@nhm.org

Environmental Consultant: SWCA Environmental Consultants
Bobbette Biddulph, Senior Project Manager
320 North Halstead Street, Suite 120
Pasadena, California 91107

1.5 REVIEW OF THE DRAFT EIR

The Notice of Availability of ~~this~~ the Draft EIR was distributed to responsible and trustee agencies, other affected agencies, interested parties, and all parties requesting a copy of the Draft EIR in accordance with PRC Section 21092(b)(3). The Notice of Completion and Notice of Availability of the Draft EIR are distributed and posted as required by CEQA.

~~The public review period is 45 days. During this 45-day period, the EIR and its appendices will be available for review on the Natural History Museum's website: https://tarpits.org/reimagine. Printed copies of the documents with attached electronic appendices are also available for review during the 45-day public review period at the following locations and hours, as listed in Table 1-1.~~

The public review period was from September 11, 2023 through October 26, 2023. During the review period, the Draft EIR and its appendices were available for review on the Natural History Museum's website: https://tarpits.org/reimagine.

A newspaper advertisement of the NOA and Draft EIR comment period and information regarding the public meeting was also placed in the Los Angeles Times. Printed copies of the documents with attached electronic appendices were also available for review during the public review period at the following locations and hours, as listed in Table 1-1.

Table 1-1. Document Review Locations

Location	Address	Hours of Operation	Online Access (URL), if available
George C. Page Museum (Front Desk)	5801 Wilshire Boulevard Los Angeles, CA 90036	Open daily 9:30 am to 5 pm, except the first Tuesday of the month	https://tarpits.org/reimagine
Julian Dixon Library	4975 Overland Avenue Culver City, CA 90230	Tuesday and Wednesday: 12 pm to 8 pm Thursday through Saturday: 10 am to 6 pm Sunday: Closed	n/a
View Park Bebe Moore Campbell Library	3854 West 54th Street View Park-Windsor Hills, CA 90043	Monday through Thursday: 10 am to 8 pm Friday and Saturday: 10 am to 6 pm Sunday: Closed	n/a

Location	Address	Hours of Operation	Online Access (URL), if available
West Hollywood Library	625 North San Vicente Boulevard West Hollywood, CA 90069	Monday through Friday: 12 pm to 6 pm Saturday and Sunday: Closed	n/a
Chief Executive Office at the Hall of Administration	500 West Temple Street, Room 754 Los Angeles, California 90012	Appointment must be made for review. Appointments are available Monday through Friday, 8 am to 3 pm. Contact Alisa Chepeian, (213) 974-4266, achepeian@ceo.lacounty.gov	n/a

On behalf of the County of Los Angeles as the Lead Agency, comments on the ~~Draft~~ EIR should be addressed to:

Leslie Negritto, Chief Financial and Operating Officer
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007
Email: lnegritto@nhm.org

Written responses to all significant environmental issues raised during the Draft EIR review period were ~~will be~~ prepared and included as part of the Final EIR and the administrative record for consideration by decision makers for the project. The County may approve the project if the EIR has been certified per State CEQA Guidelines 15090.

CHAPTER 2. SUMMARY

The Los Angeles County Museum of Natural History Foundation (Foundation) proposes a redevelopment, or "reimagining," of the 13-acre La Brea Tar Pits project site. The proposed project is the *La Brea Tar Pits Loops and Lenses, Master Plan and Concept Design*, prepared for the Foundation and the County and referred to as the La Brea Tar Pits Master Plan (Master Plan, Weiss/Manfredi 2023). The Master Plan is included in Appendix B.

The project site is located at 5801 Wilshire Boulevard in Los Angeles and is on property owned by the County of Los Angeles (County). La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County but are managed by the Foundation. The Foundation's role is to carry out all County services including public access and programming, administration, and operation for the County of Los Angeles Museum of Natural History (Museum of Natural History),[1] including La Brea Tar Pits and the Page Museum. The County is the Lead Agency under CEQA for this EIR; the Museum of Natural History is a County departmental unit.

The County has prepared this EIR to assess the environmental impacts of the project. The State CEQA Guidelines identify the Lead Agency as the public agency with the principal responsibility for conducting or approving a project (State CEQA Guidelines Section 15367). The County is the CEQA Lead Agency for the project because the project is on County-owned land. The County is responsible for the coordination and direct oversight of the environmental review process and the Board, as governing body of the County, will exercise independent judgment and analysis should it certify the EIR.

This EIR has been prepared in compliance with CEQA (as amended), codified as California Public Resources Code Section 21000 et seq. and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3. The basic purposes of CEQA are to: 1) inform decision-makers and the public about the potential, significant environmental effects of proposed activities, 2) identify the ways that environmental effects can be avoided or significantly reduced, 3) prevent significant, avoidable environmental effects by requiring changes in projects through the use of alternatives or mitigation measures when feasible, and 4) disclose to the public the reasons an implementing agency may approve a project even if significant unavoidable environmental effects are involved.

This chapter includes the following information:

- The purpose of the EIR
- A brief description of the project location
- A summary of the project background and the objectives of the project that were established by the Foundation and the Museum of Natural History
- A summary of impacts and mitigation measures associated with the project
- A summary of the known areas of controversy
- A summary of issues to be resolved
- A summary of project alternatives

[1] In accordance with Chapter 2.94 of the Los Angeles County Code and various other operating agreements, the County Museum of Natural History is a department of the County and has administrative charge and control over all County matters relating to history and science, and shall also include the administration of Hancock Park (except that area of said park devoted to the Los Angeles County Museum of Art [LACMA]), and the care, safeguarding, and maintenance of all exhibits, equipment, and structural improvements directly relating to exhibits, the administration and maintenance of LACMA, and other property hereafter acquired for or devoted to history and science.

2.1 PURPOSE OF THE EIR

The County, as the Lead Agency under CEQA, has prepared this EIR to assess the environmental impacts that would result from the approval of the proposed project. This EIR will serve as a public information document to be used by the general public, responsible and trustee agencies, and decision-making bodies to review and evaluate the environmental effects associated with the project, potential mitigation measures recommended to address or minimize those effects, and reasonable alternatives to the project. The review process provides both agencies and individuals an opportunity to share their expertise, discuss agency analyses, check for accuracy, detect omissions, discover public concerns, and solicit mitigation measures and alternatives capable of avoiding or reducing the significant effects of the project while still attaining most of the basic objectives of the project.

2.2 PROJECT LOCATION

The 13-acre La Brea Tar Pits site is located within the eastern and northwestern portions of the 23-acre Hancock Park (Assessor's Parcel Number [APN] 5508-016-902) at 5801 Wilshire Boulevard. The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to the Los Angeles County Museum of Art (LACMA). Both LACMA and the Museum of Natural History ~~Museum~~ are responsible for managing separate and distinct portions of the 23 acres in Hancock Park, with the Museum of Natural History ~~Museum~~ responsible for the 13-acre project site and LACMA responsible for the remainder of Hancock Park to the south and west of the project boundaries. LACMA's facilities are not included in the project.

The project site is located approximately 5.5 miles west of downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and LACMA to the west (an approximately 250-foot-long frontage). The area is known as the Miracle Mile neighborhood of the city of Los Angeles.

Primary regional access to the project site is provided by Interstate 10, which runs east-west less than 2 miles south of the project site. The major arterials providing regional and subregional access to the project site vicinity include Wilshire Boulevard, La Brea Avenue, and Fairfax Avenue.

2.3 PROJECT OVERVIEW

The project would result in a reimagined site design, expansion, and upgrades for the Tar Pits complex, including renovations to the Page Museum and development of a new museum building. Table 2-1 provides a summary of the project components; some additional detail on the project components is provided following the table. See Chapter 3, Project Description, for a detailed description of the proposed project.

Table 2-1. Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building within the same footprint (approximately 63,200 square feet).
New Museum Building	Construct a new two-story, 40,000-gross-square-foot (gsf) museum building northwest of the Page Museum, including two new theaters. The construction of the new museum building would require the removal of vegetation in the footprint of the new building.
Wilshire Gateway	Renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pits (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site. These renovations would require the removal and replacement of some vegetation, although the exact amount and nature of the vegetation removal and enhancements have not been determined at the time of this report.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous paved path linking existing features on the project site. Provide improvements to the Central Green. Establish a children's play area, picnic areas, and a possible future small dog park.
Circulation and Parking	Relocate the parking lot approximately 50 to 70 feet to the north. The size of the parking lot (63,000 square feet) and the number of parking spaces would not change. The shifting of the parking lot on the northern side of the project site may require removal or relocation of the trees between the existing parking lot and West 6th Street. If these trees need to be removed or relocated, they would be either moved to another location within the 13-acre project site or replaced elsewhere within the project site. Add new landscaping and vehicle access lanes to the parking lot. Establish a new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping Concept Plan	Establish three distinct landscaping zones encircled by a looping pedestrian path. More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. Create three biofiltration areas for stormwater management.

2.3.1 Page Museum Renovations

The project would renovate the existing Page Museum within the same footprint as the existing building (currently approximately 63,200 square feet) to allow for an enlarged exhibition space, additional collections storage, a ground floor café, and retail space. The central atrium would be renovated to provide additional exhibitions, an additional classroom, and visible laboratory space. A sloped green roof would be installed north of the Page Museum and would curve to the west. The project would add several sustainability features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and rooftop solar photovoltaic panels.

2.3.2 New Museum Building

A two-story museum building would be constructed northwest of the Page Museum. The building would be approximately 40,000 gross square feet (gsf) and would increase the total museum square footage to

104,000 gsf. The new museum building would include an extended central lobby, exhibit spaces, two theaters, research and collections laboratories, administration spaces, and a loading dock.

The Page Museum and new museum building would be continuously connected on the first floor. The first-floor central lobby would face southwest toward the Central Green and branch off into the Page Museum to the east and the new museum building to the west. The Page Museum and the new museum building would be disconnected on the second floor, which would rise above the earthen berm. The separated facilities would be accessible through sloped outdoor walkways from the Central Green or through the interior in the new museum building. There would be pedestrian entrances leading into the central lobby from the Central Green and parking lot.

2.3.3 Tar Pits

The project would renovate the existing facilities at all the tar pits in the western portion of the project site. The existing fencing around Pit 9, Pit 13, and Pits 3, 4, 61, and 67 would be removed. The project would construct clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage.

The project would relocate the wooden fossil boxes, research facilities, and ongoing excavation associated with Project 23[2] to space within and adjacent to the new museum building. The temporary storage and research buildings adjacent to Project 23 would be demolished or repurposed within the project site.

Pit 91 would continue to be a key research and interpretation destination in the park. The project includes the demolition of the current viewing station overlooking Pit 91. In addition, a shaded outdoor classroom, a canopy, built-in seating, and a possible support structure would be constructed. While excavation at Pit 91 could be completed in a few years, the site would be maintained and enhanced to support future excavation and educational opportunities. The new support facilities at Pit 91 would continue to support temporary excavation sites at adjacent Pit 10 or other future field sites.

2.3.4 Entrance Renovation and Other Internal Improvements

The project would renovate the existing entrance to La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza – the Wilshire Gateway. This gateway would provide orientation, spaces for gathering and queuing, and restrooms. A picnic area would also be located under the shaded canopy.

A pedestrian bridge and walking path would be constructed over the Lake Pit. Directly to the east of the Lake Pit, a new garden bioswale would be installed to manage stormwater and would include vegetation related to the relocated mammoths and mastodon sculptures.

A school drop-off area on South Curson Avenue would lead directly to the educational group and tour entrance, enabling the choreography of student tour check-in processes that are distinct from general museum visitors and other tour groups.

[2] Project 23 is an active fossil recovery site. In 2006, the LACMA began work on a new underground parking garage. During the course of construction, 16 new fossil deposits were discovered, including an almost-complete skeleton of an adult mammoth. Construction was halted, and 23 large wooden boxes were built around each fossil deposit (hence the short-hand descriptor, "Project 23"). These boxes and numerous buckets of fossil material were moved to the Project 23 current location for recovery. Adjacent covered research and storage areas support the ongoing fossil recovery.

The project would renovate the existing entrance at the northwest corner of Hancock Park at West 6th Street and the entrance to the LACMA parking garage. Similar to the Wilshire Gateway, a shaded canopy and welcome pavilion would provide orientation, legibility, and amenities. As a visible point of arrival from the residential communities to the north, this new entry would welcome visitors to a shaded park space where community park and recreational needs are balanced with the research activities. Under the canopy of shade trees, visitors would find diverse destinations, including play areas, picnic areas, seating and interpretation zones at the protected tar seeps, gentle topography and bioswales along Oil Creek, and the revitalized destinations of the Dorothy Brown Amphitheater, Observation Pit, and Pit 91. Along the south edge of the loop path, connections would allow access to other Hancock Park programs and transportation connections.

2.3.5 Landscaping

The planting and landscaping concept for La Brea Tar Pits would be divided into three distinct zones encircled by the looping path system. Each loop of the pedestrian path would have a theme that represents different geologic epochs—Pleistocene in the southeastern loop, Holocene in the northwestern loop, and Anthropocene in the central loop. The Pleistocene Garden, located directly east of the Lake Pit, would be approximately 10,000 to 11,000 square feet in size, and incorporate a biofiltration area to help manage stormwater. It would be planted with herbaceous and woody species and the mammoth and mastodon sculptures currently located in the Lake Pit would be relocated there. The western loop would consist of a Holocene landscape with climate-appropriate native plantings to ease water consumption, ensure appropriate maintenance, and promote sustainable growth. A forested woodland consisting of Torrey pine and coast live oak would be planted with the intention of providing a focal area and shade. The western loop also contains Oil Creek, which would be developed into a biofiltration zone for stormwater management and would be planted with sequoia and Monterey pine trees in wetter pockets.

The woodland forest zone of the western loop would be extended along the park's peripheral edges (northern, southern, eastern, and western) to provide shade to the picnic areas and the parking lot to the north. Tree species are expected to include Torrey pine, coast live oak, western sycamore, and valley oak and would support the development of a unified canopy across the site. A 6,000 to 7,000-square-foot biofiltration area would be located within the center of the vehicular drop-off loop to manage stormwater flows from the parking lot.

2.3.6 Project Construction

Construction of the project would occur when all design and construction plans are completed and approved by the County and other required agencies. Construction activities would include demolition of the existing museum entrances, grading and excavation, and construction of new structures and related infrastructure. All construction activities, including construction staging of equipment, would be situated entirely within the project site. Typical construction equipment would be used during all phases of the project construction and would be stored within the staging area, including excavators, dozers, backhoes, dump trucks, water trucks, sand blasters, rollers, pavers, generators, scrapers, forklifts, delivery trucks, paving equipment, cranes, and air compressors. The grading and construction phase would be the peak period of construction with the highest number of construction vehicles. The grading phase is estimated to result in up to 127 one-way truck trips (e.g., vendor, hauling) and 75 worker vehicle trips per day. The building construction phase is estimated to result in up to 24 one-way truck trips and 200 worker vehicle trips per day.

Any hazardous materials found during construction and renovation would be abated and removed during the construction process in accordance with the applicable hazardous materials standards and requirements. Due to anticipated soil conditions, on-site soils are not expected to be suitable for reuse and

would need to be exported for remediation and disposal. Therefore, it is anticipated that project earthwork activities would include an estimated 53,000 cubic yards of cut/export and potentially 37,000 cubic yards of imported fill. At the time of preparation of this EIR, final engineering, design, and grading plans for the project had not been finalized. Because the project design is at a preliminary stage, the level of detail needed to determine the precise depth of ground disturbance is not known. However, the level of design that has occurred to date allows for a general characterization of the overall ground disturbance and excavation that would be necessary for the project. The project design team worked with the Foundation and the County to characterize a "worst-case" ground-disturbance estimate, which represents the most-impactful scenario in terms of depths and amount of excavation that includes all project elements. While separate estimates for each project element (e.g., the new museum building) are not yet available, the estimate based on the worst-cast scenario provides a reasonable basis on which the potential for environmental impacts can be analyzed.

Under the most-impactful scenario, the project would maximally require excavations from 6 to 10 feet deep. In general, the new museum building would require the most ground disturbance and excavation. While the final elevation of the foundation for the new museum building is not known at this time, it may be below the existing ground surface to provide a smooth connection to the existing Page Museum. While certain project elements are expected to require less excavation than the new museum, this EIR assumes that excavations could occur up to 10 feet deep throughout the 13-acre project site to allow maximum flexibility as the project designs become more refined.

2.4 PROJECT OBJECTIVES

As described in Chapter 3, Project Description, the Los Angeles County Museum of Natural History, as a departmental unit of the County and the Foundation have identified the following objectives for the project:

1. Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019; County of Los Angeles 2024).
2. Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.
3. Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.
4. Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.
5. Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.
6. Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.
7. Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.

8. Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.
9. Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.

2.5 SIGNIFICANT ENVIRONMENTAL IMPACTS IDENTIFIED

Impacts of the proposed project have been classified using the following categories:

- **Less than significant impacts:** Less than significant impacts means the effect does not meet or exceed the applicable significance criteria thresholds for a particular resource. No mitigation measures are required for less than significant impacts.
- **Less than significant impact with mitigation:** An adverse impact that would cause a substantial adverse effect that meets or exceeds the applicable significance criteria thresholds for a particular resource but can be reduced to a less-than-significant impact through successfully implementing identified mitigation measures.
- **Significant and unavoidable impacts:** Significant impacts that cannot be fully and effectively mitigated. No measures could be taken to avoid or reduce these adverse effects to insignificant or negligible levels.

The term "significance" is used throughout the EIR to characterize the magnitude of the projected impact. For this EIR, a significant impact is a substantial or potentially substantial change to resources in the local proposed project site or the area adjacent to the project site. In the discussions of each issue area, thresholds are identified that are used to distinguish between significant impacts and impacts that are less than significant. To the extent feasible, mitigation measures have been identified to reduce project impacts to less than significant. CEQA requires that public agencies should not approve projects as proposed if feasible mitigation measures are available that would substantially lessen the environmental effects of such projects (California Public Resources Code Section 21002).

The impacts and associated mitigation measures identified for the project are shown in Table 2-2. The table includes impacts that are categorized as significant and less than significant, all of which are identified with an impact number (e.g., AQ Impact 1). The impact summary table describes and classifies each impact, lists recommended mitigation when applicable, and states the level of impact remaining after implementation of identified mitigation. A summary of project alternatives, including the environmentally superior alternative, is included in Section 2.8, Project Alternatives.

Table 2-2. Summary of Impacts and Mitigation Measures

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
Aesthetics			
AES Impact 1: The project would not have a substantial effect on a scenic vista either during project construction or operation. Impacts during project construction and operation would be less than significant. (CEQA Checklist Appendix G Threshold I. a)	Less than significant	No mitigation is required.	Not applicable (N/A)
AES Impact 2: The project would not substantially damage scenic resources within a State- or City-designated Scenic Highway during either project construction or operation. Impacts during construction and operation of the project would be less than significant. (CEQA Checklist Appendix G Threshold I. b)	Less than significant	No mitigation is required.	N/A
AES Impact 3: The project would not conflict with applicable zoning and other regulations governing scenic quality during either project construction or operation. Impacts during construction and operation of the project would be less than significant (CEQA Checklist Appendix G Threshold I. c).	Less than significant	No mitigation is required.	N/A
AES Impact 4: The project could create a new source of substantial light or glare during both construction activities and project operation as part of the final building and project design which could adversely affect daytime or nighttime views in the area. Impacts during construction and operation of the project could be significant. (CEQA Checklist Appendix G Threshold I. d)	Significant	**AES/mm-4.1:** During project construction, the following measures shall be required: • The hours of construction activities shall be limited to between 7:00 a.m. and 9:00 p.m. on weekdays and between 8:00 a.m. and 6:00 p.m. on Saturdays and national holidays, with no construction permitted on Sundays. • If construction during evening hours is deemed necessary, construction-related illumination shall be used for safety and security purposes only. Additionally, any construction lighting shall be directed toward the area undergoing work, which requires that construction lighting be shielded and/or aimed so that no direct beam illumination would fall outside of the project site boundary. **AES/mm-4.2:** The project shall implement the following design features: • All facades and/or building surfaces including glass windows shall be constructed using non-reflective materials or be treated with non-reflective coating.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• All light emanating from new uses shall be either low scaled lighting or shielded to focus lighting and prevent lighting from spilling onto adjacent sensitive uses. • The project shall not include outdoor lighting that causes residential property to be illuminated by more than two footcandles of lighting intensity or receive direct glare from the light source. • All lights used to illuminate parking areas shall be designed, located, and arranged to reflect the light away from any street and any adjacent premises. • Signage with a light intensity of greater than three footcandles above ambient lighting, as measured at the property line of the nearest residentially zoned property, shall be prohibited.	
AES Impact 5 (Cumulative): The project has the potential to contribute considerably to cumulative impacts associated with light and glare during both project construction and operation.	Significant	Implement Mitigation Measures AES/mm-4.1 and AES/mm-4.2.	Less than significant
Air Quality			
AQ Impact 1: The project would not conflict with or obstruct implementation of applicable air quality plans during either construction or operation. Construction and operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. a)	Less than significant	No mitigation is required.	N/A
AQ Impact 2: The project would not result in a cumulatively considerable net increase of criteria pollutants that would exceed applicable SCAQMD thresholds during either construction or operation. Construction and operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. b)	Less than significant	No mitigation is required.	N/A
AQ Impact 3: The project could expose sensitive residential receptors to substantial pollutant concentrations during construction related to diesel exhaust. Construction impacts could be significant. Operation of the project would not expose sensitive residential receptors to substantial pollutant concentrations. Operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. c)	Significant	**AQ/mm-3.1:** To reduce the potential for health risks as a result of construction of the project, the following measures shall be implemented: • Prior to the start of construction activities, it shall be ensured that all 75 horsepower or greater diesel-powered equipment are powered with CARB-certified Tier 4 Interim engines, except where the County establishes that Tier 4 Interim equipment is not available.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		There are several other SCAQMD rules and regulations that serve as mitigation measures for the project construction. These rules are: • SCAQMD Rule 403, which requires projects to incorporate fugitive dust control measures; • SCAQMD Rule 1113, which limits the volatile organic compound content of architectural coating; and • SCAQMD Regulation XIII, New Source Review, which requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available technology control technology for new combustion sources such as boilers and water heaters).	
AQ Impact 4: The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people during either project construction or operation. Construction and operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. d**)**	Less than significant	No mitigation is required.	N/A
AQ Impact 5 (Cumulative): The project's air pollutant emissions related to diesel exhaust during construction could result in a cumulative contribution to air pollution in the region. Operation of the project would not result in a significant contribution to air pollution in the region.	Significant	Implement Mitigation Measure AQ/mm-3.1.	Less than significant
Biological Resources			
BIO Impact 1: The project could result in in significant effects during the construction process on one species, the federal candidate monarch butterfly, either directly or through habitat modifications. Impacts during project construction could be significant. During project operation, the project would not result in significant effects, either directly or through habitat modifications, on any identified candidate, sensitive, or special-status species. Impacts during project operation would be less than significant. (CEQA Checklist Appendix G Threshold IV. a)	Significant	**BIO/mm-1.1:** To protect the federal candidate monarch butterfly, which is a candidate species for listing under the federal Endangered Species Act, the following measures (BIO/mm-1.1a or BIO/mm-1.1b) shall be implemented: a. Full avoidance of impacting any milkweed populations on-site with observable monarch eggs and larvae. After obtaining permits and prior to construction, all individual milkweed plants will be surveyed. All individual plants found with eggs or larvae will be flagged for re-survey and avoidance. Individual plants without eggs and larvae will be removed. Flagged plants will be re-surveyed and removed when no eggs or larvae are present. All tropical milkweed will be replaced with native narrowleaf milkweed (*Asclepias fascicularis*) following construction. OR	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		b. If monarch eggs and larvae are not present, any tropical milkweed populations in the project area should be replanted with native narrowleaf milkweed and other nectar-providing plants following construction activities. All tropical milkweed on the property will be assessed for the absence of monarch eggs and larvae and replaced with narrowleaf milkweed after construction.	
BIO Impact 2: The project could directly and indirectly impact the riparian wetland habitat associated with Oil Creek during both construction and operation as a reconnaissance survey suggests there may be approximately 0.3 acre of regulated aquatic resources associated with Oil Creek. Impacts during construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. b)	Significant	**BIO/mm-2.1:** Impacts to Oil Creek may be avoidable but are subject to final project design. To protect sensitive and regulated aquatic resources associated with Oil Creek, one of the following measures (BIO/mm-2.1a or BIO/mm-2.1b) shall be implemented: a. Full avoidance of Oil Creek, including riparian habitats. To attain full avoidance of Oil Creek, construction and ground disturbance shall not occur within 125 feet of the centerline of Oil Creek. The limits of riparian habitat shall be flagged and construction fencing erected to clearly denote the limits of construction. No overnight staging of equipment or materials shall occur within the protected “no work” zone as delineated by the fencing. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area. OR b. If full avoidance of Oil Creek and a designated “no work” buffer is not possible after determination of final design, the following measures shall be required: i. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Oil Creek feature. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the “protected zone”). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site. ii. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to removed diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event. iii. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing Oil Creek riparian corridor, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following: • Native tree replacement requirements consistent with the requirements of the Plant Pest and Disease Management Plan (BIO/mm-6.2). • A detailed planting scheme identifying the location and sizes of all container stock. • Details on planned irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years.	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• Annual monitoring, maintenance, and adaptive management measures and annual reporting requirements. iv. The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area. v. Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.	
BIO Impact 3: The project could directly and indirectly impact the Lake Pit lakebed and its associated riparian habitat during both construction and operation as a reconnaissance survey suggests there may be approximately 1.2 acres of regulated aquatic resources associated with the Lake Pit. Impacts during construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. b)	Significant	**BIO/mm-3.1:** This mitigation measure only applies to project features implemented in and around the Lake Pit, including the pedestrian path and bridge. The following measures shall be implemented prior to the implementation of these features: a. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Lake Pit features. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the “protected zone”). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		b. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to remove diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event. c. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing riparian vegetation within and along the margins of the Lake Pit, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following: • A detailed planting scheme identifying the location and sizes of all container stock. • Details on planned irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years. • Five years of annual monitoring, maintenance, and adaptive management measures and annual reporting requirements. d. The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter the Lake Pit and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area. e. Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.	
BIO Impact 4: The project site may contain potential jurisdictional wetland/aquatic resources in and along Oil Creek and the Lake Pit. Project construction and operation may result in impacts to wetland habitat. Impacts during construction and operation of the project could be significant. (CEQA Checklist Appendix G Threshold IV. c)	Significant	Implement Mitigation Measures BIO/mm-2.1 and BIO/mm-3.1.	Less than significant
BIO Impact 5: The project could directly impact nesting birds during project construction and temporally impact nesting bird habitat during project operation. Impacts during construction and operation of the project could be significant. (CEQA Checklist Appendix G Threshold IV. d)	Significant	**BIO/mm-5.1:** To avoid impacts to nesting birds, one of the following measures (BIO/mm-5.1a or BIO/mm-5.1b) shall be implemented: a. If possible, no vegetation trimming, pruning, removal, construction, or grading shall occur during the nesting and breeding season (January 1 through September 15). OR b. If activities associated with vegetation trimming, pruning, removal, construction, or grading are necessary during the bird nesting and breeding season (January 1 through September 15), the following measures shall be implemented: • A qualified biologist shall conduct surveys for active nests weekly, beginning 14 days prior to initiation of any new construction activities, with the last survey conducted no more than 3 days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional pre-construction surveys should be conducted so that no more than 3 days have elapsed between the survey and ground-disturbing activities. • Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. The size of the buffer zone shall be at the discretion of the qualified biologist and shall be no less than 25 feet. Raptors may require a larger buffer zone, up to 300 feet. Installation of the exclusionary material shall be completed by construction personnel under the supervision of a	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		qualified biologist prior to initiation of construction activities. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by a qualified biologist. The barrier shall be removed by construction personnel only at the direction of the biologist. **BIO/mm-5.2:** New and replacement trees shall be 24-inch box specimen trees or larger to reduce temporary impacts to nesting birds. **BIO/mm-5.3:** To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.	
BIO Impact 6: Removal, relocation, trimming, or replacement of the 13 protected oak trees on the project site during project construction and operation could potentially conflict with the County of Los Angeles Oak Tree Ordinance. Impacts during construction and operation of the project could be significant. (CEQA Checklist Appendix G Threshold IV. e)	Significant	**BIO/mm-6.1:** For oak trees within the project site that are to be retained in their current location, prior to construction, chain-link fencing shall be installed around the protected zone of the trees (5 feet beyond the dripline, the outermost extent of the tree's branches, or 15 feet from the trunk, whichever is greater). The fencing shall remain in place throughout the entire period of construction. Any excavation or grading allowed within the protected zone shall be limited to hand tools or small hand-powered equipment. This measure shall only apply to existing trees where the limits of construction work are within 20 feet of the protected zone. In addition, one of the following measures (BIO/mm-6.1a or BIO/mm-6.1b) shall be implemented: a. If possible, removal, relocation, trimming, or replacement of the oak trees at the Tar Pits site shall be avoided. b. If modification (removal, relocation, trimming, or replacement) of protected oaks is required, coordination with the County of Los Angeles Department of Regional Planning shall occur prior to commencement of any work on-site. Any encroachment or removal requests must be reviewed by the County of Los Angeles Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Although an oak tree permit is not required, measures to mitigate for impacts to oak trees shall include the following:	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• Removed oak trees shall be mitigated by planting coast live oaks at a 2:1 ratio on the project site. Each replacement tree shall be at least a 15-gallon specimen. • The replacement oaks shall be monitored for a period of 5 years, with any failures resulting in a new oak being planted and initiation of a new 5-year monitoring period for the replanted tree. **BIO/mm-6.2:** A Plant Pest and Disease Management Plan shall be prepared prior to initiation of landscape planting and developed in consultation with an International Society of Arboriculture Certified Arborist. The Plant Pest and Disease Management Plan shall define methods to ensure new plant materials (container stock) are free of insect pests and diseases prior to delivery to the project site. Implementation of the Plant Pest and Disease Management Plan shall occur through the life of the project; modification and adaptation may occur to ensure applicability and viability of the plan.	
BIO Impact 7: Construction and operation of the project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact would occur. (CEQA Checklist Appendix G Threshold IV. f)	No impact	No mitigation required.	N/A
BIO Impact 8 (Cumulative): During construction and operation, the project has the potential to contribute considerably to cumulative impacts to biological resources.	Significant	The project would be required to implement Mitigation Measures BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1, BIO/mm-5.2, BIO/mm-6.1, and BIO/mm-6.2.	Less than significant
Cultural Resources – Archaeological Resources			
CR-ARCH Impact 1: During project construction, the project could cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to State CEQA Guidelines Section 15064.5. Construction impacts could be significant. Project operation would not cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur. (CEQA Checklist Appendix G Threshold v. b)	Significant	**CR-ARCH/mm-1.1:** Retain a Qualified Archaeologist. a. Prior to initiating any ground-disturbing activities, a Qualified Archaeologist shall be retained. A Qualified Archaeologist is defined as one who meets the Secretary of the Interior's (SOI) Standards for professional archeology and those defined for a Principal Investigator by the Society for California Archaeology (SCA). The qualifications shall be presented as part of a resume for at least one primary point of contact who will act in capacity as the Qualified Archaeologist but also other key staff who may serve in this role. The resume shall demonstrate their SOI and SCA qualifications and shall be subject to approval by the County.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		b. Ground-disturbing activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The Qualified Archaeologist shall carry out and ensure proper implementation of the mitigation measures and regulatory compliance related to archaeological resources and, where appropriate, tribal cultural resources during the project. The Qualified Archaeologist shall be responsible for establishing a meeting schedule with Page Museum curators and collections managers during implementation of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination. c. No more than 21 days before ground-disturbing activities for the project commence, the Qualified Archaeologist shall submit a letter confirming that they have been retained consistent with the terms of the CR-ARCH/mm-1.1 and attach the professional resumes for all staff who may be acting in the capacity of the Qualified Archaeologist. **CR-ARCH/mm-1.2:** Prepare an Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan). a. Prior to commencing ground-disturbing activities, an AR-TCR Management Plan shall be prepared by the Qualified Archaeologist and submitted to the Page Museum curators and the NHMLAC Curator of Anthropology, who shall review and approve the AR-TCR Management Plan on behalf of the County. The AR-TCR Management Plan shall be prepared in conformance with Public Resources Code Section 5024.1, Title 14 California Code of Regulations, Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1. b. The AR-TCR Management Plan shall include but not be limited to the following elements: i. Historical context statement, research design, the specific types of archaeological sites likely to be encountered. ii. Construction worker training program (described in CR-ARCH/mm-1.3). iii. Monitoring protocol for ground-disturbing activities that includes a framework for assessing the geoarchaeological setting to determine whether	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		sediments capable of preserving archaeological remains are present in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment and include a protocol for identifying the conditions under which additional or reduced levels of monitoring (e.g., spot-checking) may be appropriate. The duration and timing of the monitoring shall be determined based on the rate of excavation, geoarchaeological assessment, and, if present, the quantity, type, and spatial distribution of archaeological resources identified.	
		iv. Limited program of archaeological presence/absence testing within naturally deposited asphaltic or non-asphaltic alluvial sediments before they are mechanically excavated. In particular, the area of the new museum, promenade, and parking lot expansion shall be further investigated. These investigations shall be conducted via a combination of archaeological units, hand tools, and mechanical trenching. The methods used to conduct the limited archaeological testing shall be coordinated with contractors to ensure that sufficient time is afforded to evaluate the significance of any identified resources, and if they are found to be significant, time to develop and implement a treatment plan appropriate to the type of resource. The timing of any such efforts shall be conducted in localized areas so that delays to project earthwork activities are minimized while allowing archaeological materials to be identified in a manner that retains the scientific integrity of the discovery.	
		v. An approach to evaluate newly identified site components, if applicable, as contributors to the significance of LAN-159/H as a “historical resource” pursuant to CEQA Guidelines Section 15064.5(a) or a “unique archaeological resource” pursuant to PRC 21083.2(g). If any archaeological resources are identified and are found not to be significant or do not retain integrity, then they shall be recorded to a level sufficient to document the contents and condition.	
		vi. Potential treatment plans to be implemented in the event a newly discovered archaeological resource is determined by the Qualified Archaeologist to	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		contribute to the significance of the site as a historical resource based on California Register of Historical Resources criteria or a unique archaeological resource in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. The AR-TCR Management Plan shall require that if the treatment plans outlined therein are found to be infeasible or other alternatives are proposed, the Qualified Archaeologist shall coordinate with the project proponent and the County to amend the AR-TCR Management Plan with a formal treatment plan that would reduce impacts to the resource(s). The treatment plans stated in the AR-TCR Management Plan or prepared after the discovery of a historical resource, shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment and if it is determined avoidance is not feasible, treatment may include but not be limited to any of the following depending on the type of resource and the significance evaluation: • Native American archaeological site components. Data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant where significance is determined under CRHR Criterion 4 or as a unique archaeological resources and integrity is retained. Additional treatment measures to mitigate potentially significant impacts to the component as a tribal cultural resource, which is to be carried out in consultation with the Tribal Consultants and after considering the status of the discovery as a tribal cultural resource. • Historical archaeological site components. If a historical archaeological component of the site is present and found to retain integrity, data recovery shall be conducted (i.e., excavation, laboratory processing and	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		analysis) to remove the resource(s) and reduce potential impacts to less than significant. vii. Discovery and processing protocol for inadvertent discoveries of archaeological resources that are encountered when an Archaeological Monitor is not present. viii. A process by which recovered materials will be prepared for curation at the Page Museum or the Research and Collections Department at the Natural History Museum of Los Angeles County ~~at the Los Angeles Exposition Park~~, as directed by Page Museum curators and collections managers, and in consultation with Tribal Consultants. The curation shall ensure their long-term preservation and allow access to interested scholars and shall be done at the expense of the County and/or the Foundation. If the materials are Native American in origin or any item of cultural patrimony, the manner of their handling and long-term curation may require additional consultation with the appropriate Native American community that shall be determined as part of a tribal consultation process to be conducted by the County who shall be responsible for the disposition of these materials. ix. The AR-TCR Management Plan shall summarize the requirements for tribal coordination ~~during~~ in the event of an inadvertent discovery of Native American archaeological resources, including the applicable regulatory compliance measures or conditions of approval for the inadvertent discovery of archaeological resources to be carried out in concert. **CR-ARCH/mm-1.3:** Conduct an archaeological awareness training. a. The Qualified Archaeologist or a designee working under their direction shall provide training to on-site project personnel who are responsible for overseeing ground-disturbing activities (i.e., a foreman or site supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The training shall brief the crews on the regulatory compliance requirements and applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		archaeological resources. As an element of the worker training, the Qualified Archaeologist or their designee shall advise the construction crews on proper procedures to follow if an unanticipated archaeological resource is discovered during construction, including the authority of Archaeological Monitor(s) to temporarily halt or redirect work away from such a discovery. Workers shall be shown examples of the types of archaeological resources that would require notification of the archaeologist, if encountered. The workers shall be provided with contact information for the Qualified Archaeologist and their designee(s) as part of a brief handout summarizing the critical components of the training. Once the ground-disturbing activities have commenced, the need for additional or supplemental worker trainings shall be determined by the Qualified Archaeologist based upon consultation with project personnel. b. Within five days of completing each training, a list of those in attendance shall be provided by the Qualified Archaeologist to a point of contact designated by the Museum of Natural History. **CR-ARCH/mm-1.4:** Monitoring for Archaeological Resources. a. At least one Archaeological Monitor working under the direction of the Qualified Archaeologist shall be present during ground-disturbing activities to implement the AR-TCR Management Plan. The Archaeological Monitor shall have the authority to temporarily halt or redirect construction activities when an archaeological resource, suspected resource, or archaeologically sensitive sediments are encountered, as determined by the Qualified Archaeologist in consultation with the Page Museum curators. The presence/absence testing protocol shall be implemented within the asphaltic alluvial sediments that have elevated archaeological sensitivity as stipulated in the AR-TCR Management Plan and conducted in concert with Tribal Monitors and applicable tribal cultural measure measures. The Qualified Archaeologist and Archaeological Monitor shall document the results of the presence/absence testing and allow ground-disturbing activities to proceed in the sediments with archaeological sensitivity once the archaeological and tribal monitors have confirmed the absence of resources. The Archaeological Monitor shall continue to monitor the ground-disturbing activities with the depths assessed by the presence/absence testing. Once the	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		Archaeological Monitor identifies sediments or depths of excavation that are not capable of containing or are unlikely to contain archaeological resources, a corresponding reduction of monitoring coverage would be appropriate, and may be recommended by the Qualified Archaeologist. The Archaeological Monitor shall complete a daily written log documenting construction activities and observations, which shall be included in the final report. The number of Archaeological Monitors shall be determined by the County, based on the scale of ground-disturbing activities and a reasonable degree of effort required to implement the mitigation measures. b. In the event that potentially significant archaeological resources are exposed during construction, work in the immediate vicinity of the find (within 8 meters [25 feet]) shall stop until the Qualified Archaeologist can evaluate the significance of the find, with input from the tribal monitor if the discovery is affiliated with Native Americans and is also being assessed as tribal cultural resources. Construction activities may continue in other areas in coordination with the Qualified Archaeologist and, if applicable, tribal monitors. c. At the conclusion of all ground-disturbing activities the Qualified Archaeologist shall prepare a technical report documenting the methods and results of all work completed under the AR-TCR Management Plan, including, if any, treatment of archaeological materials, results of artifact processing, analysis, and research, and evaluation of the resource(s) for the California Register of Historical Resources. The format and content of the report shall follow the California Office of Historic Preservation's Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. Any archaeological resources identified shall be documented on appropriate California Department of Parks and Recreation 523-Series Forms. The report shall be prepared under the supervision of a Qualified Archaeologist and submitted to curators of the Page Museum for initial review (on behalf of the Museum of Natural History, as the County departmental unit), and final copies shall be submitted to the County. The report shall be completed with 12 months of completion of the monitoring, unless other arrangements are required, as documented in writing and approved by the County, given the nature of the discovery, in which case a revised date can be determined through	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		consultation with the Museum of Natural History. The final draft of the report shall be submitted to the South Central Coastal Information Center and the Tribal Consultants.	
CR-ARCH Impact 2: Construction of the project could disturb previously unidentified human remains if present within the project site. Construction impacts could be significant. Operation of the project would not disturb any human remains, including those interred outside of formal cemeteries. No operational impacts would occur. (CEQA Checklist Appendix G Threshold v. c)	Significant	Implement Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4.	Less than significant
CR-ARCH Impact 3 (Cumulative): Prior to the consideration of proposed mitigation measures, construction of the project could result in significant contributions to cumulative impacts related to the disturbance and destruction of archaeological resources pursuant to State CEQA Guidelines Section 15064.5, and human remains. Cumulative construction impacts could be significant.	Significant	Implement Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4. These measures put forward a process that ensures any new archaeological resources or new components of existing historical resources would be identified, inventoried, and evaluated as contributors to the historical significance of the resource, and treated appropriately if found to be a contributing element, which incorporates input from culturally and geographically affiliated California Native American tribes.	Less than significant
Cultural Resources – Historical Resources			
CR-HIST Impact 1: As a result of project construction, the project would cause a substantial adverse change in the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum. This impact would be significant. Project operation would not cause a substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur. (CEQA Checklist Appendix G Threshold V. a)	Significant	**CR-HIST/mm-1.1:** Impacts to the La Brea Tar Pits Historic District and Page Museum resulting from project implementation shall be reduced through the ongoing input to the Design Team from a qualified Historic Architect, as the project design progresses. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in designing, developing, and reviewing architectural plans for conformance with the Secretary's Standards. The Historic Architect shall work with the Design Team to identify options for new construction, upgrades, stabilization, repairs, and rehabilitation activities that will facilitate compliance with the Secretary's Standards. This historic preservation input to the Design Team shall begin in the earliest phases of schematic design phase possible and extend throughout the development of 50% Construction Drawings. For new construction, the Historic Architect shall work with the Design Team to identify options and opportunities for: (1) ensuring compatibility of scale and character for new construction, site and	Significant and unavoidable

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		landscape features, and circulation corridors, (2) ensuring that new construction, in materials, finishes, design, scale, and appearance, is compatible but differentiated from historic contributors and character-defining features; and (3) ensuring that new construction is designed and sited in such a way that it reinforces and strengthens, as much as feasible, character-defining site plan features, landscaping, and circulation corridors. For modernization and upgrade projects, the Historic Architect shall work with the Design Team to identify project options that facilitate compliance with the Secretary's Standards. The Historic Architect shall review proposed materials, finishes, window treatments/configuration, and other details to ensure compliance with the Secretary's Standards. The Historic Architect shall provide specifications for architectural features or materials requiring restoration or removal, maintaining and protecting relevant features in place, or on-site storage. Specifications shall include detailed drawings or instructions where historic features may be impacted. The Historic Architect shall document the input provided to the Design Team in Memoranda for the Record at the Schematic and 50% Construction Documents phases. A Draft Memorandum for the Record shall be provided to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment. The Historic Architect shall participate in pre-construction and construction monitoring activities, as appropriate, to facilitate conformance with the Secretary's Standards and/or lessening of material impairment to historical resources. **CR-HIST/mm-1.2:** An Inventory and Treatment Plan shall be prepared by a qualified historic preservation professional and implemented for the La Brea Tar Pits Historic District. Once complete, the Draft Inventory and Treatment Plan shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. The Inventory and Treatment Plan shall be finalized prior to the commencement of construction activities. Specific requirements for the Inventory and Treatment Plan are provided below: • A qualified historic preservation professional shall be retained to prepare the Inventory and Treatment Plan. The historic preservation professional shall satisfy the Secretary of the Interior's Professional Qualifications Standards for History and/or Architectural History as defined by the National Park Service and in accordance	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in CEQA review of historic resources and reviewing architectural plans for conformance with the Secretary's Standards. A landscape architect or landscape specialist with a minimum of five (5) demonstrated years of experience working with historic landscapes shall contribute to preparation of the Inventory and Treatment Plan to identify historic landscaping and trees that fall within the period of significance for the historic district (up to 1977). • The Inventory and Treatment Plan shall adhere to best professional practices promulgated by the National Park Service and State Office of Historic Preservation. • The Inventory and Treatment Plan shall supplement the historic resources survey completed and documented in the Historic Resources Technical Report for the La Brea Tar Pits Master Plan by documenting the character-defining features and existing conditions of those "contributing" (i.e., historically significant) components of the historical resource. The inventory shall include site plan features, commemorative plaques and statues, artwork and sculptures, and other extant contributors to the historic district. • The study shall include recommendations for annual maintenance activities, treatment and repair priorities, and maximum retention of remaining district contributors. All recommendations shall be designed to maximize retention of remaining contributors to the historic district and minimize the loss of character-defining features. The Final Inventory and Treatment Plan shall be used for the ongoing stewardship of the property following construction. **CR-HIST/mm-1.3:** ~~A Historic American Buildings Survey (HABS)-like Documentation Package~~ A historic documentation package shall be prepared to document the contributing features of the La Brea Tar Pits Historic District and Page Museum prior to the authorization of demolition or construction activities. The documentation package shall emulate and include elements of the Historic American Building Survey (HABS) and/or the Historic American Landscape Survey (HALS). The HABS/HALS-like Documentation Package shall adhere to best professional practices promulgated by the National Park Service and shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. Documentation shall be in accordance with the applicable standards described in	

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		the Secretary of the Interior's Standards for Architectural and Engineering Documentation. Prior to the commencement of construction activities, a historian or architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History shall be retained to prepare HABS/HALS -like documentation for the La Brea Tar Pits Historic District and Page Museum. Required contents for the HABS/HALS-like package include the following: • Photographs: Photographic documentation will focus on the Page Museum and, within the historic district, those contributing elements (built, landscape, hardscape, paleontological, and natural features) slated for demolition, alterations, or adjacent new construction. Photographs shall include detail shots of contributing features and components slated for demolition, with overview and context photographs for the adjacent setting. Photographs shall be taken using a professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Digital photographs will be provided in electronic format. • Descriptive and Historic Narrative: The historian or architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each contributing component, with accompanying photographs, and information on how the resource fits within the broader historic district during its period of significance. The historic narrative shall draw upon previously prepared studies, including the Historical Resources Technical Report prepared for the La Brea Tar Pits Master Plan, as well as the La Brea Tar Pits Inventory and Treatment Plan prepared under Mitigation Measure CR-HIST/mm-1.2. The narrative shall also include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate. Upon finalization of the HABS/HALS-like Documentation Package, a hard copy and digital copy shall be prepared and offered to the Seaver Center for Western History Research at the Natural History Museum of Los Angeles County ~~Seaver Center for Western History~~	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		~~Research~~, University of Southern California Special Collections, and the Los Angeles Public Library. **CR-HIST/mm-1.4:** A Retrospective Exhibit and Interpretive Program shall be prepared and implemented. The Retrospective Exhibit and Interpretive Project shall be prepared by a qualified historic preservation professional who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History. The exhibit materials shall be drawn from previous studies including but not limited to the Inventory and Treatment Plan described in Mitigation Measure CR-HIST/mm-1.2 and the HABS/HALS-like documentation package described in Mitigation Measure CR-HIST/mm-1.3, as well as other supplemental research materials as needed. The retrospective exhibit and interpretive program shall focus on the history of the site, the people involved in the early ownership, development, and scientific discoveries and excavations, and the events leading to its donation to the County of Los Angeles, as well as on the site's development through the end of the period of significance for the La Brea Tar Pits Historic District, 1977. The retrospective exhibit and interpretive program may include but not be limited to exhibit materials and interpretive panels, both exterior (e.g., as a series of panels in the park), interior (e.g., as a permanent exhibit in the Page Museum or new museum building), and online (on the museum website). The exhibit and interpretive program shall be designed for maximum public accessibility. The plan for the interpretive and commemorative program shall be detailed in an Interpretive Program Plan Memorandum to be prepared with the guidance of a qualified historic preservation professional. The retrospective exhibit and interpretive program shall be completed within three (3) years of commencement of initial construction activities. The Draft Interpretive Program Plan Memorandum shall be reviewed by interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for comment. **CR-HIST/mm-1.5:** A pre-construction protection plan for historical resources shall be prepared prior to any major alteration or construction activities that may potentially damage historic resources or contributing features of the La Brea Tar Pits Historic District or Page Museum. A qualified Historic Architect shall be retained to develop a Preservation Protection Plan that identifies potential risks to historical resources within or adjacent to the immediate project footprint. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in reviewing architectural plans for conformance with the Secretary's Standards. The Preservation Protection Plan may include, but not be limited to, the following components: • Inclusion/mapping of the historical resource/contributing feature on any architectural drawings, site plans, and/or construction documents. • Site walk with Design Team and construction team representative to review staging areas for construction and construction sequence and activities, to identify areas of concern and to provide input for proactive avoidance of unforeseen impacts. • Procedures and timing for the placement and removal of temporary protection features, such as fencing and other barriers, around the historical resource/contributing feature. • Monitoring of the installation and removal of temporary protection features by the Historic Architect, or designee. • Post-construction survey to document the condition of the historic resource after project completion. • Preparation of a technical memorandum documenting the pre-construction and post-construction conditions of the historic resource and compliance with protective measures outlined in the Preservation Protection Plan. The Preservation Protection Plan shall be submitted in draft form to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment.	
CR-HIST Impact 2 (Cumulative): Construction of the project would result in substantial adverse changes to the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines, which would be considerable impacts contributing to cumulative historical resources impacts. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum. These direct construction impacts would also be significant. No operational impacts to historical resources would occur; therefore, contributions to cumulative impact would similarly not occur during the project's operational period.	Significant	Implement Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5.	Significant and unavoidable

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
Geology and Soils			
GEO Impact 1: The project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving surface fault rupture, seismic ground shaking, or seismic-related ground failure including liquefaction. Impacts associated with these issues would be less than significant during project construction and operation. The project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides during either project construction or operation. No impact would occur during project construction and operation related to landslides. (CEQA Checklist Appendix G Threshold VII. a)	Less than significant	No mitigation is required.	N/A
GEO Impact 2: Through compliance with existing regulations, the project would not result in substantial soil erosion or the loss of topsoil during project construction or operation. Impacts would be less than significant during project construction and operation. (CEQA Checklist Appendix G Threshold VII. b)	Less than significant	No mitigation is required.	N/A
GEO Impact 3: The project could cause geologic instability at the project site related to subsidence as well as compressible and collapsible soils during project construction and operation. Impacts during construction and operation could be significant. (CEQA Checklist Appendix G Threshold VII. c)	Significant	**GEO/mm-3.1:** To prevent subsidence of the ground surface within the project site, temporary dewatering shall be required during construction for excavations which extend below the existing groundwater level (i.e., greater than 10 feet below ground surface), anticipated for deepest excavations associated with the proposed Page Museum one-story addition, as excavations will be required for construction of the proposed mat foundation and associated new utility placement. Dewatering activities shall be conducted as follows: a. Dewatering shall be performed prior to excavation. Temporary dewatering shall be performed during the construction stage, prior to beginning any excavation which will extend beneath the groundwater. The Construction Contractor shall decide the proper timeline which will permit a dry environment for the excavation work and prevent water seepage into the excavation. b. The design of a temporary dewatering system shall be performed by an experienced, qualified dewatering contractor. Prior to proceeding with the actual design of	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		the dewatering system, a test installation shall be constructed to verify the design's effectiveness. c. The dewatering system shall be designed to lower the site groundwater sufficiently to permit a dry environment and to prevent water seepage from the temporary perimeter cut slopes. The design shall balance the soil conditions with well spacing and well depth. Recommendations for well design provided in the project's Geology and Soil Discipline Report shall be incorporated into the final design of the dewatering system, including: • Installation of relatively closely spaced wells around the excavation perimeter, referred to as well points • Wells shall include perforated casing with annular space filled with suitable filter material • Well points shall extend past the depth of proposed excavation • Elements of current dewatering system within the Lake Pit shall be incorporated, including collection piping, sump pumps, a sand-oil separator device, and a micro-filter device. In addition, separator and filter devices shall be considered for temporary dewatering pumps to help maintain the system's efficiency and increase the amount of time prior to the pumps being plugged up with tar. d. Groundwater shall be pumped from the tar sands and is anticipated to contain a relatively high percentage of tar. The tar shall be removed, and the groundwater treated in accordance with all applicable regulatory requirements prior to disposal. **GEO/mm-3.2:** To ensure proper design and stability of structures to be constructed on existing artificial fill or upper alluvial soils, the excavation and replacement of existing compressible materials within the areas of the proposed improvements shall be required. Excavation and replacement shall consist of complete removal of artificial fill and/or compressible surficial alluvial soil beneath the areas of the proposed improvements and replacement with compacted structural fill, with an anticipated artificial fill depth ranging between 1 and 8 feet below ground surface based on review of existing explorations performed within or adjacent to the project site. This value will be confirmed after completion of subsurface explorations during the final geotechnical design to further characterize the subsurface conditions underlying the improvement areas (i.e., compressibility of the soft layers and the depth to firm material). Due to the anticipated soil contamination, on-site soils are	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		not anticipated to be suitable for reuse as fill material and shall be exported for proper remediation and disposal in accordance with all applicable regulatory requirements. The final engineering design of the structures included in the project shall be reviewed and approved by the Los Angeles County Department of Public Works, Building and Safety Division.	
GEO Impact 4: The project site is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating a potentially significant risk to life and/or property during project construction and operation. Impacts could be significant. (CEQA Checklist Appendix G Threshold VII. d)	Significant	**GEO/mm-4.1:** To address impacts related to expansive soils within the project site, additional expansion testing shall be required as part of the final geotechnical design for the project. Based on the outcome of the additional expansion testing, one or more of the following options shall be implemented to address expansive soils: a. Over-excavation: Over-excavation and replacement of the expansive material with a soil having low or non-expansive potential, with the upper 2 feet of expansive soil (where encountered at the site) being removed and replaced with non-expansive fill. OR b. Soil Treatment: Chemical treatment, such as lime treatment. This generally involves mixing a certain percentage of the chemical into the subgrade soil, compacting the mixed soil-chemical material, and then allowing the material curing time prior to continuing construction. The percentage of the chemical addition and the associated engineering properties of the improved soil will need to be determined through geotechnical laboratory testing. If chosen, the final geotechnical design shall provide design and construction recommendations related for this option. OR c. Structural Design: The structural design option would involve increasing the bearing pressure on the soil and/or extending the foundation or flatwork depth. However, while increasing the bearing pressure reduces the potential impact from expansive soil, it does increase the potential impact associated with excessive settlement. If this option is elected, settlement evaluation shall be performed as part of the final geotechnical design and based on the proposed loading conditions. Loading conditions shall be limited to a maximum differential of 1 inch over a 20-foot span within the structure. The final design solution will be determined by the project engineer consistent with the above measures. The final engineering design of the structures included in the project shall be reviewed and	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		approved by the Los Angeles County Department of Public Works, Building and Safety Division.	
GEO Impact 5: The project would not include the use of septic tanks or alternative wastewater disposal systems during either project construction or operation. No impact would occur. (CEQA Checklist Appendix G Threshold VII. e)	No impact	No mitigation is required.	N/A
GEO Impact 6: Given the high paleontological sensitivity of the project site, ground-disturbing activities associated with project construction could damage paleontological resources that may be present below the surface. Construction impacts could be significant. Operation of the project would not directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature. No operational impacts would occur. (CEQA Checklist Appendix G Threshold VII. f)	Significant	**GEO/mm-6.1: Retain a Qualified Professional Paleontologist (Project Paleontologist):** Prior to the start of construction and/or ground-disturbing activities, the Los Angeles County Museum of Natural History Foundation, at the direction of the County, shall retain a Qualified Professional Paleontologist (Project Paleontologist) who meets or exceeds the professional standards defined by the SVP (2010), and who has specific experience overseeing mitigation projects in Pleistocene deposits of the Los Angeles Basin. The SVP (2010:10) defines a qualified professional paleontologist as: "a practicing scientist who is recognized in the paleontological community as a professional and can demonstrate familiarity and proficiency with paleontology in a stratigraphic context." The Project Paleontologist shall have a graduate degree in paleontology or geology, and/or a publication record in peer reviewed journals; have demonstrated competence in field techniques, preparation, identification, curation, and reporting; have at least 2 full years of professional experience as assistant to a qualified professional paleontologist with administration and project management experience (supported by a list of projects and referral contacts); have proficiency in recognizing fossils in the field and in determining their significance; have expertise in local geology, stratigraphy, and biostratigraphy; and have experience collecting vertebrate fossils in the field (SVP 2010). The Project Paleontologist and Page Museum curators and collections managers shall meet weekly during scheduled ground-disturbing activities associated with the construction of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination. The Project Paleontologist shall oversee all regulatory compliance measures, shall oversee mitigation protocols related to paleontological resources, and shall be a point of contact for the Page Museum curators and County officials. A professional resume or curriculum vitae of the Project Paleontologist shall be submitted to the County for approval prior to the start of ground-disturbing activities. **GEO/mm-6.2: Prepare a Paleontological Resources Management Plan:** After finalization of the engineering, design, and	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		grading plans for the project and prior to the start of preconstruction ground-disturbing activities, a Paleontological Resources Management Plan (PRMP) shall be prepared by the Project Paleontologist and submitted to the Page Museum curators, who shall review and approve the final PRMP on behalf of the County ~~and Natural History Museum~~. The PRMP shall define the processes and procedures for paleontological monitoring and fossil excavation based on the nature of ground-disturbing activities required for project. The PRMP shall: a. Incorporate the results of the Paleontological Resources Technical Report (SWCA 2023), the final geotechnical investigation, and the final engineering/grading plans for the project. b. Require all construction personnel to attend a Worker Environmental Awareness Program (WEAP) training to be presented by the Project Paleontologist, or their designee. c. Define the processes and procedures for coordinating and communicating with responsible parties and stakeholders (including but not limited to the contractors, consultants, County officials, and the Page Museum curators and collections managers), when construction activities would be halted due to discovery and subsequent salvage efforts during ground-disturbing activities, and when regularly scheduled meetings between the Project Paleontologist and the Page Museum curators and collections managers would be required. d. Outline a procedure whereby mechanical excavation is conducted to remove any non-fossil-bearing sediments or soils subject to environmental soil remediation, such that adequate time is afforded to identify fossil localities and to conduct scientific salvage operations to a feasible extent (see Millington and Dietler 2023); the timing of scientific fossil salvage operations during initial grading should be given special considerations in the PRMP such that delays to earthwork activities are minimized while allowing paleontological material to be salvaged at an acceptable level that retains the scientific integrity of the discoveries. e. Require full-time paleontological monitoring by qualified paleontological monitors who meet the standards of the SVP (2010) and shall be supervised by the Project Paleontologist; qualified paleontological monitors shall have the authority to temporarily halt construction activities to record and salvage fossil discoveries as they are unearthed to allow for potentially significant fossils to	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		be collected with their scientific integrity intact to the extent feasible and practical. f. Discuss unanticipated fossil discovery and communication protocols if paleontological resources are discovered by non-paleontology staff working on the project in instances where paleontological monitors are documenting or recording paleontological resources discovered elsewhere within the project site. g. Discuss feasible monitoring procedures for each of the different ground-disturbing activities, including but not limited to active observation or inspection of sediments during active ground disturbances, whether they be trenching, grading, excavating, drilling, or some other activity that disturbs sediments; inspection of sedimentary spoils spiles or cuttings, as well as backfill originating from Hancock Park that may contain asphaltum or fossil material; and/or matrix screening of spoils for small or microfossils as needed. h. Define fossil salvaging procedures, including but not limited to outlining the treebox method for asphaltum bearing large accumulations of fossils, salvaging of isolated fossils, matrix screening in the field for microfossils, and chain-of-custody procedures for transferring the fossil discoveries to the Page Museum curators or collection managers as they are exhumed from the project site. Because of the unique conditions of La Brea Tar Pits and the chemical considerations of working with asphaltum fossil deposits, any paleontological resource discoveries shall remain on-site with the Page Museum. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. i. Require the Project Paleontologist to prepare a report of the findings of the monitoring efforts within 90 days after construction is completed. **GEO/mm-6.3: Conduct Worker Training:** The Project Paleontologist shall develop and present a WEAP training to educate the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of an unanticipated fossil discovery. This training program shall be given to the crew before ground-disturbing work commences and shall include handouts to be given to new workers as needed.	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		GEO/mm-6.4: Monitor for Paleontological Resources: Full-time monitoring shall be required during all ground-disturbing activities (including artificial fill or previously disturbed sediments), regardless of depth. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations, including but not limited to the paleontological screening of tar sands prior to disposal or treatment. Procedures and protocols for paleontological monitoring and fossil salvage shall be outlined in the PRMP. Monitoring shall: a. Be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist, who shall coordinate with the Page Museum curators and collections managers and County officials. The Project Paleontologist may periodically inspect construction activities to recommend adjusting the level of monitoring in response to subsurface conditions; however, modifications, such as increasing, reducing, or ceasing of paleontological monitoring, or any changes of the implementation of the PRMP, should be approved by Page Museum curators and the County ~~Natural History Museum~~. b. Include inspection of exposed sedimentary units during active excavations, grading, tar sand removal, and any other ground-disturbing activity that has the potential to impact sediments capable of preserving significant fossils. The Page Museum curators (or their representatives) and the paleontological monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, shall the fossils be determined significant or likely significant, professionally and efficiently recover the fossil specimens and collect associated data while minimizing delays. Data collection procedures may require the support of construction contractors to carefully and efficiently collect field data and extract the fossils to allow construction to continue. c. Require grading and earthwork contractors to follow the guidance of Page Museum staff or the Project Paleontologist regarding the collection and/or extraction of paleontological resources. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be directly retained by the Page Museum for later analysis, laboratory preparation, and	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		eventual curation if deemed significant or important by the Page Museum curators or collection managers. **GEO/mm-6.5: Prepare a Paleontological Resources Monitoring Report:** Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing the implementation of the PRMP, including paleontological monitoring and fossil salvaging, shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Page Museum and the Research and Collections Department at the Natural History Museum of Los Angeles County within 90 days after construction is completed. If the project is developed in phases, the final report is only necessary at the completion of the last phase to be constructed. At the discretion of the County, if there are unanticipated gaps in the phases of construction or other reasons why the County would prefer phased final reports, multiple final reports could be prepared.	
GEO Impact 7 (Cumulative): The project would not result in significant contributions to cumulatively considerable impacts related to geotechnical or soils-related hazards; however, the project could result in significant contributions to cumulatively considerable impacts related to paleontological resources.	Significant	Implement Mitigation Measures GEO/mm-6.1 through GEO/mm-6.5.	Less than significant
Greenhouse Gas Emissions			
GHG Impact 1: During project construction, the project would not generate greenhouse gas emissions, either directly or indirectly, that would result in a significant impact on the environment. Project construction impacts would be less than significant. During project operation, the project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Project operation impacts could be significant. (CEQA Checklist Appendix G Threshold VIII. a)	Significant	**GHG/mm-1.1:** The modifications to the George C. Page Museum and the development of the new museum shall not include the installation of natural gas infrastructure. Future operation of the new facilities shall not use natural gas–fired appliances. In addition, the project shall provide more electric vehicle charging stations than the mandatory requirements in the Los Angeles County Code, Title 31, Green Building Standards, electric vehicle charging space and charging station calculations (Code Section 5.106.5.3.3).	Less than significant
GHG Impact 2: The project could result in a significant impact related to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, specifically the potential conflict with the SCAG 2020-2045 RTP/SCS in relation to	Significant	Implement Mitigation Measures TRA/mm-1.1.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
improving mobility and accessibility, transportation productivity, and encouraging active transportation. Impacts could be significant. (CEQA Checklist Appendix G Threshold VIII. b)			
GHG Impact 3 (Cumulative): The project could result in a significant contribution to the cumulative impact of GHG emissions and global climate change.	Significant	Implement Mitigation Measures GHG/mm-1.1 and TRA/mm-1.1.	Less than significant
Hazards and Hazardous Materials			
HAZ Impact 1: During project construction, the project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Construction workers, facility employees, and the public could be exposed to hazardous materials associated with the naturally occurring tar seeps present within the project site through the required removal of contaminated soils to an off-site location. Impacts during project construction could be significant. Project operation would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold IX. a)	Significant	**HAZ/mm-1.1:** Prior to earthwork activities, the project contractor, in coordination with the LAFD and the County, through the Foundation, shall be required to prepare a Soil Management Plan (SMP) for the removal of contaminated soils and their transportation off-site. The SMP shall be prepared in accordance with all relevant and applicable federal, state, and local laws and regulations that pertain to the transportation and disposal of hazardous materials and waste. The SMP shall: • Describe the methodology to identify and manage (reuse or off-site disposal) contaminated soil during soil excavation and/or construction; • Provide protocols for confirmation sampling, segregation and stockpiling, profiling, backfilling, disposal, guidelines for imported soil, and backfill approval from the DTSC Information Advisory on Clean Imported Fill Material; and • In addition, the LAFD may consult with other agencies (e.g., DTSC and the LARWQCB) if the nature of the contamination warrants the involvement of these agencies. **HAZ/mm-1.2:** The following requirements and precautionary actions shall be implemented when disturbing soil at the project site: • No soil disturbance or excavation activities shall occur without a project site-specific Health and Safety Plan (HASP). Any soil that is disturbed, excavated, or trenched due to on-site construction activities shall be handled in accordance with applicable local, state, and federal regulations, as well as sampled and analyzed by a certified laboratory for constituents in accordance with the accepting landfill's requirements (including testing for the presence of hydrocarbons, volatile organic compounds, semi-volatile organic compounds, heavy metals, and pesticides).	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• The contractor shall prepare a project-specific HASP. It is the responsibility of the contractor to review available information regarding project site conditions, including the SMP, and potential health and safety concerns in the planned area of work. The HASP shall describe the proposed construction activities and hazards associated with each activity. Hazard mitigation shall be presented in the HASP to limit construction-related risks to workers. The HASP shall include emergency contact numbers, maps to the nearest hospital, gas monitoring action levels, gas response actions, allowable worker exposure times, and mandatory personal protective equipment (PPE) requirements. The HASP shall specify Certificate of Competency action levels for construction workers as well as monitoring criteria for increasing the level of PPE. The HASP shall be signed by all workers on-site to demonstrate their understanding of the construction-related risks. • The contractor and each subcontractor shall require their employees who may directly come in contact with Suspect Soil (soil that is stained or odorous) to perform all activities in accordance with the contractor's HASP. If Suspect Soil is encountered, to minimize the exposure of other workers to potential contaminants on the project site, the contractor may erect temporary fencing around excavation areas with appropriate signage as necessary to restrict access and to warn unauthorized on-site personnel not to enter the fenced area. • There shall be no reuse of excavated soil deemed inappropriate for reuse as defined in the project-specific SMP. • The contractor shall conduct, or have its designated subcontractor conduct, visual screening of soil during activities that include soil disturbance. If the contractor or subcontractor(s) encounter any Suspect Soil, the contractor and subcontractor(s) shall immediately stop work and take measures to not further disturb the soils (e.g., cover suspect soil with plastic sheeting) and inform the Foundation and the environmental monitor. The Foundation shall identify the environmental monitor—an experienced professional trained in the practice of the evaluation and screening of soil for potential impact working under the direction of a licensed Geologist or Engineer—prior to the beginning of work.	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• Prior to excavation activities, the contractor or designated subcontractor shall establish specific areas for stockpiling Suspect Soil, should it be encountered, to control contact by workers and dispersal into the environment, per the provisions provided in the SMP.	
HAZ Impact 2: Construction of the project could result in the release of hazardous materials into the environment related to naturally occurring tar seeps and subsurface methane gas. Impacts during project construction could be significant. During project operation, hazardous vapors from subsurface methane gas could result in the release of hazardous materials into the environment. Impacts during project operation could be significant. (CEQA Checklist Appendix G Threshold IX. b)	Significant	Implement Mitigation Measures HAZ/mm-1.1 and HAZ/mm-1.2. **HAZ/mm-2.1:** During construction activities at the project site, controls shall be in place to address the effects of subsurface gases and impacted soil and groundwater on workers and the public. During construction, the following shall be implemented: • Monitoring devices for methane and benzene shall be present to alert workers of elevated gas concentrations when subsurface soil-disturbing work is being performed. • Any trench or excavation wider than 18 inches and having a depth greater than 2× its narrowest width shall be monitored with a portable combustible gas detector. The portable detector shall have a resolution capable of reporting to 1% LEL (Lower Explosive Limit), or 0.1% by volume in air, or in parts per million (ppm). If concentrations of combustible gases reach or exceed 20% LEL, or 1.0% by volume in air, or 10,000 ppm, the trench or excavation shall be evacuated until such time as the gas concentrations are determined to be steadily below these levels. All welding and electrical equipment shall be removed from the trench/excavation until the area is deemed to be safe. Portable blowers are the most appropriate means of controlling combustible gas concentrations. The blower motors and appurtenant electrical wiring shall not be placed in the trench or excavation. • No welding, cutting, or other hot work shall be performed close to flammable tars which, when subjected to heat, might produce flammable or toxic vapors (per OSHA 1910.252(a)(3)(i)). Smoking should also be avoided when working near tar seeps. • Contingency procedures shall be in place if elevated gas concentrations are detected, such as the mandatory use of PPE, evacuating the area, and/or increasing ventilation within the immediate work area where the elevated concentrations are detected. • Workers shall be trained to identify exposure symptoms and implement alarm response actions.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• Soil and groundwater exposure during excavations shall be minimized to reduce the surface area which could off-gas. This shall be achieved by staggering exposed excavation areas. • Soil removed as part of construction shall be sampled and tested for off-site disposal in a timely manner. If soil is stockpiled prior to disposal, it shall be managed in accordance with the project's Stormwater Pollution Prevention Plan. • Fencing shall be erected to limit public access and allow for gas dilution. The construction contractor can determine the appropriate type of fencing, as long as public access is restricted such that interaction with hazardous construction conditions does not occur. • All requirements of the project-specific HASP shall be implemented and followed as described in HAZ/mm-1.2. **HAZ/mm-2.2:** As part of the final project design, the project engineer shall develop and implement a methane mitigation system. The mitigation system, which would provide a barrier for hazardous vapors, methane, and tar, consists of a subslab venting system that exhausts to the atmosphere, a subslab impermeable gas/tar barrier membrane system, and a monitoring system consisting of probes above and below the gas barrier membrane. The monitoring program consists of routine (quarterly) monitoring and reporting to the County Public Works, Environmental Programs Division. The Environmental Programs Division shall also review the plans to see if the criteria meet the requirements of Los Angeles County Code 110.4 Methane Gas Hazards. Additionally, tar collection systems underneath the gas mitigation systems need to be evaluated by the engineer and by the county engineer to evaluate the performance of the overall system. A contingency plan should also be prepared to describe how matters shall be handled in the event that high concentrations of methane gas enter a building despite the mitigation measures. The inspection and periodic observations of membrane and vapor control measures shall be performed by the Vapor Barrier Engineer (i.e., the Engineer or his Designee). At a minimum, inspection/observation shall take place during the installation of the vent piping, after backfilling of the vent piping, during the installation of the vapor barrier, after the installation of the vapor barrier (prior to backfilling), during the placement of the protection course, immediately prior to placement of foundation concrete, during and at the completion of the vent riser installation for the vent piping, and at	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		the completion of construction prior to the issuance of the system certification and certification of occupancy.	
HAZ Impact 3: The project could introduce hazardous materials within 0.25 mile of an existing or proposed school during both construction and operation. Impacts during project construction and operation could be significant. (CEQA Checklist Appendix G Threshold IX. c)	Significant	Implement Mitigation Measures HAZ/mm-1.1, HAZ/mm-1.2, HAZ/mm-2.1, and HAZ/mm-2.2.	Less than significant
HAZ Impact 4: The project site is not identified on any of the hazardous materials lists compiled pursuant to Government Code Section 65962.5. Construction and operation of the project would not create a significant hazard to the public or the environment as it relates to hazardous materials sites compiled pursuant to Government Code Section 65962.5. No impact would occur. (CEQA Checklist Appendix G Threshold IX. d)	No impact	No mitigation is required.	N/A
HAZ Impact 5: The project site is not located within 2 miles of a public airport or public use airport. The project would not result in an airport-related safety hazard during either project construction or operation. No impact would occur. (CEQA Checklist Appendix G Threshold IX. e)	No impact	No mitigation is required.	N/A
HAZ Impact 6: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan during either construction or operation. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold IX. f)	Less than significant	No mitigation is required.	N/A
HAZ Impact 7 (Cumulative): Prior to the consideration of proposed mitigation measures, construction and operation of the project could result in hazardous materials impacts associated with the naturally occurring tar seeps and methane conditions present at the project site, including accidental spills or releases associated with the disposal, transport, and management of hazardous materials. If unaddressed, potential contributions to cumulative hazardous materials impacts could be significant.	Significant	Implement Mitigation Measures HAZ/mm-1.1, HAZ/mm-1.2, HAZ/mm-2.1, and HAZ/mm-2.2.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
Hydrology and Water Quality			
HYD Impact 1: During project construction, the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Construction impacts would be less than significant. Implementation of the project would increase impervious surfaces within the project site, and project operation would have the potential to contribute to the degradation of surface or groundwater quality. Operational impacts could be significant. (CEQA Checklist Appendix G Threshold X. a)	Significant	**HYD/mm-1.1:** The Foundation shall implement the following non-structural Best Management Practices (BMPs) for the life of the project: **Open Paved Areas and Biofiltration Planter Areas** • Regular sweeping of all open and planter areas, at a minimum, on a weekly basis in order to prevent dispersal of pollutants that may collect on those surfaces. • Regular pruning of the trees and shrubs in the planter areas to avoid formation of dried leaves and twigs, which are normally blown by the wind during windy days. These dried leaves are likely to clog the surface inlets of the drainage system when rain comes, which would result in flooding of the surrounding area due to reduced flow capacities of the inlets. • Trash and recycling containers shall be used such that, if they are to be located outside or apart from the principal structure, are fully enclosed and watertight in order to prevent contact of stormwater with waste matter, which can be a potential source of bacteria and other pollutants in runoff. These containers shall be emptied and the wastes disposed of properly on a regular basis. **Education and Training** • Annual training of employees on property management and proper methods of handling and disposal of waste shall be provided. Employees should understand the on-site BMPs and their maintenance requirements. **Landscape Management** • Landscaping shall be maintained using minimum or no pesticides. **Litter Control** • An adequate number of trash receptacles shall be provided and inspected regularly. Leaky receptacles shall be prepared or replaced. Receptacles shall be covered. • Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		Housekeeping of Loading Docks • Loaded and unloaded items shall be moved indoors as soon as possible. **Catch Basin Inspection** • Stormwater pollution prevention information shall be provided. Owner shall be made aware that the following is to be followed: "Property owner shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create potential discharge to storm drains." • Catch basins shall be inspected regularly. **Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction** • Trash and waste will be handled and stored for pickup adjacent to the loading dock. This limits the potential introduction of pollutants into the site. Trash and waste pickup will occur regularly. **Use Efficient Irrigation Systems and Landscaping Design** • Landscape shall be generally designed to provide an efficient and continuous irrigation system. • Landscape areas shall be designed to include plants that are friendly to the climate of Los Angeles. **Storm Drain Stencil Signage** • Stencil or label all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language to prevent dumping of improper materials into the urban runoff conveyance system. **HYD/mm-1.2:** The Foundation shall ensure all structural and non-structural Best Management Practices (BMPs) are operated, monitored, and maintained for the life of the project pursuant to the following: • All structural BMPs shall be inspected, cleaned-out, and where necessary, repaired, at the following minimum frequencies: 1) prior to October 15th each year; 2) during each month between October 15th and April 15th of each year and, 3) at least twice during the dry season (between April 16th and October 14th of each year). • Debris and other water pollutants removed from structural BMPs during cleanout shall be contained and disposed of in a proper manner.	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• The drainage system, the associated structures, and BMPs shall be maintained according to manufacturer's specification to ensure maximum pollutant removal efficiencies.	
HYD Impact 2: The project would not substantially decrease groundwater supplies or interfere with groundwater recharge. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold X. b)	Less than significant	No mitigation is required.	N/A
HYD Impact 3: The project would not substantially alter the existing drainage pattern of the site or increase surface water runoff in a manner that would result in substantial erosion or siltation, flooding, or an exceedance of stormwater drainage systems. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold X. c)	Less than significant	No mitigation is required.	N/A
HYD Impact 4: The project site is not in a flood hazard zone or tsunami zone and the risk of seiche is low. Therefore, there would be no risk of release of pollutants due to project inundation by these hazards. No construction or operational impacts would occur. (CEQA Checklist Appendix G Threshold X. d)	No impact	No mitigation is required.	N/A
HYD Impact 5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold X. e)	Less than significant	No mitigation is required.	N/A
HYD Impact 6 (Cumulative): Prior to consideration of the proposed mitigation measures, operation of the project could have the potential to contribute to the degradation of surface or groundwater quality. If unaddressed, potential contributions to cumulative impacts associated with degradation of surface or groundwater quality could be significant.	Significant	Implement Mitigation Measures HYD/mm-1.1 and HYD/mm-1.2.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
Land Use and Planning			
LUP Impact 1: The project would not include features that would physically divide an established community during construction and operation. No impact would occur. (CEQA Checklist Appendix G Threshold XI. a)	No impact	No mitigation is required.	N/A
LUP Impact 2: Implementation of the project would result in the alteration of designated historical resources and would be potentially inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's General Plan Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources. Impacts would be significant. (CEQA Checklist Appendix G Threshold XI. b)	Significant	Implement Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5.	Significant and unavoidable
LUP Impact 3 (Cumulative): The project would contribute incrementally toward cumulative effects on historical resources associated with the project and related land use policies protecting these resources (i.e., County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan). The potential inconsistencies are identified in Table 5.10-8. The project would contribute significantly to cumulative impacts to historic resources, which would be considered a significant impact.	Significant	Implement Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5.	Significant and unavoidable
Noise and Vibration			
NOI Impact 1: During project construction, the project could generate a substantial increase (5 dBA Leq) in ambient noise levels in the vicinity of the project, which could affect noise-sensitive land uses. As a result, the project could result in generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of established standards. Therefore, noise impacts resulting from project construction could be significant. (CEQA Checklist Appendix G Threshold XIII. a)	Significant	**NOI/mm-1.1:** The following measures shall be implemented to reduce construction-related noise impacts: a. Operation of equipment used in construction, alteration, drilling, or demolition work shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and any time on Sundays or legal holidays. b. A temporary barrier shall be erected around active construction areas. The placement and height of the barrier shall be adjusted based on the specific location of construction activities within the site, ensuring that the barriers are positioned as close as feasible to the work area and are sufficiently tall to maximize effectiveness in minimizing direct noise transmission to surrounding areas,	Less than significant

such that a sound reduction of 10 dBA is achieved at the property lines on the east side of Curson Avenue and north side of 6th Street. Prior to the commencement of each construction phase, a phase-specific acoustic analysis shall be conducted to determine the optimal placement and configuration of noise barriers. In consultation with an acoustical engineer, the barrier configuration may be modified to address the specific conditions of phased construction, provided that the adjustments achieve an equivalent noise reduction outcome. ~~and impermeable 12-foot-high temporary barrier designed to provide a 10 dBA noise reduction, shall be erected along the eastern and northern sides of the project site boundary. This barrier shall be constructed in one of the following ways:~~

- ~~from acoustical blankets hung over or from a supporting frame, or~~
- ~~from commercially available acoustical panels lined with sound-absorbing material, or~~
- ~~from common construction materials such as plywood, provided that the barrier is designed with overlapping material at the seams to ensure that no gaps exist between the panels.~~

c. Noise levels from powered equipment or powered hand tools at a distance of 50 feet from the noise source or within 500 feet of a residential zone will be limited to 75 dBA, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment.

d. All construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise-suppression devices.

e. Pneumatic tools used at the site shall be equipped with an exhaust muffler on the compressed air exhaust to minimize noise levels.

f. Stationary noise sources shall be located as far from adjacent sensitive receptors as possible and shall be muffled and enclosed within temporary sheds or insulated barriers when possible.

g. Prior to commencement of construction, a designated project contact person will directly notify the management of any surrounding residential properties located within 100 feet of the project site about the construction

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		schedule and activities and provide a contact number to address any noise-related complaints during construction. h. A designated point of contact shall be identified to address noise-related complaints during construction. The noise disturbance coordinator will be responsible for responding to any local complaints about construction noise.	
NOI Impact 2: During project operation, the project would not generate a substantial increase in ambient noise in excess of applicable standards or thresholds; noise impacts during project operation would be less than significant. (CEQA Checklist Appendix G Threshold XIII. a)	Less than significant	No mitigation is required.	N/A
NOI Impact 3: The project would not generate excessive groundborne vibration or groundborne noise levels either during project construction or operation; impacts related to groundborne vibration and noise levels would be less than significant. (CEQA Checklist Appendix G Threshold XIII. b)	Less than significant	No mitigation is required.	N/A
NOI Impact 4: Because the project is not located in the vicinity of an airstrip or airport, the project would not expose people residing or working in the project site to excessive noise levels related to aircraft during either project construction or operation. No impact would occur. (CEQA Checklist Appendix G Threshold XIII. c)	No impact	No mitigation is required.	N/A
NOI Impact 5 (Cumulative): The project would not contribute considerably to cumulative noise and/or vibration impacts.	Less than significant	No mitigation is required.	N/A
Recreation			
REC Impact 1: The project would not result in substantial physical deterioration of existing parks and recreation facilities during either project construction or operation. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XVI. a)	Less than significant	No mitigation is required.	N/A
REC Impact 2: Construction of the project would include enhancements and modifications to existing recreational facilities within the 13-acre project site. These activities could have an adverse physical effect on the environment. Construction impacts could be significant.	Significant	Implement construction-related Mitigation Measures AES/mm-4.1; AQ/mm 3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1;	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
Operation of the project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold XVI. b)		HAZ/mm-1.1 and 1.2, HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4.	
REC Impact 3 (Cumulative): Prior to the application of proposed project mitigation measures, the project could contribute to cumulative impacts associated with adverse physical effects on the environment. Cumulative construction impacts could be significant. Operation of the project would not contribute to cumulative impacts.	Significant	Implement construction-related Mitigation Measures AES/mm-4.1; AQ/mm 3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.3, HAZ/mm-2.1; NOI/mm-1.1; TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4.	Less than significant
Transportation			
TRA Impact 1: The project could result in a significant impact related to consistency with transportation plans, programs, ordinances, or policies. (CEQA Checklist Appendix G Threshold XVII a)	Significant	**TRA/mm-1.1:** In consultation with the LADOT, the Los Angeles County Museum of Natural History Foundation (Foundation) shall prepare and implement a Transportation Demand Management (TDM) Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. The Foundation shall designate an existing member of staff as the on-site TDM Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT. **Employee Strategies:** Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures may be applied to reduce employee vehicle trips and VMT: • Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities. • Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers. • Encourage and support participation in Metro vanpool, including subsidies for participation. • Implement paid parking for employees. • Subsidize transit passes.	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		• Offer flexible work schedules and telecommuting, when feasible. **Visitor Strategies:** Transportation information for visitors shall be displayed on La Brea Tar Pits' website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT: • Advertise and offer discounted museum tickets for visitors who use public transit or a bicycle to visit the project. • Provide and maintain secure on-site bicycle parking for visitors and monitor usage to determine if additional bicycle racks are needed. o Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located. o Ensure bicycle parking is well lit and monitored by staff. • Continue to have paid parking for visitors. • Coordinate with Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to La Brea Tar Pits, through the following measures: o Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits. o Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors. o Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection. • Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and West 6th Street.	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
TRA Impact 2: The project would result in a net increase in VMT and would result in a substantial increase in vehicle miles traveled. Impacts would be considered significant. (CEQA Checklist Appendix G Threshold XVII b)	Significant	Implement Mitigation Measure TRA/mm-1.1.	Significant and unavoidable
TRA Impact 3: Once developed, the project would not substantially increase hazards due to a geometric design feature; impacts would be less than significant. (CEQA Checklist Appendix G Threshold XVII c)	Less than significant	No mitigation is required.	N/A
TRA Impact 4: The project could result in inadequate emergency access during construction and operation. Project impacts would be potentially significant. (CEQA Checklist Appendix G Threshold XVII d)	Significant	**TRA/mm-4.1:** A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, ~~and~~ the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions: • Prohibition of construction worker parking on nearby residential streets. • Prohibition of construction-related vehicles parking or staging on surrounding public streets. • Prohibition of construction-related parking or staging on streets with bus service. • Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways. • Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate. • Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible. • Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible. • Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible. **TRA/mm-4.2:** Consultation shall occur with the City of Los Angeles Fire Department (LAFD) to analyze the project's emergency access design, including a review of the proposed vehicle access points. Construction activities and their impact on emergency access shall also be reviewed to ensure that the final design provides adequate	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		access to the project site and neighboring businesses and residences. **TRA/mm-4.3:** To improve emergency access safety and circulation, coordination shall occur with LADOT to explore the feasibility of implementing one or more of the following improvements: • Signal timing at the built-out intersection of Curson Avenue/Wilshire Boulevard shall be regularly updated to optimize traffic signal timing. In addition, the weekday a.m. and p.m. peak period bus-only lanes on Wilshire Boulevard shall be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection. • Signal timing at the Curson Avenue/West 6th Street intersection shall be regularly updated to optimize splits. In addition, improve existing lane striping to extend the northbound left-turn lane at the intersection, and/or add an inbound left-turn lane at the project's Curson Avenue driveway. • Incorporate safety features to accommodate passenger pick-up and drop-off along West 6th Street when planned separated bike lanes are implemented. • Monitor driveway operations at Curson Avenue. • The County of Los Angeles does not have the authority to impose these measures because they are within the discretionally authority of the City of Los Angeles. Thus, while they are recommended, the County of Los Angeles is not required to implement them. However, the requirement to coordinate with the City and facilitate possible implementation of the above measures shall be required.	
TRA Impact 5 (Cumulative): The project would result in a significant contribution to cumulative transportation impacts by resulting in a net increase in VMT.	Significant	Implement Mitigation Measure TRA/mm-1.1.	Significant and unavoidable
Tribal Cultural Resources			
TCR Impact 1: During project construction, the project could cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Sections 5020.1(k) and 5024.1. Construction impacts could be significant.	Significant	**TCR/mm-1.1:** Retain Tribal Consultants. a. Prior to any ground-disturbing activities on the project site associated with the proposed project, the Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/ Tongva San Gabriel Band of Mission Indians, and Gabrielino Tongva Indians of California shall be retained	Less than significant

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
Project operation would not cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Sections 5020.1(k) and 5024.1. No operational impacts would occur. (CEQA Checklist Appendix G Threshold XVIII. a, i. and ii)		as Tribal Consultants. Each of the Tribal Consultants shall provide the services of a representative, known as a Tribal Monitor. The Tribal Monitor(s) shall be present on-site and carry out actions described in the Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan) and any actions required to comply with mitigation measures for tribal cultural resources. These actions shall include but not be limited to monitoring ground-disturbing activities. Ground disturbing activities are defined as excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing trees, clearing, driving posts or pilings, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The frequency of the monitoring services shall be provided on a rotational basis as outlined in TCR/mm-1.3. b. At least 21 days before any ground disturbing activities commence, each of the Tribal Consultants shall submit a letter of retention to the Museum of Natural History confirming that the that they have been retained consistent with the terms of the TCR/mm-1.1. **TCR/mm-1.2:** Prior to any ground-disturbing activities on the project site associated with the proposed project, the Tribal Consultants or Tribal Monitors shall provide a worker training to on-site project personnel responsible for supervising ground-disturbing activities (i.e., foreman or supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The worker training shall include but not be limited to any topics related to protocols related to tribal cultural resources, regulatory compliance requirements, monitoring procedures and stop-work restrictions, and any other applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of tribal cultural resources. As an element of the worker training, the Tribal Consultants or Tribal Monitors shall advise the construction crews on proper procedures to follow if an unanticipated tribal cultural resource is discovered during construction whether a Tribal Monitor is present or not. The Tribal Consultants or Tribal Monitors shall also provide the construction workers with contact information for the Tribal Consultants and Tribal Monitors. Once the ground disturbances have commenced, the need for additional or supplemental worker training shall be determined through consultation with the Tribal Consultants, and project proponent or their designated project supervisor. Within 5 days of completing a worker training, a list of those in attendance shall be provided to the Museum of Natural	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		History by the Tribal Consultants, the Qualified Archaeologist, or a designee of either parties. **TCR/mm-1.3:** Monitoring for Tribal Cultural Resources. a. Prior to any ground-disturbing activities associated with the project, a minimum of one Tribal Monitor shall be present during ground-disturbing activities as stipulated in the AR-TCR Management Plan. The AR-TCR Management Plan shall establish a monitoring schedule in a manner that provides opportunities for each of the three Tribal Consultants to participate in monitoring throughout the project's duration and within specific project phases that involve ground-disturbing activities. The monitoring schedule shall be determined at the sole discretion of the Museum of Natural History. The Museum of Natural History or their designee shall notify each Tribal Consultant in advance of its assigned monitoring period to allow for adequate preparation and planning. The Qualified Archaeologist shall be responsible for coordinating and communicating with the Tribal Consultants to address the need for consistency in reporting of the results during the rotational monitoring process. If one Tribal Monitor is unable to attend on a given day, but another Tribal Monitor is present, ground disturbing work shall commence. The need for additional monitors exceeding the two respective Tribal Monitors shall be assessed if the areas subject to monitoring exceeds what can be reasonably covered. The Tribal Monitors shall work under the direction of their respective Tribal Consultant. The Tribal Monitors shall complete daily monitoring logs that provide descriptions of the relevant ground-disturbing activities (the type of construction activities performed and location of ground-disturbing activities), sediment types, presence or absence of tribal cultural resources or potential tribal cultural resources, and any other facts, conditions, materials, or discoveries of significance to the Tribal Consultants. Monitor logs shall identify and describe any discovered tribal cultural resources or potential tribal cultural resources as defined in Public Resources Code Section 21074(a), which includes but is not limited to Native American artifacts, remains, places of significance, as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs shall be provided to the project lead agency and the Qualified Archaeologist for purposes of summarizing in the monitoring report.	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		b. The Tribal Monitors shall have the authority to temporarily halt or redirect construction activities if a tribal cultural resource or potential tribal cultural resource is exposed during construction. If a tribal cultural resource or potential tribal cultural resource is identified, work in the immediate vicinity (not less than 50 feet) of the find shall stop unless another distance is determined by both the Tribal and Archaeological Monitors, which shall consider the nature of the find and the potential for additional portions of the resource to remain buried in the unexcavated areas of the project site. Construction activities may continue in other areas in coordination with the qualified archaeologist and tribal consultant. c. If a potential component of the existing tribal cultural resource (LAN-159/H) is identified, it shall be assessed by the Tribal Consultants as a tribal cultural resource in terms of its cultural value, based on tribal expertise, and supported by substantial evidence. If the discovery is archaeological in nature, then the assessment shall also incorporate the Qualified Archaeologist's evaluation as a potential contributor to the significance of LAN-159/H based on the California Register of Historical Resources criteria or as a unique archaeological resource, as specific in the AR-TCR Management Plan and in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. Any identified tribal cultural resources shall be assessed by both Tribal Consultants and the materials shall be cataloged and stored at the Page Museum for the period in which the ground-disturbing activities are occurring. Further analysis and the disposition of any collected materials shall be determined through consultation with the Tribal Consultant, the County, and informed by the evaluation of the materials as elements that contribute to the significance of the archaeological resource. Any consultation required shall occur on an as-needed basis during the ground-disturbing activities and continue after tribal monitoring has concluded as part of the reporting process described in Part F of TCR/mm-1.4 and CR-ARCH/mm-1.4. d. If initial monitoring identifies no further sensitivity (i.e., sediments incapable of containing tribal cultural resources) below a certain depth or within a certain portion of the project site, a corresponding reduction of monitoring coverage would be appropriate. The reasoning for and scale of the recommended reduction shall be	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
		assessed by the Tribal Consultant in consultation with the Qualified Archaeologist and communicated to the Museum of Natural History in writing prior to reduction. Monitoring for tribal cultural resources shall be required until there is written confirmation from the County or a supervisor responsible for overseeing the ground-disturbing activities that there shall be no further ground-disturbing activities on the project site or in connection with the project site, either for the duration of the project. e. Within one month of concluding the tribal cultural resources monitoring, the Tribal Consultants shall prepare a memo stating that the monitoring requirements have been fulfilled consistent with the terms of TCR/mm-1.3 and summarize the results of any finds and actions taken by the tribal monitor to implement the final measures related to tribal cultural resources. The memo shall be submitted to the Museum of Natural History and the Qualified Archaeologist to be attached to a final archaeological and tribal monitoring report prepared by the Qualified Archaeologist consistent with CR-ARCH/mm-1.4. **TCR/mm-1.4:** If human remains are encountered during construction all ground-disturbing work shall be immediately diverted from the discovery as directed by the Tribal Consultant and Qualified Archaeologist and based on consideration of the possibility that additional or multiple Native American human remains may be located in the project site, and after having considered whether the bones are human or faunal. Upon discovery of human remains, whether the archaeological or tribal monitor is present, the Los Angeles County Coroner's Office shall be notified, as prescribed in PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the Coroner determines that the remains are of Native American origin, the Coroner shall proceed as directed in Section 15064.5(e) of the State CEQA Guidelines, and as specified in the TCRMMP, which require the coroner to notify the NAHC who will appoint a Most Likely Descendent (MLD). Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated accordingly. While the coroner determines whether the remains are Native American and the MLD is designated and notified, the discovery is to remain confidential and secure to prevent any further disturbance.	

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
TCR Impact 2 (Cumulative): Prior to the consideration of proposed mitigation measures, construction of the project could result in significant contributions to cumulative impacts related to the disturbance and destruction of tribal cultural resources.	Significant	Implement Mitigation Measures TCR/mm-1.1 through TCR/mm-1.4. These measures put forward a process that ensures any new tribal cultural resources or new components of an existing tribal cultural resource will be identified, inventoried, evaluated for significance in terms of its value to a California Native American tribe, and treated appropriately if found to be a contributing element.	Less than significant
Utilities and Service Systems			
UTL Impact 1: During project construction, the project could require the construction of new or expanded sewer lines from the project site to an identified point of connection within existing sewer system facilities. LASAN will not be able to give a definitive confirmation of adequate sewer system capacity for the project without further detailed gauging and evaluation associated with more detailed architectural plans, which would be provided during the project's permitting phase. At this juncture, it is not known if new or upgraded sewer lines would be required and conclusion of this analysis would be speculative. Impacts related to construction of new or expanded utility infrastructure could be significant. Operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. a)	Significant	**UTL/mm-1.1:** To confirm the sewer system serving the project site can accommodate the total wastewater flows generated by the project, the Los Angeles County Museum of Natural History Foundation (Foundation) shall coordinate with Los Angeles Sanitation and Environment (LASAN) during project permitting and prior to construction for confirmation of sewer system capacity. LASAN shall make this determination by conducting detailed gauging and further evaluation to identify a specific sewer connection point and/or to determine if upgrading or additional sewer lines are necessary to accommodate the project. Implement Mitigation Measures AES/mm-4.1; AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 and 1.2, HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1, TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4.	Less than significant
UTL Impact 2: LADWP would have sufficient water supply to serve the water demand generated by the project and the existing service area during normal, single dry year, and multiple dry years conditions during both construction and operation of the project. Impacts related to water supply and demand would be less than significant. (CEQA Checklist Appendix G Threshold XIX. b)	Less than significant	No mitigation is required.	N/A
UTL Impact 3: It has been determined that the wastewater treatment provider serving the project (LASAN) would have adequate capacity to serve the wastewater flows generated by the project. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. c)	Less than significant	No mitigation is required.	N/A

Impacts	Impacts Before Mitigation	Mitigation Measures	Impacts Following Mitigation
UTL Impact 4: The project would not generate solid waste in excess of the capacity of local infrastructure or otherwise impair state or local solid waste reduction goals during construction and operation of the project. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. d)	Less than significant	No mitigation is required.	N/A
UTL Impact 5: The project would comply with federal, state, and local solid waste reduction goals during construction and operation. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. e)	Less than significant	No mitigation is required.	N/A
UTL Impact 6 (Cumulative): The project could result in contributions to cumulatively considerable impacts related to off-site upgrades to LASAN's sewage collection system. At this juncture, it is not known whether new or upgraded sewer lines would be required and the conclusion of this analysis would be speculative. However, it is reasonable to assume that some potential for environmental impacts would occur with an infrastructure upgrade that may be required to collect sewage from the La Brea Master Plan project in combination with other development projects that are developed within LASAN's service area.	Significant	Implement Mitigation Measures AES/mm-4.1; AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; CR-HIST/mm-1.1 through 1.5; GEO/mm-3.1 and 3.2, GEO/mm-4.1, GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.2, HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1, TRA/mm-4.1 through 4.3; TCR/mm-1.1 through 1.4; and UTL/mm-1.1.	Less than significant

2.6 AREAS OF CONTROVERSY

Section 15123(b)(2) of the State CEQA Guidelines requires identifying areas of controversy known to the Lead Agency, including issues raised by agencies and the public. On February 14, 2022, in accordance with Sections 15063 and 15082 of the State CEQA Guidelines, the County published a Notice of Preparation (NOP) for the EIR and circulated it to governmental agencies, organizations, and persons who may be interested in the proposed project, including nearby landowners, homeowners, and tenants. As part of releasing the NOP, the County requested comments on the scope of the EIR and asked interested parties for their suggestions regarding ways the project could be revised to reduce or avoid any significant environmental impacts. The NOP provided a general description of the proposed project, a description of the project site, and a preliminary list of potential environmental effects. The 30-day comment period extended through March 16, 2022.

Two public scoping meetings were held virtually via Zoom on March 2, 2022, at 2:30 p.m. and 5:30 p.m. Pacific Standard Time, to solicit input from any interested parties on the scope and content of the EIR in conformance with Section 21083.9 of the California Public Resources Code. Live language interpretation of the presentation and scoping meeting input was provided in Spanish and Korean during the scoping meetings.

Following the close of the 30-day comment period on the NOP, comment letters were reviewed to identify any key issues that may require additional technical studies or background research. A summary matrix of written comments received during the NOP comment period and the verbal comments recorded at the two public scoping meetings is provided in Appendix A.

Areas of controversy raised by public agencies, public organizations, and individual members of the public primarily included concerns regarding the overall design of the project as it relates to protecting the passive recreational spaces and pedestrian pathways in and around the Lake Pit; the desire for the inclusion of a dog park and children's playground; the potential for project renovations to increase light pollution in the area; changes to landscaping and the potential for tree removal and/or replacement within the project site; and impacts of the project on traffic and circulation in and around the project site. To the extent these issues and concerns are within the scope of CEQA, they are addressed in the evaluation and identification of potential mitigation measures for each environmental issue area included in Chapter 5, Environmental Impact Analysis.

2.7 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the State CEQA Guidelines requires the summary section of an EIR to identify any "issues to be resolved" by the decision-making body, including the choice among alternatives and whether or how to mitigate any significant effects. In consideration of the project, the Foundation, under the direction of the County, will need to weigh transportation issues, modifications to designated historical resources, the replacement or relocation of existing trees, and the potential for additional environmental impacts to occur as described in this EIR. Specifically, determinations will need to be made as to whether the recommended mitigation measures for identified significant impacts should be adopted or modified, and whether the benefits of the project outweigh the environmental impacts that cannot be feasibly avoided or mitigated to less than significant (i.e., the project's significant and unavoidable impacts to historical resources, conflicts with applicable plans and policies to protect historical resources, and increase in vehicle trips within the project area). Additionally, a determination will need to be made as to whether any of the alternatives, instead of the project, should be approved.

2.8 PROJECT ALTERNATIVES

Section 15123(b)(3) of the State CEQA Guidelines requires that an EIR summary identify the choice among project alternatives. Alternatives to the project are discussed in detail in Chapter 6, Alternatives Analysis, of this EIR in accordance with Section 15126.6 of the State CEQA Guidelines. Alternatives required to be considered under CEQA are those that would avoid or substantially lessen one or more of the significant environmental effects identified during evaluation of the proposed project. CEQA Guidelines Section 15126.6(a) states that an EIR shall describe a range of reasonable alternatives.
As evaluated throughout Chapter 5 of this EIR, the significant impacts of the project prior to implementation of project mitigation measures would occur in the following environmental issues areas: aesthetics; air quality; biological resources; archaeological resources; historical resources; geology and soils; greenhouse gas emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; noise and vibration; recreation; transportation; tribal cultural resources; and utilities and service systems.

Chapter 6 of this EIR identifies, describes, and evaluates the following four alternatives:

- **No Project/No Build Alternative**. Section 15126.6(e) of the State CEQA Guidelines requires analysis of the No Project/No Build Alternative. In the No Project/No Build Alternative, implementation of the project would not occur and the existing project site and its physical conditions would generally remain as they are in their current state. This includes the majority of Hancock Park and the structures within the project boundary, including the Page Museum; therefore, these features would resemble existing conditions. Site elements, including the surface parking lot, maintenance areas, amphitheater, landscaping, and pathways, would all remain. Site access for visitors, loading, maintenance vehicles, and the fire department would remain in its current configuration.
- **Alternative 1: Renovate Page Museum Only**. In Alternative 1, the exterior conditions of the La Brea Tar Pits Historic District and the Page Museum would be retained as-is under existing conditions, while addressing some of the museum's deficiencies by way of an interior renovation only. The renovation work within the Page Museum would upgrade its existing facilities and systems while maintaining its current program, spatial organization, and room sizes. This alternative was considered as the renovation would retain or replace in kind the historic, character-defining features related to the museum's interior such as the central open-air atrium and the fishbowl-like lab space. This alternative would emphasize remedial work on the building structure and existing exhibits and would be performed from the museum interior as much as possible. This alternative scenario would, however, require further study to determine the feasibility of the renovation to also meet modern seismic standards since modifications to the building's exterior would be avoided under this alternative. In those instances, the identified areas would be repaired or replaced in kind and designed to resemble their current physical appearance to avoid impacting the historic, character-defining features of the museum's exterior.
  The remainder of the project site would also resemble existing conditions, and site access for visitors, loading, maintenance vehicles, and the fire department would remain in the current configuration in this alternative. Other museum-related facilities, as well as associated passive recreational areas and pathways around and within the project site, would remain as-is under current conditions.
- **Alternative 2: Maintain Central Atrium Pleistocene Garden**. Alternative 2 would include renovating the existing Page Museum to maintain the central atrium with the Pleistocene Garden in place while also providing the same expanded museum facilities and programming as proposed by the project. To maintain the central atrium footprint while providing the proposed laboratory, classroom, and multi-purpose educational spaces, Alternative 2 would include expanding the new

museum space to the north and west of the existing Page Museum, increasing the size of the new museum building by approximately 15,000 square feet above what is proposed by the project. In addition, the character of the open-air roof would remain intact. This alternative would slightly reconfigure the surface parking lot, like the project, extending it west of the new museum building footprint. This alternative would adjust the project's triple-loop pedestrian path adjacent to the proposed new museum building to accommodate the larger building footprint. The landscaping improvements and overall landscape design of the project site in Alternative 2 would be similar to the project, except for the reconfigured northern portion of the project site, the reduced open space area, as well as the adjustment to the pedestrian path.

- **Refined Alternative 3: Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green**. Refined Alternative 3 would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary, character-defining features of the Page Museum, including refining the materiality and size of the expansion atrium pop-up to better compliment the frieze, preserving a larger portion of the existing berm on the west side of the Page Museum, and detailing the second-floor glass enclosure underneath the Page Museum frieze to be as transparent as possible. This alternative would also include constructing a new museum building of approximately 40,000 square feet, similar to the project, but would adjust the building footprint to the north and west of the project's proposed footprint. This adjustment would allow for more separation of the new museum from the existing Page Museum by narrowing the transition area connection between the two buildings. Adjusting the footprint of the new museum to the north would also allow for approximately 4,000 square feet of open space to be added to the Central Green. In this alternative, the on-site surface parking would be reconfigured to complement the adjusted building footprint, extending west of the new museum building as with the project, but this alternative would maintain the number of parking spaces that currently exist on-site and would not add additional parking spaces.

Table 2-3 provides a comparison of impacts among the project alternatives.

Table 2-3. Comparison of Impacts Among Alternatives

Issue Area	No Project/ No Build Alternative	Alternative 1: Renovate Page Museum Only	Alternative 2: Maintain Central Atrium Pleistocene Garden	Refined Alternative 3: Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green
Aesthetics	Decreased	Decreased	Similar	Similar
Air Quality	Decreased	Decreased	Similar	Similar
Biological Resources	Decreased	Decreased	Similar	Similar
Cultural Resources – Archaeological Resources	Decreased	Decreased	Similar	Similar
Cultural Resources – Historical Resources	Decreased; would avoid the project's significant and unavoidable impact	Decreased; would avoid the project's significant and unavoidable impact	Similar; impacts would continue to be significant and unavoidable*	Decreased; impacts would continue to be significant and unavoidable†
Geology and Soils	Decreased	Decreased	Similar	Similar
Greenhouse Gas Emissions	Similar	Similar	Similar	Similar
Hazards and Hazardous Materials	Decreased	Similar	Similar	Similar
Hydrology and Water Quality	~~Decreased~~ Similar	Similar	Similar	Similar

Issue Area	No Project/ No Build Alternative	Alternative 1: Renovate Page Museum Only	Alternative 2: Maintain Central Atrium Pleistocene Garden	Refined Alternative 3: Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green
Land Use and Planning	Decreased; would avoid the project's significant and unavoidable impact	Decreased; would avoid the project's significant and unavoidable impact	Similar; impacts would continue to be significant and unavoidable	Decreased; impacts would continue to be significant and unavoidable.
Noise and Vibration	Decreased	Decreased	Similar	Similar
Recreation	Similar	Similar	Similar	Similar
Transportation	Decreased; would avoid the project's significant and unavoidable impact	Decreased; would avoid the project's significant and unavoidable impact	Similar; impacts would continue to be significant and unavoidable	Similar; impacts would continue to be significant and unavoidable
Tribal Cultural Resources	Decreased	Decreased	Similar	Similar
Utilities and Service Systems	Decreased	Decreased	Similar	Similar
Meets Project Objectives?	Partially	Partially	Partially	Yes

Notes:

* The benefits of avoiding the impacts to the Page Museum's character-defining features do not outweigh the additional impacts to the character-defining features of the La Brea Tar Pits Historic District and would not avoid the project's significant and unavoidable impacts related to alterations of historical resources.

†Impacts to certain character-defining features are lessened to both the Page Museum and the La Brea Tar Pits Historic District, thereby reducing the overall severity of the impacts to historical resources; however, it would not avoid the project's significant and unavoidable impacts.

As detailed in Chapter 6 and based strictly on an analysis of the relative environmental impacts, Alternative 1, Renovate the Page Museum Only, would be the Environmentally Superior Alternative because it would be the built alternative that minimizes the project's adverse impacts on the environment. The Foundation and the Museum of Natural History, as a departmental unit of the County, will consider the whole of the record when considering the project including, but not limited to, public comment and testimony ~~related to the size and design of the residence~~. The Foundation and the Museum of Natural History may select the project as proposed, an alternative, or a specified combination of particular elements identified in the alternatives, as the approved project.

Alternative 1 would avoid the project's significant and unavoidable impact to historical resources as it would result in renovations to the interior of the Page Museum only, while retaining the character-defining features of both the Page Museum and the La Brea Tar Pits Historic District that qualify them as historical resources. Because Alternative 1 would avoid impacts to historical resources, it would also avoid the project's inconsistencies with applicable land use plans and policies. In addition, Alternative 1 would also avoid the project's significant and unavoidable impact related to transportation as it would not result in the project's substantial increase in regional vehicle miles traveled (VMT). Alternative 1 would also result in decreased impacts to a majority of the other environmental issues areas listed in Table 2-3 as no grading or other earthwork activities would be necessary, and no other structures would be constructed as a result of this alternative. Further, upon completing this alternative, there would be no changes to the existing land use types or operational characteristics of the project site. Alternative 1 would meet one of the project objectives related to preserving and protecting the National Natural Landmark—La Brea Tar Pits. Alternative 1 would partially meet two other project objectives related to addressing the deferred maintenance and meeting modern building code standards of Page Museum as well as partially meeting the project objective related to providing state-of-the-art exhibition facilities and learning environments within the museum. While it would not meet most of the project objectives, Alternative 1 is the alternative scenario that reduces the most environmental impacts when compared to the project.

For comparison, Alternative 2, Maintain Central Atrium Pleistocene Garden, would preserve most of the character-defining features of the Page Museum, but it would result in the loss of a greater amount of open space in the La Brea Tar Pits Historic District due to the increased footprint of the project. As such, the benefits of avoiding the impacts to the Page Museum's character-defining features do not outweigh the additional impacts to character-defining features to the La Brea Tar Pits Historic District and this alternative would not avoid the project's significant and unavoidable impacts related to alterations of historical resources. Since Alternative 2 would not avoid the project's significant and unavoidable impacts to historical resources, it would also result in the project's inconsistencies with applicable land use plans and policies. In addition, Alternative 2 would not avoid the project's substantial increase in regional VMT and would still result in significant and unavoidable impacts related to this issue. Alternative 2 would also result in similar impacts as the project to the other environmental issues areas listed in Table 2-3 as this alternative would result in similar types of construction activities and operational uses as proposed by the project. Alternative 2 would meet seven project objectives and partially meet the remaining two objectives due to the loss of open space as a result of the expanded museum footprint.

Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar environmental impacts as the project for each issue area analyzed in this EIR, as shown in Table 2-3, except for historical resources and land use and planning. While Refined Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District thereby reducing the overall severity of the impacts to historical resources, it would not avoid the project's significant and unavoidable impacts. One of the primary character-defining features of the Page Museum is its visual primacy on the grounds of the Tar Pits; the design refinements presented in the refined version of Alternative 3 would result in less of an impact to the Page Museum's visual primacy. Refined Alternative 3 would reduce impacts to the Page Museum to the extent that the building would continue to convey its historic significance and retain its eligibility as a historical resource. However, the site plan changes would continue to result in a significant and unavoidable impact to the La Brea Tar Pits Historic District. The overall severity of the significant and unavoidable impacts to the historic district would be reduced because of the separation of the new museum building from the Page Museum, the narrowing of the transition area connection between the two buildings, and the design refinements that retain more of the Page Museum's character-defining features such as the existing structural space frame, frieze, and courtyard. Similarly, the design refinements in this alternative would help to further support the land uses plans and policies applicable to the project as they relate to the protection and alternation of historical resources, but not in such a way to avoid the project's related significant and unavoidable impacts. This alternative would also result in the project's significant and unavoidable impacts related to increased regional VMT. However, Refined Alternative 3 is the alternative that meets all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project.

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CHAPTER 3. PROJECT DESCRIPTION

This chapter provides a description of the proposed La Brea Tar Pits Master Plan (project), including the project location and setting, the project objectives, and a description of project characteristics and design features. This chapter also includes a description of intended uses of this EIR, including required agency actions and coordination requirements.

La Brea Tar Pits is an active paleontological research site located within Hancock Park in the city of Los Angeles (Figure 3-1 and Figure 3-2). La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County of Los Angeles (County) but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation for the County of Los Angeles Museum of Natural History (Museum of Natural History),[1] including La Brea Tar Pits and the Page Museum. The County is the Lead Agency under CEQA for this EIR; the Museum of Natural History is a County departmental unit.

The Foundation proposes a redevelopment, or "reimagining," of the 13-acre La Brea Tar Pits site, including the Page Museum and portions of the surrounding Hancock Park. The proposed project is the *La Brea Tar Pits Loops and Lenses, Master Plan and Concept Design*, prepared for the Foundation and the County and referred to as the La Brea Tar Pits Master Plan (Master Plan, Weiss/Manfredi 2023). The project includes a reimagined site design, expansion, and upgrades for the Tar Pits complex, including renovations to the Page Museum. The Master Plan is included as Appendix B.

The project site is located at 5801 Wilshire Boulevard in Los Angeles. The project site is adjacent to the Los Angeles County Museum of Art (LACMA).

3.1 PROJECT LOCATION

The 13-acre La Brea Tar Pits site is located within the eastern and northwestern portions of the 23-acre Hancock Park (Assessor's Parcel Number [APN] 5508-016-902) at 5801 Wilshire Boulevard. The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to LACMA; both LACMA and the Foundation are responsible for managing separate and distinct portions of the 23-acre Hancock Park, with the Foundation responsible for the 13-acre project site and LACMA responsible for the remainder of the site to the south and west of the project boundaries. LACMA's facilities are not included in the project.

The project site is located approximately 5.5 miles west of downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and LACMA to the west (an approximately 250-foot-long frontage). The area surrounding the site is known as the Miracle Mile neighborhood of the city of Los Angeles.

[1] In accordance with Chapter 2.94 of the Los Angeles County Code and various other operating agreements, the County Museum of Natural History is a department of the County and has administrative charge and control over all County matters relating to history and science, and shall also include the administration of Hancock Park (except that area of said park devoted to the Los Angeles County Museum of Art [LACMA]), and the care, safeguarding, and maintenance of all exhibits, equipment, and structural improvements directly relating to exhibits, the administration and maintenance of LACMA, and other property hereafter acquired for or devoted to history and science.

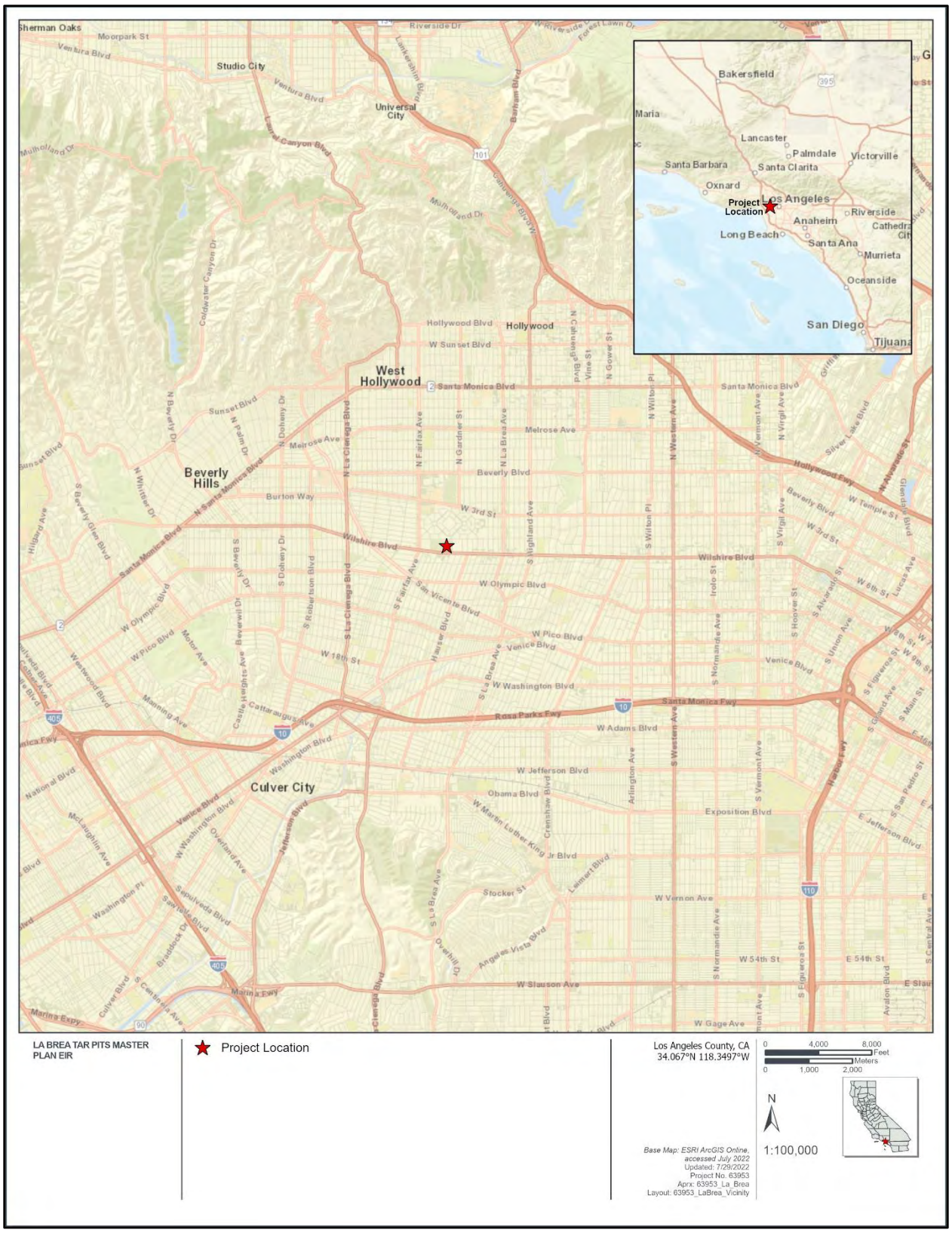

Figure 3-1. Project vicinity map.

Figure 3-2. Project location map.

Primary regional access to the project site is provided by Interstate 10, which runs east-west less than 2 miles south of the project site. The major arterials providing regional and subregional access to the project site vicinity include Wilshire Boulevard, La Brea Avenue, and Fairfax Avenue. The project site is well served by public transit. Specifically, the Los Angeles County Metropolitan Transportation Authority (Metro) 20 and 720 bus lines on Wilshire Boulevard and the Metro 217, 218, and 780 bus lines on Fairfax Avenue all stop within half a block of the project site.

In addition, Metro is currently constructing an extension of the Metro system D Line (formerly known as the Purple Line), providing three new heavy-rail subway stations along Wilshire Boulevard, which will serve the project site (Metro 2022). The new stations will be located at Wilshire Boulevard/La Brea Avenue, Wilshire Boulevard/Fairfax Avenue, and Wilshire Boulevard/La Cienega Boulevard. They are slated to open for service in 2024.

3.2 EXISTING SETTING

3.2.1 Surrounding Land Uses

The La Brea Tar Pits project site is surrounded by a variety of commercial uses, museums, residential buildings, and schools.

The project site is bounded by the Park La Brea Pool and multi-family residential uses to the north across West 6th Street, commercial and residential uses to the east across South Curson Avenue, the Craft Contemporary Museum and other museum and commercial uses south across Wilshire Boulevard, and museum and commercial uses to the west. LACMA is located to the south and west of the project site, including its Pavilion for Japanese Art and the future David Geffen Galleries, a building that is currently under construction to replace four of LACMA's older buildings. Beyond LACMA's facilities to the west are an outdoor public art installation and the Academy Museum of Motion Pictures.

The closest sensitive land uses to the project site are off-site residential uses located 50 to 150 feet from the project site. The nearest school to the project site is Fusion Academy Miracle Mile, a private learning institution for middle school and high school–age students, located approximately 0.12 mile away, and the nearest daycare is Michal Daycare located approximately 0.28 mile away.

3.2.2 Project Site Background

The project site is located within the former Rancho La Brea, a 4,439-acre Mexican land grant given to Antonio Jose Rocha and Nemisio Dominguez in 1828. Rancho La Brea consisted of approximately 4,500 acres of land in current-day Wilshire's Miracle Mile neighborhood, Hollywood, and parts of West Hollywood. In 1860, Rancho La Brea was deeded to Henry Hancock and eventually subdivided and developed. The first published mention of the occurrence of extinct fauna and fossils at Rancho La Brea was made by William Denton in 1875. In 1902, the Salt Lake Oil Field was discovered, which is the source of long-term seepage of crude oil to the ground surface within the project site. In 1913, George Hancock gave the County the exclusive right to excavate fossils and specimens for a 2-year period within and around the asphaltic deposits of the site. The largest and best documented collections at that time were made between 1913 and 1915. During this period, 96 sites were excavated, yielding well over 750,000 specimens of plants and animals.

The County acquired Hancock Park in 1924, through a donation by George Hancock (Natural History Museums of Los Angeles County 2022). Recognizing the site as scientifically valuable, Hancock donated the site under the condition that the County would develop the park as a scientific monument known as La Brea Tar Pits. After Hancock Park was established in 1924, little in the way of formal excavation was

accomplished for the next 45 years (Natural History Museums of Los Angeles County 2022). In 1969, the Rancho La Brea Project began by resuming excavation of a major deposit of fossils in Pit 91 that had been discovered in 1915. In 1960, a portion of the land within Hancock Park was dedicated to the creation, development and maintenance of the LACMA campus.[2] Over several decades, the LACMA portion of the site has been altered and undergone expansion. In 1975, philanthropist George C. Page donated funds to construct an on-site museum within the La Brea Tar Pits portion of Hancock Park. The Page Museum opened to the public in 1977.

Currently, Hancock Park is registered as California Historical Landmark No. 170, and La Brea Tar Pits is a U.S. National Natural Landmark (California State Parks 2022). The asphalt seeps at La Brea Tar Pits are the only actively excavated urban Ice Age fossil dig sites in the world (Natural History Museums of Los Angeles County 2022).

3.2.3 Existing Project Site Conditions

As described above, the project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits, which includes the Page Museum (Figure 3-3). As shown in Figure 3-3, the existing two-story Page Museum is located within the eastern portion of the project site. The first floor of the museum is set into a large earthen berm which opens onto the Central Green, which is a 28,000-square-foot multipurpose grass lawn to the west of the Page Museum. At the top of the earthen berm on the second floor is a 30-foot-wide rooftop covered viewing platform which surrounds the first-floor central atrium courtyard.

The project site contains multiple fossil quarries, commonly called "tar pits." The tar pits (Pits 3, 4, 9, 13, 61, 67, and 91) are within the northwestern portion of the project site. These tar pits are fenced and include informational placards. Pit 10 is not open for public viewing as it is within the research facilities enclosing Project 23.[3] Numerous small tar seeps (an upwelling of asphaltum to the ground surface) are spread throughout the project site.

To the south of the Page Museum is the Wilshire Boulevard entrance and the largest asphaltic feature on the grounds of Hancock Park, the Lake Pit. The Lake Pit, which is the result of asphalt mining operations dating to the late 1880s, is one of more than 96 mining and paleontological excavation pits that once filled the park. In 1967, statues of Columbian mammoths were put on display in the Lake Pit, conveying the struggle prehistoric fauna encountered when accidentally entering a tar deposit. The statues remain there today, along with an approximately 8-foot-high fence surrounding the Lake Pit for safety and security purposes. A comfort station, with public restrooms, picnic benches, and vending machines, is adjacent to the Lake Pit to the west.

Oil Creek, a historic ephemeral creek supported by underground drainage, runs from the northeast by the parking area off South Curson Avenue to the southwest through the project site. The entirety of Hancock Park is enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when La Brea Tar Pits, Page Museum, and LACMA are closed in the evenings.

For additional information on the current site conditions, refer to Chapter 4, Environmental Setting.

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[2] Originally part of the Los Angeles Museum of History, Science, and Art, which opened in 1910 in Exposition Park, LACMA was established in 1961 as a separate, art-focused institution.

[3] Project 23 is an active fossil recovery site. In 2006, the LACMA began work on a new underground parking garage. During the course of construction, 16 new fossil deposits were discovered, including an almost-complete skeleton of an adult mammoth. Construction was halted, and 23 large wooden boxes were built around each fossil deposit (hence the short-hand descriptor, "Project 23"). These boxes and numerous buckets of fossil material were moved to the Project 23 current location for recovery. Adjacent covered research and storage areas support the ongoing fossil recovery.

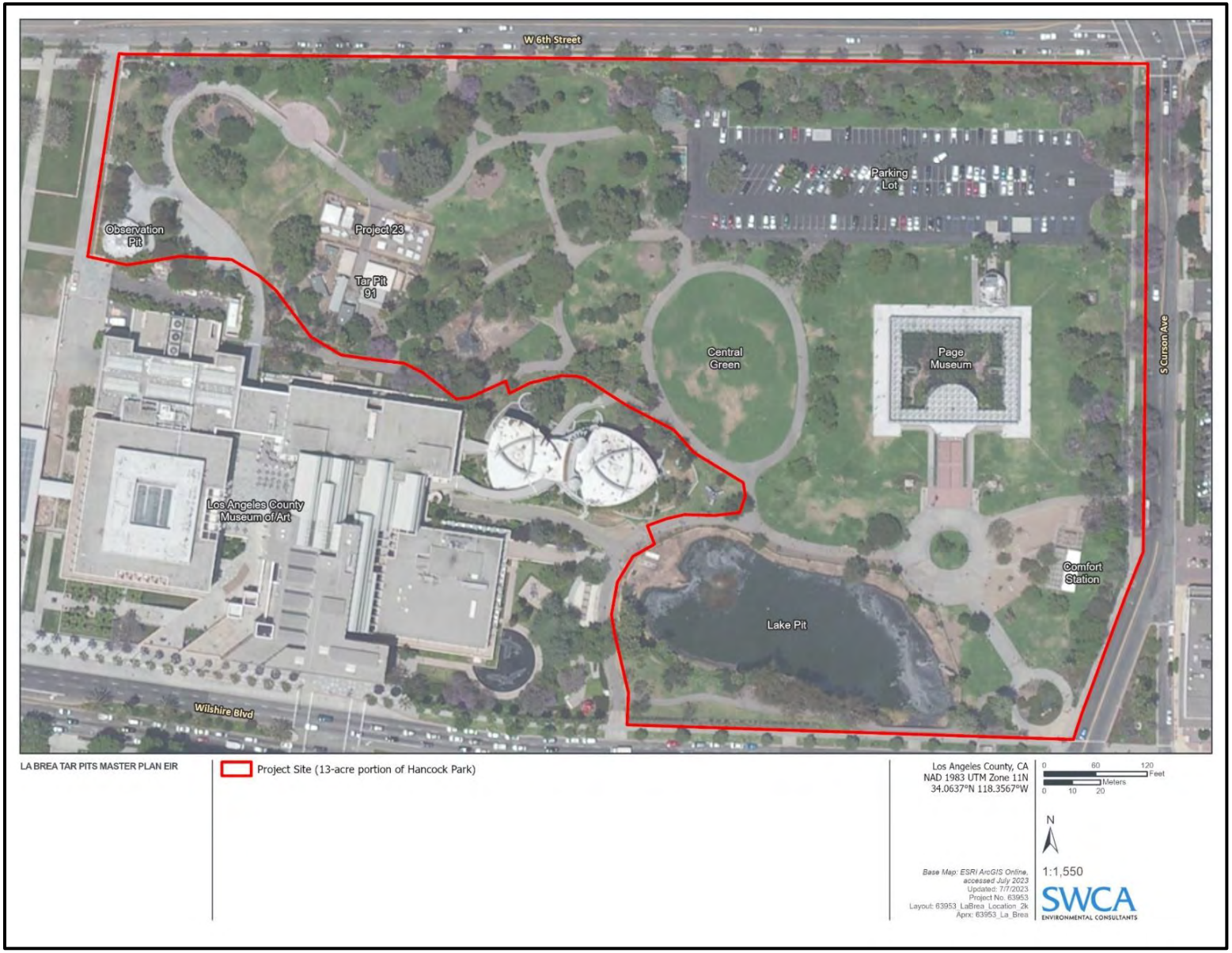

Figure 3-3. Existing site–Page Museum and Hancock Park.

3.3 PROJECT OBJECTIVES

Section 15124(b) of the State CEQA Guidelines states that a project description shall contain "a statement of the objectives sought by the proposed project," and further states that "the statement of objectives should include the underlying purpose of the project." The Los Angeles County Museum of Natural History, as a departmental unit of the County, and the Foundation have identified the following objectives for the project:

1. Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019; County of Los Angeles 2024).
2. Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.
3. Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.
4. Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.
5. Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.
6. Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.
7. Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.
8. Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.
9. Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.

3.4 PROPOSED PROJECT

The project would result in renovations and upgrades throughout the project site. The project would result in a reimagined site design, expansion, and upgrades for the Tar Pits complex and the 13-acre portion of Hancock Park, including renovations to the Page Museum (Figure 3-4). Table 3-1 provides a summary of the project components; more detail on the project components is provided in the following sections.

Table 3-1. Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building within the same footprint (approximately 63,200 square feet).
New Museum Building	Construct a new two-story, 40,000-gross-square-foot (gsf) museum building northwest of the Page Museum, including two new theaters. The construction of the new museum building would require the removal of vegetation in the footprint of the new building.
Wilshire Gateway	Renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pits (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site. These renovations would require the removal and replacement of some vegetation, although the exact amount and nature of the vegetation removal and enhancements have not been determined at the time of this report.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous paved path linking existing features on the project site. Provide improvements to the Central Green. Establish a children's play area, picnic areas, and a possible future small dog park.
Circulation and Parking	Relocate the parking lot approximately 50 to 70 feet to the north. The size of the parking lot (63,000 square feet) and the number of parking spaces would not change. The shifting of the parking lot on the northern side of the project site may require removal or relocation of the trees between the existing parking lot and West 6th Street. If these trees need to be removed or relocated, they would be either moved to another location within the 13-acre project site or replaced elsewhere within the project site. Add new landscaping and vehicle access lanes to the parking lot. Establish a new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping Concept Plan	Establish three distinct landscaping zones encircled by a looping pedestrian path. More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the planting (introduction or relocation) of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. Create three biofiltration areas for stormwater management.

3.4.1 Page Museum Renovations

The project would include renovation of the existing Page Museum to allow for enlarged exhibition space, additional storage, a ground floor café, and retail space (Figure 3-5). The vegetation in the existing central atrium of the Page Museum would be removed. The central atrium would be renovated to provide additional exhibitions, an additional classroom, and visible laboratory space (Figure 3-6). The renovation would also allow much of the collection space to be reorganized and enlarged to provide better display of the collections to the public. The enlarged storage for the collections would accommodate up to 2,000 cubic feet of additional storage. In addition, space for visiting researchers and approximately 17 new employees would be added.

Figure 3-4. Conceptual site plan.

LA BREA TAR PITS MASTER PLAN EIR

Source: Weiss/Manfredi, 2021
Project No. 63953
Layout: 63953_GroundFloor
Aprx: 63953_La_Brea

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Figure 3-5. Proposed museum ground-floor building program.

Figure 3-6. Visual simulation: Page Museum renovation.

The second floor of the Page Museum would contain a multipurpose space. An outdoor café would be located next to these spaces on the center terrace on the west side of the Page Museum. The existing Page Museum entrance would be converted to an educational group and tour entrance, which would be connected to a new school drop-off area on South Curson Avenue. The project would add extensive sustainability features to the Page Museum, including enhanced daylighting, rainwater collection leading to bioswales, and rooftop solar photovoltaic panels.

3.4.2 New Museum Building

The two-story new museum building would be located to the northwest of the Page Museum, in an area currently occupied by a portion of the parking lot. As described below in Section 3.4.9, the parking lot would be shifted from its current position to the northeast. The building would be approximately 40,000 gsf and would increase the total museum square footage to 104,000 gsf. The new museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections laboratories, administration spaces, and a loading dock. The new building would have a maximum building height of 30 feet when measured from the terrace level and up to 60 feet when measured from the finished floor of the new building.

To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.

The Page Museum and new museum building would be continuously connected on the first floor (see Figure 3-5). The first-floor central lobby would face southwest toward the Central Green and branch off into the Page Museum to the east and the new museum building to the west. An updated retail space and café would be located off the lobby and look out over the Central Green.

The buildings would be disconnected on the second floor, which would rise above the earthen berm. Interior staircases would lead to the upper floors and the two separated facilities would be accessible through sloped outdoor walkways from the Central Green.

There would be pedestrian entrances leading into the central lobby from the Central Green and from the parking lot. The façade of the new museum building would be constructed using nonreflective materials, consistent with the exterior materials of nearby buildings, and would rely on protective coatings such as anti-graffiti coatings or scratch-resistant films to reduce the potential for vandalism. The new museum building would also include safety measures including surveillance cameras and security lighting.

3.4.3 Wilshire Gateway and Lake Pit

The project would renovate the existing entrance to La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza; this would provide orientation, spaces for gathering and queuing, and restrooms (Figure 3-7). A picnic area would also be located under the shaded canopy.

A pedestrian bridge and walking path may be constructed over the Lake Pit. If constructed, it would include interpretive signage and explanations related to the former industrial heritage of the site. Other features may be incorporated into the Lake Pit area (e.g., around the shore) to enhance the visitor experience and improve management of the lake. Directly to the east of the Lake Pit, a new garden

bioswale would be installed to manage stormwater and would include vegetation related to the Pleistocene era.

A school drop-off area on South Curson Avenue would lead directly to the education museum entrance, enabling the management of student tour itineraries that are distinct from general museum visitors and other tour groups.

3.4.4 6th Street Gateway

The project would renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive. Like the Wilshire Gateway, a shaded canopy and welcome pavilion would provide orientation, legibility, and amenities. The intent of this entry is to provide a visible point of arrival from the residential communities to the north, providing access to the different destinations at the Tar Pits site, including play areas, picnic areas, seating, and interpretation zones at the protected tar seeps.

3.4.5 Tar Pits

The project would renovate the existing facilities at all the tar pits in the western portion of the project site. The existing fencing around Pit 9, Pit 13, and Pits 3, 4, 61, and 67 would be removed. The project would construct clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage.

The project would relocate the wooden fossil boxes, research facilities, and ongoing excavation associated with Project 23 to space within and adjacent to the new museum building. The temporary storage and research buildings adjacent to Project 23 would be demolished or repurposed within the project site.

Pit 91 would continue to be a key research and interpretation destination in the park. The project includes the demolition of the current viewing station overlooking Pit 91. In addition, a shaded outdoor classroom, a canopy, built-in seating, and a possible support structure would be constructed (Figure 3-8 and Figure 3-9). While excavation at Pit 91 could be completed in a few years, the site would be maintained and enhanced to support future excavation and educational opportunities. In addition, the new support facilities at Pit 91 would continue to support temporary excavation sites at adjacent Pit 10 or other future field sites.

3.4.6 Pedestrian Path and Recreation

The project would reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking the existing elements of the site: the Lake Pit and Wilshire Gateway in the southeast, the Central Green, museum, and tar seeps, and the 6th Street Gateway in the northwest (Figure 3-10). The pathway would be a series of three interconnected loops (see Figure 3-10 and Figure 3-11). Each of the three loops would contain distinct themes and programming.

The Central Green would be at the center of the project site, directly southwest of the Page Museum and new museum building (see Figure 3-4). This large common grass lawn provides a setting for community activities, recreation, events, and public gathering. The project would improve the infrastructure to create a drivable path for food trucks to access the Central Green.

To the west of the 6th Street Gateway, the project would add a children's play area, picnic areas, and a possible small dog park. Vegetated berms around recreation areas would create seating areas and elevated vantage points.

LA BREA TAR PITS MASTER PLAN EIR

Source: Weiss/Manfredi, 2021
Project No. 63953
Layout: 63953_WilshireGateway
Aprx: 63953_La_Brea

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Figure 3-7. Visual simulation: Wilshire Gateway.

Figure 3-8. Visual simulation: Pit 10 and Pit 91 outdoor classroom.

LA BREA TAR PITS MASTER PLAN EIR

Source: Weiss/Manfredi, 2021
Project No. 63953
Layout: 63953_Pit91_Interior
Aprx: 63953_La_Brea

SWCA ENVIRONMENTAL CONSULTANTS

Figure 3-9. Visual simulation: Pit 91 interior.

Figure 3-10. Proposed landscaping concept.

Figure 3-11. Visual simulation: pedestrian pathway.

3.4.7 Landscaping

As shown in Figure 3-10, the planting and landscaping concept for La Brea Tar Pits would be divided into three distinct zones encircled by the looping path system. Each loop of the pedestrian path would have a theme that represents different geologic epochs—Pleistocene in the southeastern loop, Holocene in the northwestern loop, and Anthropocene in the central loop (Figure 3-12 through Figure 3-14).
The Pleistocene Garden, located directly east of the Lake Pit, would be approximately 10,000 to 11,000 square feet in size, and incorporate a biofiltration area to help manage stormwater. It would be planted with herbaceous and woody species and the mammoth and mastodon sculptures currently located in the Lake Pit would be relocated there. The western loop would consist of a Holocene landscape with climate-appropriate native plantings to ease water consumption, ensure appropriate maintenance, and promote sustainable growth. A forested woodland consisting of Torrey pine and coast live oak would be planted with the intention of providing a focal area and shade. The western loop also contains Oil Creek, which would be developed into a biofiltration zone for stormwater management and would be planted with sequoia and Monterey pine trees in wetter pockets.

The woodland forest zone of the western loop would be extended along the park's peripheral edges (northern, southern, eastern, and western) to provide shade to the picnic areas and the parking lot to the north. Tree species are expected to include Torrey pine, coast live oak, western sycamore, and valley oak and would support the development of a unified canopy across the site. A 6,000 to 7,000-square-foot biofiltration area would be located within the center of the vehicular drop-off loop to manage stormwater flows from the parking lot.

3.4.7.1 Tree Removal, Relocation, and Planting Strategy

More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the introduction or relocation of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced. The relocated trees would be from existing locations within the project site. New plantings would be consistent with the planting and landscape concept and plant palette included in the La Brea Tar Pits Master Plan. New plantings would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. Trees that would be removed include non-native trees and/or trees that are diseased or are not in good health. Species such as the western sycamore and California buckeye would be preserved, unless they are diseased or in locations where new built features are planned (e.g., the pathway, museum expansion, and shifted parking lot on the northern side of the project site). Trees could be relocated to other locations of the 13-acre site if the trees are healthy and if it is determined through the more detailed design process that relocation is feasible. ~~It is preliminarily estimated that 10 percent of the 150 to 200 trees to be removed would be relocated rather than replaced.~~

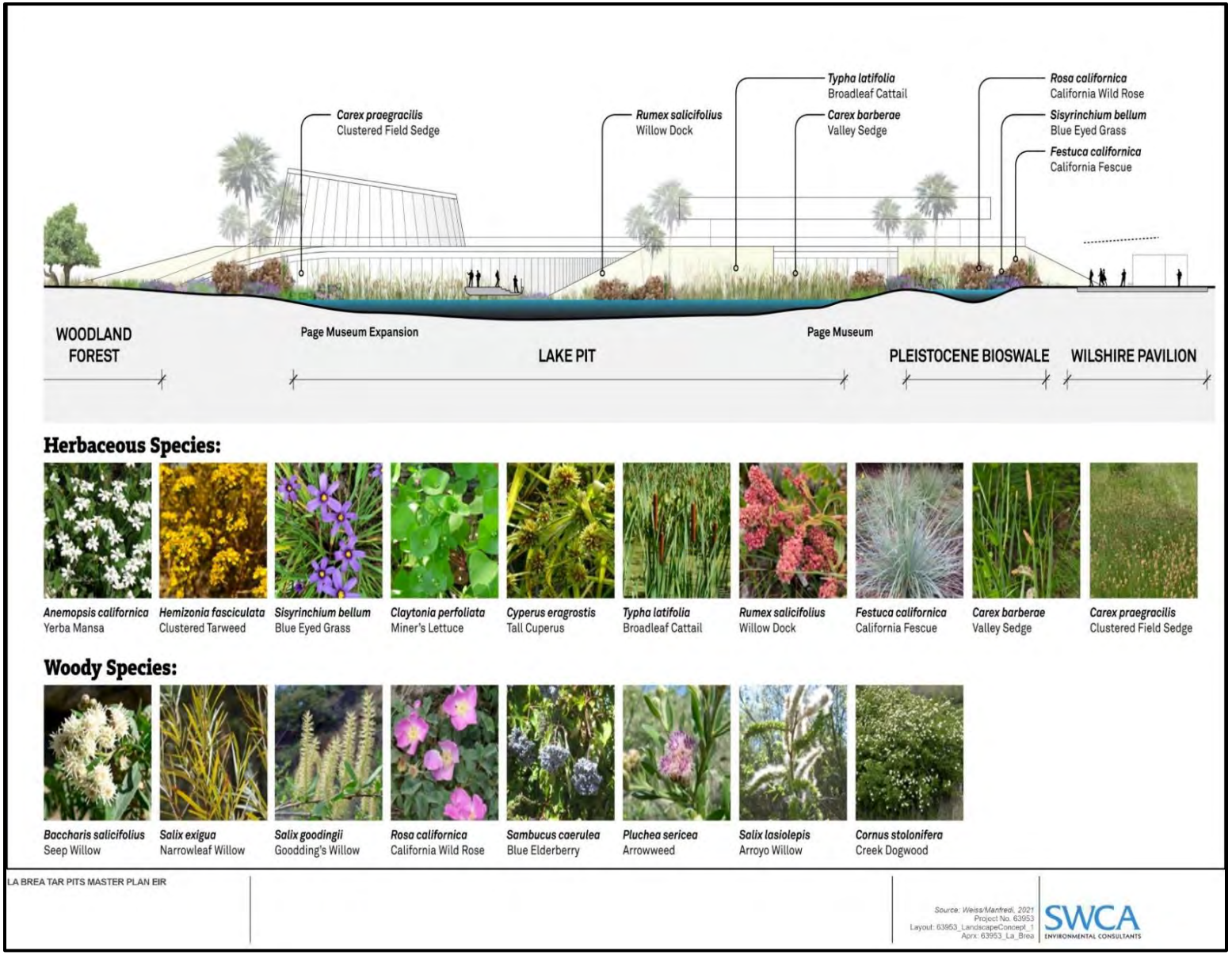

Figure 3-12. Landscape concept: Lake Pit and Pleistocene bioswale.

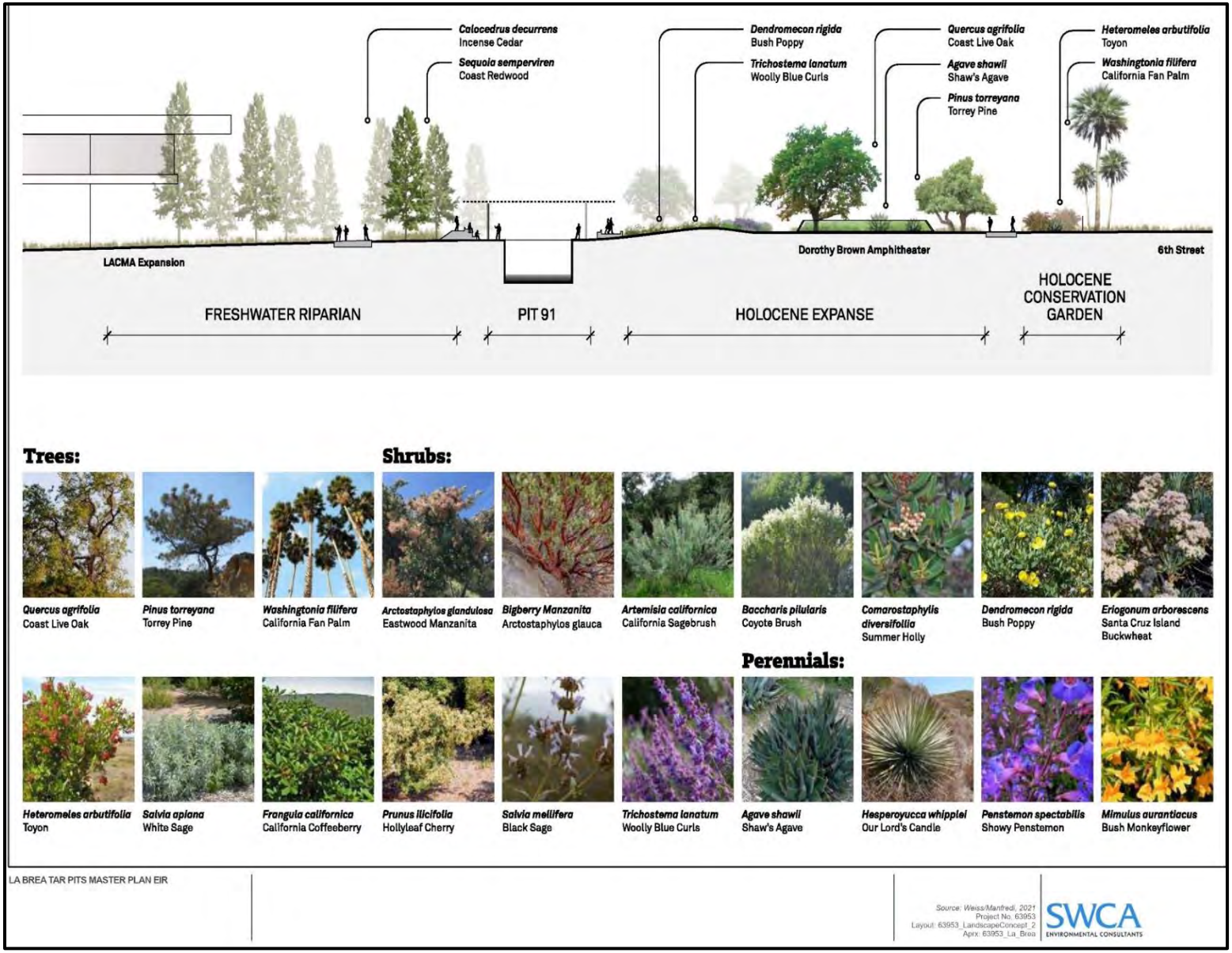

Figure 3-13. Landscape concept: late Pleistocene-Holocene.

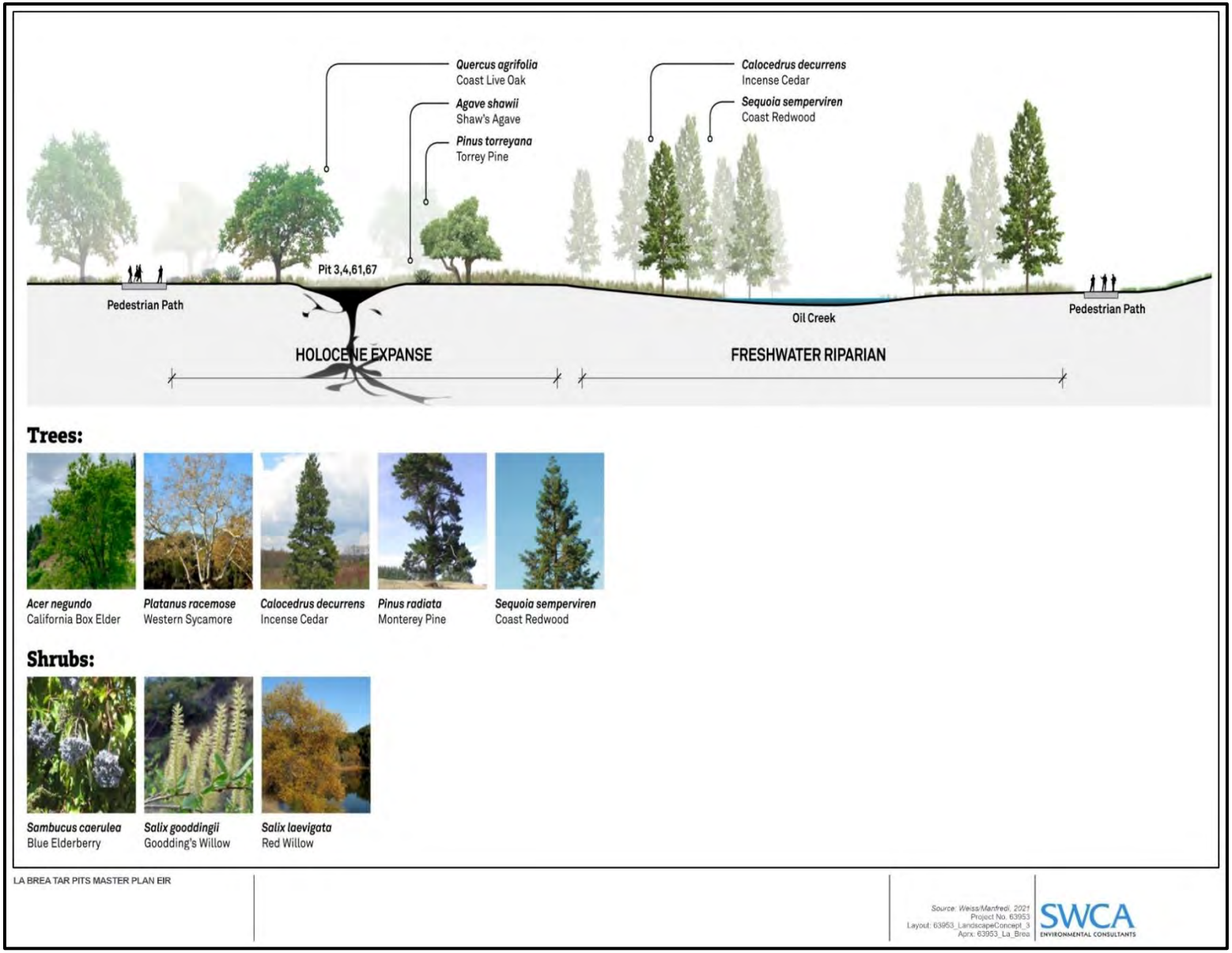

Figure 3-14. Landscape concept: Holocene and freshwater riparian.

3.4.7.2 Biofiltration Areas

The project includes three biofiltration features to manage stormwater runoff. The three features are biofiltration planters, which are shallow vegetated planters that are designed to receive and detain stormwater runoff from the building and site, filter the runoff, and eventually discharge the filtered runoff to the public storm drain system. The proposed biofiltration planters have been sized based on tributary area and are as follows:

- In the northwestern portion of the site, Oil Creek is proposed to be refurbished as a bioswale. The existing creek drainage would be cleared, lined with an impermeable liner, and partially filled with gravel subdrainage with a perforated pipe, amended soil, and plants. Runoff would be conveyed to the creek via sheet flow and existing or relocated underground pipes. After being filtered by the biofiltration media, stormwater would be collected at the bottom of the system and connected to the existing downstream stormwater system.
- In the northeastern portion of the site, the large planter within the proposed drop-off area would be constructed as a biofiltration planter. The planter would be excavated down 4 to 5 feet, lined with an impermeable liner, and filled with gravel subdrainage with a perforated pipe, amended soil, and plants. Supporting wall structures would likely be required underground (appearing at the surface as curbs), to separate the compacted soil for traffic loading and the uncompacted biofiltration media. Runoff would be conveyed to the system via sheet flow, filtered by the system, and then collected in the perforated subdrain and piped to the existing site stormwater system.
- In the southeastern portion of the site, east of Lake Pit, an in-ground biofiltration planter would be installed. The construction of this system would be similar to the Oil Creek system as described above. Subdrainage would be connected into public storm drain mains in either Wilshire Boulevard or South Curson Avenue.

3.4.8 Circulation and Vehicle Parking

The existing parking lot in the northeast corner of Hancock Park would be shifted approximately 50 to 70 feet, along the boundary of West 6th Street. The new parking lot would provide a minimum of the same amount of parking spaces as the existing parking lot (154 spaces). The project would add new landscaping and vehicle access lanes to the parking lot. A vehicular drop-off loop would facilitate vehicle circulation and visitor entry through a pedestrian entrance to the museum leading from the parking lot.

Three loading and service entrances would accommodate deliveries for laboratories, exhibition material, food service, events, and staff offices. Two of the entrances would be from the parking lot into the new museum building on the north side, and the third entrance would be from the parking lot into the Page Museum, also on the north side.

The proposed project includes a new school drop-off area from South Curson Avenue, adjacent to the Wilshire Gateway picnic area. This inset loading area would be 215 to 230 feet long to accommodate school buses. School buses would also be able to access the parking lot from South Curson Avenue and drop-off in the loading area in the parking lot.

Emergency vehicle access into the project site would be provided from the two site entrances off South Curson Avenue and off West 6th Street.

The project does not include any circulation improvements beyond the 13-acre project site.

~~The proposed project includes a new school drop-off area from South Curson Avenue, adjacent to the Wilshire Gateway picnic area. This inset loading area would be 215 to 230 feet long to accommodate school buses. School buses would also be able to access the parking lot from South Curson Avenue and drop-off in the loading area in the parking lot.~~

~~Emergency vehicle access into the project site would be provided from the two site entrances off South Curson Avenue and off West 6th Street.~~

3.4.9 Utilities

Delivery of potable water to the project site would be provided by the Los Angeles Department of Water and Power (LADWP). Proposed on-site water delivery infrastructure would include a 3-inch water line and a 3-inch fire line at the northeast corner of the site beneath the proposed parking lot, which would connect to the existing water meter in the sidewalk on South Curson Avenue (KPFF Consulting Engineers 2021). From there, the project site is served by three water mains that include two 8-inch asbestos-cement pipelines along Wilshire Boulevard and Curson Avenue, and a cast-iron pipeline along 6th Street (LADWP 2022).

Wastewater discharge from the project site is directed to the east where it connects by gravity to an existing City of Los Angeles public sewer main. The sewage infrastructure in the vicinity of the project site includes an existing 12-inch line on South Curson Avenue. The 12-inch line feeds into an 18-inch line on Wilshire Boulevard then into a 39-inch line on Crescent Heights Boulevard before discharging into a 48-inch sewer line also located on Crescent Heights Boulevard (Los Angeles Sanitation and Environment [LASAN] 2022). Wastewater generated from the new project elements, as proposed, would be conveyed from the sewer line at the northeast corner of the site beneath the proposed parking lot to the existing 12-inch sewer main along South Curson Avenue. On-site sewer lines would connect to the existing sewer main along South Curson Avenue. Detailed gauging and calculation of available sewer line capacities would be required as part of the permit process that would occur after the CEQA process, which would occur when building plans are more fully developed.

Water and wastewater pipelines, connections, and other related infrastructure are the most significant infrastructure needs that would be implemented at the 13-acre project site. However, other more minor infrastructure needs and connections (e.g., telecommunications, electricity) would also be needed, most of which would be below the ground surface (bgs). In addition, adjustments to the current plans for the on-site infrastructure may occur through the design development and permitting process. To provide flexibility during the design development process, this analysis assumes ground disturbance related to infrastructure and utilities could occur anywhere on the 13-acre site. The parameters and assumed depths of ground disturbing and excavation activities are described in Section 3.4.10, Project Construction. Improvements beyond the 13-acre site are not anticipated to be required and, thus, have not been addressed by the project-level analysis contained in this EIR.

The Foundation would coordinate with LASAN during project permitting. Following implementation of the project, LADWP would maintain the project site's water and electricity infrastructure, and LASAN would maintain the sewer and stormwater drainage infrastructure.

3.4.10 Project Construction

Construction of the project would occur when all design and construction plans are completed and approved by the County and other required agencies. Construction activities would include demolition of the existing museum entrances, grading and excavation, and construction of new structures and related infrastructure. All construction activities, including construction staging of equipment, would be situated

entirely within the project site. Typical construction equipment would be used during all phases of the project construction and would be stored within the staging area, including excavators, dozers, backhoes, dump trucks, water trucks, sand blasters, rollers, pavers, generators, scrapers, forklifts, delivery trucks, paving equipment, cranes, and air compressors. The grading and construction phase would be the peak period of construction with the highest number of construction vehicles. The grading phase is estimated to result in up to 127 one-way truck trips (e.g., vendor, hauling) and 75 worker vehicle trips per day. The building construction phase is estimated to result in up to 24 one-way truck trips and 200 worker vehicle trips per day.

Any hazardous materials found during construction and renovation would be abated and removed during the construction process in accordance with the applicable hazardous materials standards and requirements. Due to anticipated soil conditions, on-site soils are not expected to be suitable for reuse and would need to be exported for remediation and disposal (KPFF Consulting Engineers 2021). Therefore, it is anticipated that project earthwork activities would include an estimated 53,000 cubic yards of cut/export and potentially 37,000 cubic yards of imported fill (KPFF Consulting Engineers 2023). At the time of preparation of this EIR, final engineering, design, and grading plans for the project had not been finalized. Because the project design is at a preliminary stage, the level of detail needed to determine the precise depth of ground disturbance is not known. However, the level of design that has occurred to-date allows for a general characterization of the overall ground disturbance and excavation that would be necessary for the project. The project design team worked with the Foundation and the County to characterize a “worst-case” ground-disturbance estimate, which represents the most-impactful scenario in terms of depths and amount of excavation that includes all project elements. While separate estimates for each project element (e.g., the new museum building) are not yet available, the estimate based on the worst-cast scenario provides a reasonable basis on which the potential for environmental impacts can be analyzed.

Under the most-impactful scenario, the project would maximally require excavations from 6 to 10 feet bgs. In general, the new museum building would require the most ground disturbance and excavation. While the final elevation of the foundation for the new museum building is not known at this time, it may be below the existing ground surface to provide a smooth connection to the existing Page Museum.

The expansion of the new parking lot to the north and west of the existing lot would likely also require grading and imported sediments to create a level surface as a base beneath the new surface, estimated as requiring approximately 3.3 feet or less. The pedestrian paths, recreation areas, pit renovations, and landscaping would all require shallow to moderate excavation not to exceed approximately 5 feet; deeper excavation could possibly be required for tree planting/removal, although many of the ground-disturbances for these components would be at more shallow depths (e.g., 18 inches), for example to complete smaller plantings and construct/remove pathways.

Pile-drilling could be required to construct the structural supports for the new walkway over the Lake Pit and possibly the two gateway entrances, and ground disturbances are expected to be approximately consistent with the maximum depths of 10 feet considered for the project but contained with the relatively narrow diameter of the bore and in a limited number of locations.

While certain project elements are expected to require less excavation than the new museum, this EIR assumes that excavations could occur up to 10 feet deep throughout the 13-acre project site to allow maximum flexibility as the project designs become more refined.

3.4.11 Project Operation

Once the project is constructed and operational, there could be modest changes in project operation and maintenance, which are considered in this EIR. However, much of the maintenance of the 13-acre Hancock Park would occur as it does today with no measurable changes. Due to the increase in facility square footage, a modest increase in staffing to support La Brea Tar Pits and the Page Museum is anticipated. While an exact increase in the number of staff to be added to manage the site is not known, for EIR purposes, an estimate of approximately 20 additional staff is assumed. This factor of employee growth is based on the anticipation that, in the future, the buildings would have the same ratio of employees to building square footage as is present today.

The project would result in an expected increase in visitation to the project site upon project completion. Existing visitation at the Page Museum was estimated through the effort completed for the Transportation Assessment by using attendance counts from July 2017 (see Appendix J for more detail). It is estimated that a typical summer visitation is currently around 2,000 visitors on an average weekday and 2,600 daily visitors on Saturdays. Estimated increases in visitors to the Page Museum resulting from the project have been estimated based on the increase in square footage of the museum space (67%). Using this approach, the increase in visitors on weekdays would be around 1,350 people, and on Saturdays the increase would be approximately 1,750 people. Additional visitors also currently use the park without visiting the museum; this is expected to also increase modestly with the improvements to the project site. There currently is not a quantification of this pass-through and/or passive visitation available.

The Foundation and the County do not anticipate other operational changes occurring with implementation of the Master Plan.

3.5 AGENCY APPROVAL REQUIREMENTS AND INTENDED USES OF THIS EIR

The County of Los Angeles is the Lead Agency for the project under CEQA. While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the project is not subject to City of Los Angeles regulatory controls. Table 3-2 summarizes federal, state, and local approvals and/or permits that may be required for the project and the agencies that are expected to use the EIR in their decision-making processes.

Table 3-2. Agency Approval Requirements

Agency	Approval Required
County of Los Angeles	Certification of the EIR Approval of project as described in the EIR Approval of Grading and Building Plans
Regional Water Quality Control Board	Construction General Permit Section 401 under the Clean Water Act (potentially)
U.S. Army Corps of Engineers	Section 404 Permit under Clean Water Act (potentially)
California Department of Fish and Wildlife	Authorization under Section 1602, Lake and Streambed Alteration Agreement (potentially)

3.6 ENVIRONMENTAL REVIEW OF SUBSEQUENT ACTIONS

This EIR is intended to expedite the processing of future development that is consistent with the La Brea Tar Pits Master Plan and with the analyses and findings of this EIR. Although more detailed final design is forthcoming, this EIR evaluates a reasonable and likely maximum development scenario that would be anticipated based on the level of information that is currently available.

If the Master Plan is approved, and when considering subsequent development, the County would be required to determine whether the final design and development plans are consistent with the parameters and assumptions described herein and would not result in new or more severe significant environmental effects or require additional mitigation. If no additional or more severe environmental effects would have the potential of occurring, the County could approve the final design and development without additional environmental review. However, if there are significant changes proposed that are not consistent with the approved Master Plan or the type and level of development analyzed in this EIR, and the County concludes that these may result in new significant environmental impacts, additional environmental review would be required consistent with the requirements of the State CEQA Guidelines Sections 15162 through 15164.

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CHAPTER 4. ENVIRONMENTAL SETTING

This chapter introduces the project's environmental setting, including the physical conditions of the project site and its vicinity. Pursuant to State CEQA Guidelines Section 15125, the impacts of a project must be evaluated by comparing expected environmental conditions after project implementation to conditions at a point in time referred to as the baseline. The changes in environmental conditions between those two scenarios represent the environmental impacts of the project. The description of the environmental conditions of the project site under baseline conditions is referred to as the environmental setting. The following guidance for establishing baseline conditions provided in the State CEQA Guidelines Section 15125 is as follows:

> *An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.*

For the purpose of establishing baseline environmental conditions for the project, this EIR uses the date of publication for the Notice of Preparation (NOP), which was published on February 14, 2022. More detailed descriptions of the environmental setting under baseline conditions for each environmental issue area can be found in the corresponding sections in Chapter 5, Environmental Impact Analysis, of this EIR.

This chapter also provides context for the cumulative analyses provided in this EIR, including a discussion about the approach to analyzing the project's potential cumulative impacts, defining the geographic scope of the cumulative study area, as well as providing regional growth projections and a list of related development projects considered to be the cumulative development scenario for the project. A cumulative impact analysis for each environmental issue area can be found in the corresponding sections in Chapter 5, Environmental Impacts Analysis, of this EIR.

4.1 PHYSICAL SETTING

4.1.1 Regional Setting

Los Angeles County is geographically one of the largest counties in the country, encompassing approximately 4,083 square miles of land with an estimated population of 9,829,544, as of July 2021 (U.S. Census Bureau 2021). Los Angeles County stretches along 75 miles of the Pacific Coast of Southern California and is bordered to the east by Orange County and San Bernardino County, to the north by Kern County, and to the west by Ventura County.

The county is a land of beaches, valleys, mountains, and deserts. Overall, the climate can be characterized as "Mediterranean," with hot, dry summers and mild, wet winters. The diversity of the topography results in localized climate zones that are roughly divided by the Transverse Ranges (Santa Monica Mountains and San Gabriel Mountains). There are three climate zones—coastal plain, mountain, and high desert—which are closely tied to geologic landforms and vary based on elevation changes and distance from the ocean.

4.1.2 Local Setting

The project site is located approximately 5.5 miles west of downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and the Los Angeles County Museum of Art (LACMA) to the west (approximately 250-foot-long frontage). The area is known as the Miracle Mile neighborhood of the city of Los Angeles.

Primary regional access to the project site is provided by Interstate 10, which runs east-west less than 2 miles south of the project site. The major arterials providing regional and subregional success to the project site vicinity include Wilshire Boulevard, La Brea Avenue, and Fairfax Avenue.

4.1.3 Existing Project Site Characteristics

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits, which includes the George C. Page Museum (Page Museum). The entirety of the 23-acre Hancock Park is enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when La Brea Tar Pits, the Page Museum, and LACMA are closed in the evenings. In 1960, a portion of the land within Hancock Park was dedicated to the creation, development and maintenance of the LACMA campus.[1] Over several decades, the LACMA portion of the site has been altered and undergone expansion. LACMA's portion of Hancock Park has been almost entirely developed. In contrast, the property known as La Brea Tar Pits is generally a park-like setting.

The topography of the project site is primarily level, with sloped areas adjacent to the existing Page Museum. The current landscape is dominated by a large lawn surrounding the museum and extending to the west. Paved walkways meander through the project site, with mature trees and shrubs, primarily non-native.

Because entrance to the park grounds is free, it is well used by the public. People walk dogs, jog, picnic, and play on the large lawn area. Numerous people, large school groups, and leashed dogs were present during the field surveys. The outer perimeter of the project site is surrounded by a metal fence with gates at several locations. These gates are open during park operating hours and closed at night. The tar pits are separately fenced inside the park.

4.1.3.1 George C. Page Museum

The two-story Page Museum is located within the eastern portion of the project site. The exterior museum is shaped like a truncated pyramid. The first floor of the museum is set into a large earthen berm which opens onto the Central Green (Figure 4-1). At the top of the earthen berm on the second floor is a 30-foot-wide rooftop covered viewing platform which surrounds the first-floor Central Atrium courtyard.

On average, 700 to 1,000 people visit the Page Museum per day and 425,000 people visit per year. It currently operates from 9:30 a.m. to 5:00 p.m., 7 days a week (it is closed on the first Tuesday of each month). The surrounding Hancock Park is open from 6:00 a.m. to 10:00 p.m., 7 days a week. Hancock Park and the Central Green receive approximately 2 million visitors per year. Approximately 25 staff are employed at the Page Museum, including excavators, preparators, collections managers, and support staff.

[1] Originally part of the Los Angeles Museum of History, Science, and Art, which opened in 1910 in Exposition Park, LACMA was established in 1961 as a separate, art-focused institution.

The museum is approximately 63,200 square feet in size and contains scientific exhibitions, fossil laboratories, collections storage, theaters, classrooms, and office wings. The museum currently has a collection of over 3.5 million specimens on-site, although only a fraction of the collection is on display. There are approximately 8,000 square feet of collections storage. Within the museum, exhibitions are approximately 19,600 total square feet, and research and collections (fossil laboratories, collections storage, and office support) are approximately 11,00 square feet. The West, North, East, and Timeline exhibits currently surround the Central Atrium, an 8,700-square-foot outdoor garden and courtyard filled with non-native vegetation and an artificial waterfall. Although open to the air, the atrium has a metal lattice stretching across the ceiling. The Page Museum also includes an active paleontological laboratory. Through the glass, visitors can observe volunteers and scientists clean and conserve the fossils discovered in the tar pits on-site. A 1,500-square-foot retail shop exists in the lobby.

Approximately 5,300 square feet of educational space exists within the museum, spread over two classrooms, the 2D Theater, the Ice Age Theater, and the 3D Theater. The 2D Theater is open for school groups and 3D Theater and Ice Age Theater are currently open to the public. Theater capacities for each resource include: 57 fixed seats in the 3D Theater, 100 floor seats in the 2D theater, and 100 floor seats in the Ice Age Theater. The 3D Theater operates 6 days a week, showing the movie "Titans of the Ice Age"; the 2D Theater is used for school groups; and the Ice Age Theater is used 3 days a week for "Ice Age Encounters" and other activities, as needed. The classrooms are used for summer camps and internships.

4.1.3.2 Tar Pits

The project site contains multiple active fossil quarries, commonly called "tar pits." The active tar pits (Pits 3, 4, 9, 13, 61, 67, and 91) are within the northwestern portion of the project site (Figure 4-2). These tar pits are fenced and include informational placards. Pit 10 is not open for public viewing as it is within the research facilities enclosing Project 23, as described below. Numerous small tar seeps (an upwelling of asphaltum to the ground surface) are spread throughout the project site.

OBSERVATION PIT

The Observation Pit is a small building on the western boundary of the project site. Opened in 1952, the domed pit served as the park's only staged exhibit of scientific discovery until the Page Museum opened in 1977. Built over an active pit (i.e., Pit 101), the Observation Pit replicates the experience of a fossil pit, with a mix of real fossils and staged casts of fossils to mimic excavation.

PROJECT 23 AND PIT 91

Project 23 is an active fossil recovery site. During construction on the LACMA parking garage in 2006, 16 new paleontological deposits were discovered, including an almost-complete skeleton of an adult mammoth. Given the size of the discoveries, 23 large wooden boxes were built around the various deposits, allowing many of the discoveries to remain intact. "Project 23" has now become the short-hand descriptor for the location and activities related to the excavation of deposits within the 23 large wooden boxes that is now occurring in a portion of the La Brea site. These boxes and numerous buckets of fossil material were moved to the Project 23 current location for recovery. Adjacent covered research and storage areas support the ongoing fossil recovery.

Pit 91, an active excavation site, is directly adjacent to Project 23. There is a small indoor viewing station that allows visitors to observe the ongoing excavation activities.

LA BREA TAR PITS MASTER PLAN EIR

Project No. 63953
Layout: 63953_SitePhotos1
Aprx: 63953_La_Brea

SWCA
ENVIRONMENTAL CONSULTANTS

Figure 4-1. Existing site photographs: Page Museum.

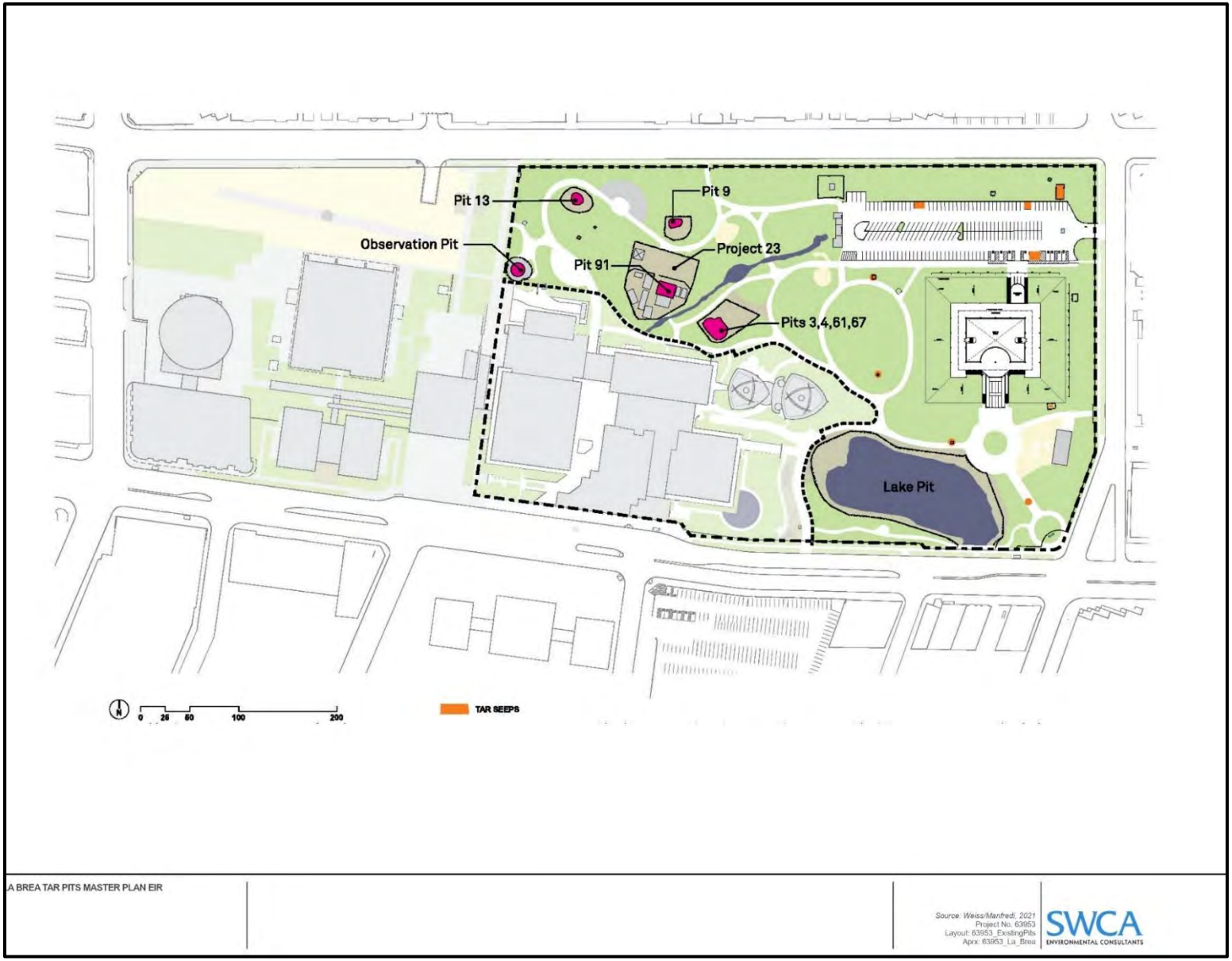

Figure 4-2. Existing pits and tar seeps.

LAKE PIT

To the south of the Page Museum is the Wilshire Boulevard entrance and the largest pit on the grounds of Hancock Park, the Lake Pit. The Lake Pit, which is the result of asphalt mining operations dating to the late 1880s, is one of the more than 96 mining and paleontological excavation pits that once filled the park. All of the pits have gradually accumulated rain, groundwater, asphaltum, sediments, and leaves, yet the Lake Pit is distinct due to its large size and the volume of water it contains. Due to a deep underground oil field, the Lake Pit produces visible methane gas bubbles that emit a distinctive odor. In 1967, statues of Columbian mammoths were put on display in the Lake Pit, conveying the struggle prehistoric fauna encountered when accidentally entering a tar deposit. Today, an approximately 8-foot-high fence surrounds the Lake Pit for safety and security purposes; a comfort station, with public restrooms, picnic benches, and vending machines is adjacent to the Lake Pit to the west.

4.1.3.3 Natural Environment and Landscape Features

Project site vegetation consists of large expanses of lawn with primarily non-native planted trees and shrubs, including pines (*Pinus* spp.), gum trees (*Eucalyptus* spp.), Brazilian peppertree (*Schinus terebinthifolius*), various species of palm tree (e.g., fan; queen), London planetrees (*Platanus x hispanica*), and other trees. Native trees are present, including coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata),* California [western] sycamore (*Platanus racemosa*), buckeye (*Aesculus californica*), and coast redwood (*Sequoia sempervirens*). It is estimated that approximately 330 to 340 trees currently exist within the 13-acre project boundary. Within these existing trees, there are 13 native oak trees (12 *Quercus agrifolia* and one *Quercus lobata*). The highest concentration of landscaping occurs in the northern perimeter along West 6th Street and the eastern perimeter along South Curson Boulevard, which includes a mix of shrubs, non-native ornamental trees, and palm trees. In addition, an ephemeral creek, referred to as Oil Creek, flows from the northeast to the southwest, from the southwestern end of the parking area to the southeast side of Pit 91.

An approximately 28,000-square-foot multipurpose grass lawn, known as the Central Green, is located to the west of the Page Museum.

Oil Creek, a historic drainage, appears to originate from underground sources and conveys flow from the northeast to the southwest through the project site. As early as 1941 (based on historical aerial imagery), the creek conveyed flow from approximately the intersection of 6th Street and South Curson Avenue southwest to the intersection of Wilshire Boulevard and South Ogden Drive. In its current state, Oil Creek appears to receive its primary hydrologic input source from groundwater. Oil Creek also receives hydrologic inputs from precipitation and irrigation system runoff. Dense vegetation and heavy leaf litter exist in the northeastern portion of the creek. The drainage has been disturbed and manipulated over time. It is partially paved where the parking lot is located and is channelized with pavers near its terminus. Oil Creek is dominated by non-native mowed grasses along with a mix of other native and non-native low-lying vegetation.

The 9/11 Memorial Stone, a memorial plaque on a boulder dedicated to the September 11, 2001 attacks, is in the northwest corner of the project site. Approximately 24 trees are located around Hancock Park to honor those killed during the September 11, 2001 terrorist attacks.

The Central Green and open space areas within the greater Hancock Park are the only public green spaces within a 1.5-mile radius of the project site.

4.1.3.4 Circulation and Vehicle Parking

Parking for La Brea Tar Pits is located in the northeast corner of the project site, at the corner of South Curson Avenue and West 6th Street. Vehicles enter and depart the lot from both directions on South Curson Avenue. The parking lot is approximately 63,000 square feet and contains 154 surface parking spaces. Operating hours are between 6:00 a.m. and 10:00 p.m., 7 days a week.

There are several pedestrian access points to La Brea Tar Pits: the southeast entrance at Wilshire Boulevard and South Curson Avenue, the east sidewalk off South Curson Avenue, and the north and northwest sidewalks off West 6th Street. There are paved walking paths and dirt trails throughout the project site.

4.1.3.5 Utilities

While the project site is owned by the County of Los Angeles (County), the project site is within the jurisdictional boundaries of the City of Los Angeles (City). Given the location of the project site within the City's jurisdictional boundaries, the project's water and wastewater services, as well as stormwater conveyance facilities and electricity, are provided by various departments associated with the City, including the Los Angeles Department of Water and Power (LADWP) and City of Los Angeles Bureau of Sanitation (referred to as Los Angeles Sanitation and Environment [LASAN]).

LADWP is responsible for providing water within the city of Los Angeles, including the project site. Potable water for fire suppression systems, domestic cold water, and irrigation is provided by the LADWP from a water main in South Curson Avenue. The existing fire suppression water line is served from a pipe connection to the public water main in South Curson Avenue adjacent to the northwest corner of the Page Museum. There is one 3.5-inch, domestic cold-water meter in the sidewalk on South Curson Avenue adjacent to the southeast corner of the Page Museum. Downstream from the meter is a 2.5-inch irrigation connection.

The sewer system and wastewater treatment facilities serving the project site are owned and operated by LASAN. Wastewater flows in a cast-iron pipe from the Page Museum to the north to a 4-inch sewer main, which flows east to a public sewer line in South Curson Avenue. The sewage infrastructure in the vicinity of the project site includes an existing 12-inch line on South Curson Avenue. The sewage from the existing 12-inch line feeds into an 18-inch line on Wilshire Boulevard then into a 39-inch line on Crescent Heights Boulevard before discharging into a 48-inch sewer line, also located on Crescent Heights Boulevard (LASAN 2022). The Observation Pit and Project 23 sewer connections tie into LACMA infrastructure.

Stormwater conveyance facilities serving the project site include both LASAN and the Los Angeles County Flood Control District infrastructure. The existing project site drainage system is composed of a combination of surface flows, drain inlets, storm drainage pipes, and pump stations. Stormwater runoff generally flows to either Pit 91 or the Lake Pit; the stormwater that flows to Pit 91 is pumped to the Lake Pit. From the existing Lake Pit, the water is pumped through an existing water quality treatment system to the County storm drain system in Wilshire Boulevard.

The Los Angeles County Department of Public Works (County Public Works) operates the solid waste management system countywide, while a private waste management company, Southland Disposal Company, is responsible for the collection, disposal, and recycling of solid waste generated at the project site. Solid waste collection and disposal services are primarily at the Azusa Land Reclamation Company Landfill (Azusa Land Reclamation), which is a regional landfill that provides disposal services for communities, businesses, and industries serving the Los Angeles metropolitan area and eastern Los

Angeles County. Additional information about landfills serving the project site can be found in Section 5.15, Utilities and Service Systems.

4.1.4 Surrounding Land Uses

The La Brea Tar Pits Master Plan project site is surrounded by a variety of commercial uses, museums, residential buildings, and schools.

The project site is bounded by the Park La Brea pool and multi-family residential uses to the north across West 6th Street, commercial and residential uses to the east across South Curson Avenue, the Craft Contemporary Museum and other museum and commercial uses south across Wilshire Boulevard, and museum and commercial uses to the east. LACMA is located to the south and west of the project site, including its Pavilion for Japanese Art and the future David Geffen Galleries, a building that is currently under construction to replace four of LACMA's older buildings. Beyond LACMA's facilities to the west are an outdoor public art installation and the Academy Museum of Motion Pictures.

The Central Green and open space areas within the greater Hancock Park are the only public green spaces within an approximately 1-mile radius of the project site. The nearest larger open space areas to the project site are Griffith Park, approximately 5.5 miles to the northeast, and Kenneth Hahn State Recreation Area, approximately 5 miles south of the site.

4.2 CUMULATIVE CONTEXT

This section provides context for the cumulative analyses provided in the individual topical sections of Chapter 5 of this EIR, including CEQA requirements for cumulative analyses and the approach to analyzing the project's potential cumulative impacts, including defining the geographic scope of the cumulative study area as well as providing regional growth projections and a list of related development projects considered as the cumulative development scenario for the project. A cumulative impact analysis for each environmental issue area can be found in the corresponding topical sections of Chapter 5, Environmental Impacts Analysis, of this EIR.

4.2.1 CEQA Requirements for Cumulative Analyses

State CEQA Guidelines Section 15130 requires that an EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable." "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (State CEQA Guidelines, Section 15355; see also California Public Resources Code, Section 21083(b)). In other words, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts" (State CEQA Guidelines, Section 15130(a)(1)). The definition of cumulatively considerable is provided in Section 15065(a)(3):

> *"Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.*

According to Section 15130(b) of the State CEQA Guidelines:

> *[t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality*

> *and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.*

State CEQA Guidelines Section 15355 defines "cumulative impact" as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. Cumulative impacts are changes in the environment that result from the incremental impact of development of the proposed project and all other nearby "related" projects. For example, the traffic impacts of two projects in proximity may be insignificant when analyzed separately but could have a significant impact when the projects are analyzed together.

4.2.2 Approach to the Cumulative Analysis in this EIR

To analyze the project's potential contribution to cumulative impacts, this section defines the geographic scope of the cumulative study area for each of the environmental topics addressed in this EIR. In addition, this section provides regional growth projections and a list of the related development projects considered as the cumulative development scenario for the project, which is the context from which to analyze the potential for cumulative impacts and the project's contribution to cumulative impacts.

The cumulative impact analysis for each environmental issue area can be found in the corresponding topical sections in Chapter 5, Environmental Impact Analysis, generally found as the last section in each of the environmental sections (for example, the cumulative analysis for Aesthetics is found in Section 5.1.6; similarly, the cumulative analysis for Air Quality is found in Section 5.2.6, and so on).

4.2.2.1 Geographic Scope

The geographic area affected by the project and its potential to contribute to cumulative impacts varies depending on the environmental resource or topic under consideration. Generally, the geographic areas associated with the environmental effects of the project as described in Chapter 3 define the boundaries of the area used for compiling the list of past, present, and reasonably foreseeable future related projects considered in the cumulative impact analysis. However, each individual resource or topical area considers each topic's unique cumulative context and appropriate geographic scope for the analysis. For instance, the air quality analysis includes consideration of regional air emissions (e.g., reactive organic gases/nitrogen oxides, and particulate matter); therefore, the geographic scope is the entire air basin. Similarly, a larger geographic scope is important for archaeological resources and tribal cultural resources given a larger area is appropriate to consider the traditional Gabrielino territory and relevant historical and contemporary administrative boundaries. Conversely, in the case of noise impacts, given the localized impact area of concern, a smaller, more localized area surrounding the immediate project site is appropriate for consideration.

Table 4-1 presents the geographic areas included within this analysis for purposes of determining whether the project's contribution to a particular impact would be cumulatively considerable and therefore significant. An explanation of the geographic scope selected for each resource is also briefly included in Chapter 5 under the impact analysis.

Table 4-1. Geographic Scope of Cumulative Impact Analysis

Resource Issue Area	Geographic Scope
Aesthetics	Project site and immediate adjacent area*
Air Quality	South Coast Air Basin
Biological Resources	Project site and 1-mile radius around the project site
Cultural Resources – Archaeological Resources	Northwestern Los Angeles Basin†
Cultural Resources – Historical Resources	Project site and immediate adjacent area*
Geology and Soils	Project site and immediate adjacent area For paleontological resources, the Pleistocene deposits of the Los Angeles Basin
Greenhouse Gas Emissions	Global
Hazards and Hazardous Materials	Project site and immediate adjacent area*
Hydrology and Water Quality	Project site and immediate adjacent area that would flow into the same drainage area within the Ballona Creek Watershed
Land Use and Planning	Los Angeles county, including the property within the incorporated boundary of the City of Los Angeles
Noise	Project site and immediate adjacent area*
Recreation	2-mile distance around the project site
Transportation	0.5-mile radius from the project site‡
Tribal Cultural Resources	Northwestern Los Angeles Basin†
Utilities and Service Systems	City of Los Angeles jurisdictional boundaries

* Immediate adjacent area is defined as the directly adjacent LACMA parcel, and all land uses and roadways directly immediately surrounding the project site, including those on West 6th Street, South Curson Avenue, and Wilshire Boulevard.

† For the analysis of cumulative impacts for archaeological resources and tribal cultural resources, the northwestern Los Angeles Basin provides an area large enough to contain a representative sample of Native American archaeological sites, the traditional Gabrielino territory, and relevant historical and contemporary administrative boundaries, while being small enough to account for the cumulative impacts from projects on a more local scale. For more information, see Sections 5.4.6 and 5.14.6 of this EIR.

‡The Los Angeles Department of Transportation (LADOT) Transportation Assessment Guidelines require consideration of related projects within a 0.5-mile radius from a project site for CEQA analysis, and 0.25-mile beyond the farthest study intersection for non-CEQA circulation analysis (LADOT 2020). Related projects included in the cumulative analysis for transportation impacts, as described in Section 5.13 Transportation, meet the requirements of the LADOT Transportation Assessment Guidelines and were agreed upon by the City of Los Angeles and the NHMLAC as part of the memorandum of understanding process for the project.

4.2.2.2 Temporal Scope

This cumulative impact analysis considers other projects that have been recently completed, are currently under construction, or are reasonably foreseeable (e.g., for which an application has been submitted, or an agency has proposed). Both short-term and long-term cumulative impacts of the identified project, in conjunction with other cumulative projects in the area, are considered. The schedule and timing of the project and other cumulative projects is relevant to the consideration of cumulative impacts, since many of the activities associated with construction are temporary. Where relevant, the cumulative impact analyses in Chapter 5 pay particular attention to any cumulative projects with implementation schedules that could overlap with the proposed schedule of the La Brea Tar Pits Master Plan.

4.2.2.3 Cumulative Analysis Approaches Allowed by the CEQA Guidelines

State CEQA Guidelines Section 15130 provides that the following two approaches can be used to adequately address cumulative impacts:

- Regional Growth Projections Method: A summary of projections contained in an adopted local, regional, or statewide plan or related planning document that describes or evaluates conditions contributing to the cumulative effect, or in a prior environmental document for such a plan which has been adopted or certified.
- List Method: A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.

As previously noted, the cumulative impact analysis for each environmental issue area can be found in the corresponding sections in Chapter 5, Environmental Impact Analysis. The cumulative analyses contained in Chapter 5 of this EIR use both approaches noted above (regional growth projections method and list method). This is due to the localized and specific nature of the project, and also because the project site is in an area that has and is anticipated to continue to experience some regional growth. Additionally, a combined approach is appropriate as some resource topics (such as air quality, transportation, and utilities) consider a more growth-based approach, while others (such as aesthetics, biological resources, and noise) necessitate a more list-based approach. This allows for a thorough, project-based cumulative analysis within the relevant geographic areas and timing of the project activities.

Each environmental issue area's cumulative impact analysis uses the same thresholds of significance used to determine project impacts. In addition, the cumulative impact threshold included in State CEQA Guidelines Appendix G, Section XXI, Mandatory Findings of Significance, was also examined in Section 5.16 of this EIR.

In Chapter 5, a three-step approach was used to analyze cumulative impacts, as described in the following bullets.

- First, if the project was determined to have no impact in a particular impact area, then the analysis states that the project would not have a cumulative contribution to impacts related to that threshold.
- If the project could result in less than significant or significant impacts, then the second step was to determine whether the combined effects from the project and other projects would be cumulatively significant. This was done by considering the project's incremental impact to the estimated anticipated impacts of other probable future projects and/or reasonably foreseeable development.
- The third step was to evaluate whether the project's incremental contribution, if any, to the combined significant cumulative impact would be cumulatively considerable, and thus significant as required by State CEQA Guidelines Section 15130(a).

It should be noted that State CEQA Guidelines Section 15064, subdivision (h)(4) states that "[t]he mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the project's incremental effects are cumulatively considerable." Therefore, it is not necessarily true that, even where cumulative impacts of other projects are significant, the Lead Agency must deem any level of incremental contribution to be cumulatively considerable. If the project's individual impact is less than significant, however, its contribution to a significant cumulative impact could nevertheless be deemed cumulatively considerable depending on the nature of the impact and the

existing environmental setting. If, for example, a project is located in an air basin determined to be in extreme or severe nonattainment for a particular criteria pollutant, a project's relatively small contribution of the same pollutant could be found to be cumulatively considerable. Thus, depending on the circumstances, an impact that is less than significant when considered individually may still be cumulatively considerable in light of the impact caused by all projects considered in the analysis.

REGIONAL GROWTH PROJECTIONS

The Southern California Association of Governments (SCAG) is responsible for developing growth projections for population, housing, and employment throughout Southern California. These growth projections are used in the preparation of planning documents and analyses. SCAG computes population projections by adding the current population with the births and ingress into a region during a projection period and subtracting the number of deaths and the number of persons leaving the region (SCAG 2020). Regional and localized population growth has the potential to result in numerous environmental impacts such as traffic congestion, air quality degradation, and other environmental changes. The project is located within a region (city of Los Angeles, Los Angeles County, California) that has experienced recent growth, and is projected to experience population increases in the future. This cumulative analysis considers the regional population, households, and employment growth trends shown in Table 4-2 and the more specific individual projects that are discussed in this chapter.

Table 4-2. SCAG Regional Population, Housing, and Employment Growth Projections

Jurisdiction	Population			Households			Employment		
	2016	2045	% Change	2016	2045	% Change	2016	2045	% Change
Los Angeles County	10,110,000	11,674,000	13%	3,319,000	4,119,000	19%	4,743,000	5,382,000	12%
Los Angeles County, Unincorporated	1,044,500	1,258,000	17%	294,800	419,300	30%	269,100	320,100	16%
City of Los Angeles	3,933,800	4,771,300	18%	1,367,000	1,793,000	24%	1,848,300	2,135,900	13%
City of Beverly Hills	34,700	35,800	3%	14,800	15,700	6%	74,600	81,300	8%
City of West Hollywood	36,700	42,600	14%	26,000	30,100	14%	21,700	38,100	43%

Source: SCAG Connect SoCal Demographics and Growth Forecast (SCAG 2020)

LIST OF RELATED PROJECTS IN THE PROJECT VICINITY

The project is located on the County-owned land within the city of Los Angeles; thus, nearby related projects in the city of Los Angeles are a primary contributor to the list of related projects in the project vicinity. As well, jurisdictions that are relatively close to the project site that could have projects that contribute to the anticipated project's developed in the vicinity include the cities of Beverly Hills and West Hollywood. Further, the County was consulted to determine if there were any projects that could contribute to cumulative impacts in the project vicinity; however, no County projects were identified as a result of this inquiry.

A summary of the projects identified within this identified general vicinity of the project site is provided in Table 4-3 and shown in Figure 4-3. This is not intended to be an exhaustive list of projects in the region, but represents those projects in the vicinity of the project site that may have some related

environmental impact to the project and are: 1) currently under construction or implementation or beginning construction or implementation, 2) pending construction with approved entitlements, 3) proposed and under environmental review, or 4) reasonably foreseeable (i.e., projects for which an application has been submitted and reasonably foreseeable public projects).

Table 4-3. Cumulative Development Scenario Project List

Figure 4-3 Map Key	Name	Location	Project Type	Description	Project Status*
Regional					
1	Metro D (Purple) Line Extension	Metro Wilshire/ Western Station to Metro Westwood/ Veterans Administration Hospital Station	Infrastructure	Extend rail service with seven new transit stations by year 2027.	Under construction. First phase (Wilshire/ La Brea, Wilshire/ Fairfax, and Wilshire/ La Cienega Stations) is anticipated to be completed and in operation by 2024.
County of Los Angeles					
2	LACMA Renovation	5906 West Wilshire Boulevard	Museum/Public Facilities	Replace 392,871 square feet (sf) museum with 368,300 sf museum	Under construction
City of Los Angeles					
3	Wilshire Curson Project	5700-5780 Wilshire Boulevard; 712-752 South Curson Avenue; 5721-5773 West 8th Street; 715-761 South Masselin Avenue	Office and Commercial	2,222,952 sf office 117,600 sf commercial Retain and renovate the southern portion of the existing buildings and would demolish the northern portion of the two existing office buildings.	Under review
4	5891 West Olympic Boulevard Apartments	5891 West Olympic Boulevard	Residential	46 apartments	Entitlements approved. Not constructed.
5	Fairfax Avenue Apartments and Restaurant	800-840 South Fairfax Avenue	Residential and Restaurant	209 apartments 2,653 sf of restaurant use	Under review
6	Wilshire Boulevard Mixed-Use Project	5411 Wilshire Boulevard	Mixed-Use	348 apartments (including 38 affordable housing units) 10,716 sf commercial	Under review
7	6052-6066 West Olympic	6052-6066 West Olympic Boulevard	Commercial and Residential	5,135 sf of commercial retail space 120 residential units (including 12 affordable housing units)	Entitlements approved. Not constructed.
8	3rd and Fairfax Mixed-Use Project	300-370 South Fairfax Avenue; 6300-6370 West 3rd Street; 347 South Ogden Drive	Commercial and Residential	83,994 sf of commercial space 331 apartments	Entitlements approved. Pending demolition and construction.

Figure 4-3 Map Key	Name	Location	Project Type	Description	Project Status*
9	Olympic Boulevard Residential Mixed-Use Project	6001-6011 West Olympic Boulevard	Commercial Retail and Residential	57 apartments (including 6 affordable housing units) 1,596 sf of ground-floor retail	Under construction
10	Television City (TVC) 2050 Plan	7716-7860 West Beverly Boulevard	Office and Commercial Retail	1,874,000 sf of sound stage production support, production office, general office, and retail uses	Under review
11	South San Vicente Medical Office	650-676 South San Vicente Boulevard	Medical Office and Retail Commercial	140,305 sf medical office 4,000 sf restaurant/ retail 1,000 sf commercial uses	Under review
12	333 San Vicente Boulevard Apartments	333 San Vicente Boulevard	Residential and Church	153 apartments 31,000 sf church	Under review
13	488 San Vicente Boulevard	488 San Vicente Boulevard	Residential and Commercial	53 apartments 7,000 sf retail	Entitlements approved. Not constructed.
14	8000 West 3rd Street	8000 West 3rd Street	Residential and Commercial	50 apartments 7,065 sf retail	Entitlements approved. Not constructed.
15	Unified Elder Care Facility/Mixed-Use	8052 West Beverly Boulevard	Elder Care Facility	5,000 sf of synagogue use 102 apartments 15,000 sf of medical office 1,000 sf of retail use	Entitlements approved. Demolition complete. Grading permit issued October 2022.
16	7901 Beverly Boulevard	7901 Beverly Boulevard	Residential and Commercial	71 apartments 12,000 sf retail	Entitlements approved. Not constructed.
17	8000 Beverly Mixed-Use	8000 West Beverly Boulevard	Residential and Restaurant Use	48 apartments 7,400 sf restaurant	Entitlements approved. Not constructed.
18	8001 Beverly Boulevard	8001 Beverly Boulevard	Office and Commercial	11,000 sf office 23,000 sf restaurant	Entitlements approved. Not constructed.
19	7951 Beverly Mixed-Use	7951 West Beverly Boulevard	Residential, Restaurant, and Retail Use	51 apartments 6 affordable housing units 6,294 sf restaurant 1,142 sf retail	Entitlements approved. Demolition commenced as of October 2022.
20	333 La Cienega Boulevard Project	333 South La Cienega Boulevard	Residential and Restaurant Use	145 apartments 27,685 sf commercial (supermarket) 3,370 sf restaurant	Entitlements approved. Not constructed.
21	316 North La Cienega Boulevard Project	316 North La Cienega Boulevard	Residential and Commercial	61 apartments 4,097 sf retail	Entitlements approved. Not constructed.

Figure 4-3 Map Key	Name	Location	Project Type	Description	Project Status*
22	431 North La Cienega Boulevard Apartments	431 North La Cienega Boulevard	Residential	72 apartments	Entitlements approved. Not constructed.
23	Wilshire & La Jolla Tower	6401-6419 Wilshire Boulevard	Residential and Retail Use	90 apartments 5,100 sf retail	Not constructed.
24	750 North Edinburgh Avenue	750 North Edinburgh Avenue	Residential	8 single-family residences	Tract Map approved. Not constructed.
City of Beverly Hills					
25	332 South Doheny Drive	332 South Doheny Drive	Residential	9 apartments	Under review
26	55 North La Cienega Boulevard	55 North La Cienega Boulevard	Mixed-Use	105 apartments	Under review
27	227 Tower Drive	227 Tower Drive	Residential	10 condominiums	Under review, Applicant to submit corrections
28	300 South Wetherly Drive	300 South Wetherly Drive	Residential	140 condominiums	Under review
City of West Hollywood					
29	Santa Monica Boulevard Mixed-Use Project	8555 Santa Monica Boulevard	Mixed-Use	111 apartments (including 17 affordable housing units) 15,494 sf of live/work use (12 units) 24,842 sf commercial retail 3,938 sf of restaurant and cafe uses	Under review
30	Robertson Lane Hotel Project	645, 647, 653, 655, 661, 665, and 681 North Robertson Boulevard and 648, 650, 652, and 654 North La Peer Drive	Mixed-Use	225,215 sf hotel 47,415 sf commercial/ restaurant	Under review. Construction is anticipated to start in late 2022 or early 2023.
31	8850 Sunset Boulevard Project	8850-8878 Sunset Boulevard and 1025-1029 Larrabee Street	Mixed-Use	240,000 sf hotel (115 guest rooms with ancillary uses) 41 apartments	Under review
32	9034 Sunset Boulevard	9034 Sunset Boulevard	Mixed-Use	10 condominiums 237-room hotel 11,000 sf commercial	Under review
33	948 North San Vicente Boulevard	948 North San Vicente Boulevard	Residential	24 apartments	Under review
34	560 Orlando Avenue	560 Orlando Avenue	Residential	4 apartments	Under review
35	855 West Knoll Drive	855 West Knoll Drive	Residential	4 condominiums	Under review
36	862 West Knoll Drive	862 West Knoll Drive	Residential	3 townhomes	Under review
37	1006 Edinburgh Avenue	1006 Edinburgh Avenue	Residential	14 apartments	Under review

Sources: City of Beverly Hills (2022); City of Los Angeles (2022a, 2022b); City of West Hollywood (2022); Kittelson and Associates, Inc. (2022).

* "Under review" means the project has not yet been entitled.

Figure 4-3. Cumulative development scenario project locations.

CHAPTER 5. ENVIRONMENTAL IMPACT ANALYSIS

This chapter evaluates the potential environmental effects that would result from construction and operation of the La Brea Tar Pits Master Plan and identifies mitigation measures for impacts found to be potentially significant. Table 5-1 provides a brief summary of the results of the analysis.

Table 5-1. Summary of Environmental Impacts Analysis

Environmental Resource	Significant and Unavoidable Impact	Less than Significant Impact with Mitigation	Less than Significant Impact
Aesthetics		X	
Agriculture and Forestry Resources*			X
Air Quality		X	
Biological Resources		X	
Cultural Resources – Archaeological Resources		X	
Cultural Resources – Historic Resources	X		
Energy*			X
Geology and Soils		X	
Greenhouse Gas Emissions		X	
Hazards and Hazardous Materials		X	
Hydrology and Water Quality		X	
Land Use and Planning	X		
Mineral Resources*			X
Noise and Vibration		X	
Population and Housing*			X
Public Services*			X
Recreation		X	
Transportation	X		
Tribal Resources		X	
Utilities and Service Systems		X	
Wildfire*			X

* Issues evaluated in Section 7.5, Environmental Effects Found Not to be Significant. Based on preliminary analysis and discussions with the Los Angeles County Museum of Natural History Foundation, it was determined that the project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire.

Each environmental issue area discussed in Chapter 5 of this EIR has been divided into subsections, as follows:

Existing Conditions: The description of the physical environmental conditions in the vicinity of the project, as they exist at the time of the established baseline physical conditions.

Regulatory Setting: The regulations in effect at the time the Notice of Preparation was published. These are the applicable regulations governing each environmental topic, such as the California Endangered Species Act (CESA) and its requirements for protecting rare and endangered species. This is not an exhaustive analysis of the regulations, but rather information to assist the reader in understanding the potential impacts of the project from a regulatory perspective.

Thresholds of Significance: The thresholds used to evaluate each environmental topic based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines and other sources.

Impact Assessment Methodology: Methods used to determine the impacts associated with the project, such as measurements or field investigative processes.

Environmental Impact Analysis: The statement of the level of significance of potential environmental effects of the project. These include the significant environmental effects of the project, as further defined below. The impacts are identified and then are followed by the mitigation measures that can minimize significant impacts; mitigation measures must be enforceable and feasible. In addition, there must be an essential nexus between the mitigation measure and a legitimate governmental interest, and the mitigation measure also must be "roughly proportional" to the impacts of the project.

Cumulative Impact Analysis: The cumulative effects of the project when the project's incremental effect is considered in combination with other closely related past, present, and reasonably foreseeable probable future projects.

All impacts in this EIR, following the application of any recommended mitigation measures, have been classified according to the following criteria (note: CEQA does not recognize a beneficial effect as an impact):

A *significant and unavoidable impact* would cause a substantial adverse effect on the environment that meets or exceeds the applicable significance criteria thresholds for a particular resource, and no feasible mitigation measures would be available to reduce the impact to a less-than-significant level.

A *less than significant impact with mitigation* is an adverse impact that would cause a substantial adverse effect that meets or exceeds the applicable significance criteria thresholds for a particular resource but can be reduced to a less-than-significant level through successful implementation of identified mitigation measures.

A *less than significant impact* or a conclusion of *no impact* means the effect does not meet or exceed the applicable significance criteria thresholds for a particular resource. No mitigation measures are required for less than significant impacts or issue areas where no impact would occur; only compliance with standard regulatory conditions would be required.

The term "significance" is used throughout the EIR to characterize the magnitude of the projected impact. For this EIR, a significant impact is a substantial or potentially substantial change to resources in the project area or the area adjacent to the project. In the discussions of each issue area, thresholds of significance are identified to distinguish between significant impacts and impacts that would not arise to the level of significance.

Where feasible, measures have been identified to reduce project impacts to less-than-significant levels. CEQA states that public agencies should not approve projects as proposed if there are feasible mitigation measures available that would substantially lessen the environmental effects of such projects (Public Resources Code Section 21002).

5.1 AESTHETICS

This section identifies visual characteristics of the project site and analyzes the potential effects of the project related to aesthetics. Aesthetics are principally defined by how viewers perceive the visual attractiveness of an area. Based on this subjective perception, the key elements and features that create or enhance an area's visual quality are definable. In general, visual resources are features of urban (built) or natural environments with a high aesthetic or scenic value. Appendix G of the State CEQA Guidelines describes the concept of aesthetic resources in terms of scenic vistas, scenic resources (such as trees, rock outcroppings, and historic buildings within a State Scenic Highway), the visual character or quality of the project area, and light and glare.

5.1.1 Existing Conditions

5.1.1.1 Visual Characteristics of the Project Site

The project site is located at 5801 Wilshire Boulevard within the 23-acre Hancock Park. As illustrated in the aerial photograph in Chapter 3, Figure 3-2, the project site includes 13 acres of the eastern and northwestern portions of Hancock Park. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and the Los Angeles County Museum of Art (LACMA) to the west across the vacated Ogden Drive (approximately 250-foot-long frontage). The entirety of Hancock Park is currently enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when the facilities are closed in the evenings.

The project site includes active paleontological research areas and quarries, recreational facilities, and several buildings. Of particular note and prominence is the two-story (approximately 41 feet in height) George C. Page Museum (Page Museum) in the eastern portion of the project site. Numerous small tar seeps, an upwelling of asphalt to the ground surface, are also in various locations at the project site.

The exterior of the Page Museum is shaped like a truncated pyramid. The first floor of the museum is set into a large earthen berm which opens onto the Central Green, which is an approximately 28,000-square foot multi-purpose grass lawn to the west of the Page Museum. At the top of the earthen berm on the second floor is a 30-foot-wide rooftop covered viewing platform which surrounds the first-floor Central Atrium courtyard. The entire viewing platform is covered by an expansive projecting frieze, which appears as carved stone with a continuous bas relief sculpture depicting scenes from the Pleistocene period, prepared by sculptor Manuel La Paz and supported by an exposed space frame roof structure (Millington and Dietler 2023).

The project site contains multiple active paleontological quarries, commonly referred to as "pits." The active pits are scattered throughout the northeastern portion of the project site (Pits 3, 4, 9, 13, 61, 67, and 91.) These tar pits are fenced and include informational placards. Of paleontological and visitor interest, Pit 91 has an attached indoor viewing station (approximately 13 feet in height) that allows visitors to observe the ongoing excavation activities. Project 23, located on the north end of the excavations compound, describes the ongoing activities related to recovery of the deposits found during construction of the LACMA parking garage.[1] The Observation Pit is situated to the west of Project 23

[1] During construction on the LACMA parking garage in 2006, 16 new paleontological deposits were discovered, including an almost-complete skeleton of an adult mammoth. Given the size of the discoveries, 23 large wooden boxes were built around the various deposits, allowing many of the discoveries to remain intact. "Project 23" has now become the short-hand descriptor for the location and activities related to the excavation of deposits within the 23 large wooden boxes that is now occurring in a portion of the La Brea site.

along the project site boundary with LACMA. The Observation Put is a small domed building (approximately 12.5 feet in height) built over the active Pit 101 and replicates the experience of a fossil pit.

To the south of the Page Museum is the Wilshire Boulevard pedestrian entrance and the Lake Pit. Although it appears to resemble a small lake or pond, the Lake Pit is a pit left over from asphalt mining operations in the late 1800s and produces visible methane gas bubbles that emit a distinctive odor. In 1967, statues of Columbian mammoths were put on display in the Lake Pit. A comfort station with public restrooms, picnic benches, and vending machines is adjacent to the Lake Pit to the west.

Landscaping on the project site includes a variety of trees, bushes, and other vegetation interspersed within the project site and along the perimeter. Vegetation consists of primarily non-native planted trees, such as pines (*Pinus* spp.), gum trees (*Eucalyptus* spp.), Brazilian pepper (*Schinus terebinthifolius*), various species of palm tree (e.g., fan; queen), and other non-native ornamental trees. It is estimated that approximately 330 to 340 trees currently exist within the 13-acre project boundary. Within these existing trees, there are 13 native oak trees (12 *Quercus agrifolia* and one *Quercus lobata*). The highest concentration of landscaping occurs in the northern perimeter along West 6th Street and the eastern perimeter along South Curson Boulevard, which includes a mix of shrubs, non-native ornamental trees, and palm trees. In addition, an ephemeral creek, referred to as Oil Creek, flows from the northeast to the southwest from the southwestern end of the parking area to the southeast side of Pit 91. Oil Creek is dominated by non-native mowed grasses along with a mix of other native and non-native low-lying vegetation.

Visibility, or views of the project site's visual characteristics from adjacent uses, typically depends on the vantage point and location. Distant or panoramic views of the project site are generally constrained by the relatively flat topography of the project site within the surrounding dense urban development, street trees, and other landscaping. Long-range views of the project site are generally only available from elevated vantage points in the project vicinity, primarily private vantage points from taller buildings along Wilshire Boulevard, the residential towers in Park La Brea, and other residential and office high rise buildings in the area. From street level, visibility of the project site generally includes views of the existing fencing and existing landscaping and trees lining the project site's perimeter. Views of the Lake Pit, the Page Museum, and the Central Green can be seen from Wilshire Boulevard, looking north into the project site. From South Curson Street looking west into the project site, portions of Central Green as well as partially obstructed views of the Page Museum can be seen through the existing landscaping. In addition, views of the existing parking lot and existing entrance at the intersection of South Curson Street and Wilshire Boulevard are visible. Views from West 6th Street looking south into the project site include existing landscaping and perimeter trees, fencing, as well as obstructed views of Page Museum, Central Green, and the parking lot.

5.1.1.2 Visual Characteristics of the Surrounding Area

The project site is located approximately 5.5 miles west from downtown Los Angeles within the Miracle Mile neighborhood. The area is urbanized and is characterized primarily by low-, mid-, and high-rise buildings that are occupied by a mixture of urban uses, including museums, commercial, office, residential, and open space. The surrounding mix of uses ranges in height from one to 31 stories.

The Park La Brea Pool and Park La Brea, a residential neighborhood containing two-story garden apartment buildings, are located to the north across West 6th Street. The residential buildings associated with Park La Brea are generally oriented inward and consistent in massing. The heavy landscaping along West 6th Street contributes to a uniform visual character of the Park La Brea development.

A dense urban environment is located to the south across Wilshire Boulevard. The Craft Contemporary Museum and other museum and commercial buildings ranging in height from two stories to six stories are spread along the street. A 31-story commercial office building is also located across Wilshire Boulevard. Single- and multi-family residential uses are located farther to the south.

LACMA is located on the west and southwestern project site boundary. The buildings associated with LACMA include the Pavilion for Japanese Art, the "Urban Light" and "Levitated Mass" public artwork, and the future David Geffen Galleries. Although currently under construction, the David Geffen Galleries will be an approximately 65-foot-tall building that will replace four of LACMA's older buildings on-site, which range in height from approximately 46 to 100 feet (County of Los Angeles 2017). A portion of the David Geffen Galleries will extend across Wilshire Boulevard to the Spaulding Lot. Construction activities are estimated to be completed at the end of 2024 (LACMA 2023). Beyond LACMA's facilities to the west are an outdoor public art installation and the Academy Museum of Motion Pictures.

Commercial buildings, surface parking lots, a 21-story residential building, and a 5-story residential building are located across South Curson Avenue to the east.

5.1.1.3 Scenic Vistas and Views

A scenic viewshed provides a scenic vista from a given location, such as a highway, a park, a hiking trail, river/waterway, or even from a particular neighborhood. The boundaries of a viewshed are defined by the field of view. Scenic viewsheds vary by location and community and can include ridgelines, unique rock outcroppings, waterfalls, ocean views, or various other unusual or scenic landforms. This analysis relied on local and state guidance documents to identify important scenic vistas and views that should be protected in the project site. As designated and defined by both the City of Los Angeles (City) and County of Los Angeles (County), the project site is not located within or adjacent to a scenic viewshed, vista, feature, or ridgeline (City of Los Angeles 2001; County of Los Angeles 2015). Additional information regarding the regulatory setting in consideration of the aesthetics analysis contained herein is provided in Section 5.1.2, Regulatory Setting.

Public views are those that can be seen from vantage points that are publicly accessible, such as streets, freeways, parks, and vista points. Views can be defined as focal views (i.e., views of a particular object, scene, setting, or feature of visual interest) and panoramic views (i.e., views of a large geographic area for which a view may be wide and extend into the distance). Within the project vicinity, panoramic views are only available from elevated vantages, including the taller buildings along Wilshire Boulevard, the residential towers in Park La Brea, and other residential and commercial office high-rise buildings in the area. Given the relative lack of buildings on the site compared with the surrounding dense urban development, street trees, and other landscaping, panoramic views are not generally limited from the project site. Pedestrian-level, panoramic views of the Hollywood Hills may be available from certain roadway segments in the area (e.g., Fairfax Avenue). However, panoramic east-west views along Wilshire Boulevard are limited by the bend in the roadway that begins adjacent to the project site, between Stanley Avenue and Spaulding Avenue, and trends northward to the west for several miles. As a result, panoramic views along this roadway generally terminate at the buildings where this bend occurs.

Views from the project site from most public street-level locations are focal views and primarily available to viewers at adjacent locations (i.e., pedestrians and motorists along Wilshire Boulevard, West 6th Street, and Ogden Drive). In general, surrounding views consist of the urban landscape, which include a variety of low-, mid-, and high-rise buildings, both old and new, occupied by commercial, residential, and office uses; parking uses; and intermittent views of open space areas such as Hancock Park. Notable buildings and features that can be seen within the same viewshed as the project site are limited to those that are located on or adjacent to the project site, such as the Wilshire Boulevard streetlights, the Pavilion for

Japanese Art, the Observation Pit building, the high-rise building at 5900 Wilshire Boulevard, and the building at 5850 Wilshire Boulevard, which is adjacent to the Spaulding Lot.

5.1.1.4 Scenic Highways and Scenic Resources

The California Scenic Highway Program identifies State- and County-designated scenic highways. The State-designated scenic highway is Route 2, the Angeles Crest Highway, located approximately 12 miles north of the project site (California Department of Transportation [Caltrans] 2018). The County-designated scenic highways are two sections of Mulholland Highway and the Malibu Canyon-Los Virgenes Highway, which are both located more than 20 miles to the northwest of the project site (Caltrans 2015). In addition, Route 210, the Foothill Freeway, is an eligible State Scenic Highway but is not officially designated. Route 110, the Pasadena Freeway or Arroyo Seco Parkway, is recognized by the California Scenic Highway Program as a federal Historic Parkway. Route 210 is approximately 12 miles north of the project site and Route 110 is approximately 5 miles east.

In addition to the designation of highways under the California Scenic Highway Program, the City's *Mobility Plan 2035* provides an inventory of City-designated scenic highways, special controls for protection and enhancement of scenic resources, and Scenic Highway guidelines for those designated scenic highways for which there is no adopted scenic corridor plan (City of Los Angeles 2016). The *Mobility Plan 2035* lists the following two segments of Wilshire Boulevard as a Scenic Highway: the segment from where the jurisdictional boundaries of the City of Beverly Hills and City of Los Angeles meet to Malcom Avenue (the Wilshire–Westwood Scenic Corridor) and the segment between Sycamore Avenue and Fairfax Avenue. Thus the project site is adjacent to a City-designated Scenic Highway. Specifically, this portion of Wilshire Boulevard is notable due to the landscaped median that extends along this portion of Wilshire Boulevard, as well as its location within the Miracle Mile.

In summary, the project site is not within the viewshed of a State- or County-designated scenic highway due to distance and the built-out nature of the area surrounding the project site. Based on a review of the applicable County and City plans, there are no other designated scenic resources within a State Scenic Highway that would be visible from the project site (City of Los Angeles 2001; County of Los Angeles 2015).

Of note and discussed in detail in Section 5.5, Cultural Resources – Historical Resources, the Page Museum, the Observation Pit, and the La Brea Tar Pits Historic District are considered historical resources for the purposes of CEQA. These historical resources are defining visual characteristics of project site and are visible from the City-designated scenic highway segment of Wilshire Boulevard. Discussion of proposed modifications to these resources as they pertain to aesthetics and visual resource impacts is included for informational purposes in the environmental impact analysis in Section 5.1.5.

5.1.1.5 Light and Glare

Given the nature of high-density urban development, most of Wilshire Boulevard and the project vicinity is characterized by moderate to high intensities of illumination. Artificial lighting in the project vicinity includes street lighting, security lighting in parking lots, signs and billboards, recreational facilities, and exterior and interior lighting of residential and nonresidential buildings. Light is also emitted from the headlights of vehicles traveling along Wilshire Boulevard and surrounding streets. Streetlights on Wilshire Avenue, particularly at intersections, illuminate most of the streets in the area. The bulk of the existing streetlights are on approximately 40-foot-tall streetlight poles. Ornamental pedestrian-level lighting is provided on some corridors, such as portions of West 6th Street. In general, the project vicinity is an urban area with many sources of ambient illumination, including light emitted from industrial and commercial properties and streetlights lining the streets, as well as from the headlights of vehicles traveling along Wilshire Boulevard.

Lighting within the project site includes interior and exterior lights adjacent to the buildings. Exterior lighting on the park facilities and buildings (e.g., the Page Museum and the Observation Pit building) and free-standing lights in the park grounds of La Brea Tar Pits are primarily located in the parking lot and along the park pathways for security and wayfinding purposes. In addition, lighting for accent signage, parking information, and architectural features is also present within the project site. Additional temporary lighting is periodically used on the park grounds of the project site, which are plugged into the bottom of the existing, free-standing light fixtures (which have electrical outlets at their bases).
All outdoor lights within the project site operate on a timer, turning on at 6:00 p.m. and turning off at 7:00 a.m. every day, and conform to the requirements set forth in the County's Municipal Code Section 22.44.1270 for exterior lighting.

5.1.2 Regulatory Setting

5.1.2.1 Federal

There are no federal regulations related to aesthetics that are applicable to the project.

5.1.2.2 State

CALIFORNIA SCENIC HIGHWAY PROGRAM

The State Scenic Highway Program was created in 1963 to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment. According to state guidelines, a highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263. Caltrans defines a State Scenic Highway as any freeway, highway, road, or other public right-of-way that traverses an area of exceptional scenic quality. Eligibility for designation as a State Scenic Highway is based on vividness, intactness, and unity of the roadway. As previously described, the project site is not within the viewshed of a State-designated scenic highway.

CALIFORNIA GREEN BUILDING STANDARDS

The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as the 2019 CALGreen Code. The CALGreen Code stipulates maximum allowable light levels, efficiency requirements for lighting, miscellaneous control requirements, and light trespass requirements for electric lighting and daylighting. Paragraph 5.106.8 Light Pollution Reduction specifies that all non-residential outdoor lighting must comply with the following:

- The minimum requirements in the California Energy Code for Lighting Zones 0-4 as defined in Chapter 10, Section 10-114 of the California Administrative Code; and
- Backlight (B) ratings as defined in IES TM-15-11 (shown in Table A-1 in Chapter 8); and
- Uplight and Glare ratings as defined in the California Energy Code (shown in Tables 130.2-A and 130.2-B in Chapter 8); and
- Allowable Backlight, Uplight and Glare ratings not exceeding those shown in Table A5.106.8(N); or comply with a local ordinance lawfully enacted pursuant to Section 101.7, whichever is more stringent.

5.1.2.3 County of Los Angeles

COUNTY OF LOS ANGELES 2035 GENERAL PLAN

Given the location of the project entirely on County-owned land, the County of Los Angeles 2035 General Plan (County General Plan) is an important applicable guiding policy document (County of Los Angeles 2015). The County General Plan provides the policy framework and establishes the County's long-range vision for how the County will grow, and establishes goals, policies, and programs to foster healthy, livable, and sustainable communities. The County of Los Angeles Board of Supervisors adopted the County General Plan on October 6, 2015. Chapter 6, the Land Use Element, was updated in 2022. The objectives and policies of the Land Use, Conservation and Open Space, and Mobility Elements related to aesthetics are listed in Table 5.1-1.

Table 5.1-1. County of Los Angeles General Plan, Relevant Goals and Policies

Objective/Policy	Objective/Policy Description
Land Use Element	
Goal LU 7	Compatible land uses that complement neighborhood character and the natural environment.
Goal LU 10	Well-designed and healthy places that support a diversity of built environments.
Policy LU 10.1	Encourage community outreach and stakeholder agency input early and often in the design of projects.
Policy LU 10.2	Design development adjacent to natural features in a sensitive manner to complement the natural environment.
Policy LU 10.3	Consider the built environment of the surrounding area and location in the design and scale of new or remodeled buildings, architectural styles, and reflect appropriate features such as massing, materials, color, detailing or ornament.
Policy LU 10.10	Promote architecturally distinctive buildings and focal points at prominent locations, such as major commercial intersections and near transit stations or open spaces.
Goal LU 11	Development that utilizes sustainable design techniques.
Policy LU 11.2	Support the design of developments that provide substantial tree canopy cover, and utilize light-colored paving materials and energy-efficient roofing materials to reduce the urban heat island effect.
Conservation and Open Space Element	
Goal C/NR 13	Protected visual and scenic resources.
Policy C/NR 13.1	Protect scenic resources through land use regulations that mitigate development impacts.
Policy C/NR 13.3	Reduce light trespass, light pollution, and other threats to scenic resources.
Policy C/NR 13.4	Encourage developments to be designed to create a consistent visual relationship with the natural terrain and vegetation.
Policy C/NR 13.5	Encourage required grading to be compatible with the existing terrain.
Policy C/NR 13.6	Prohibit outdoor advertising and billboards along scenic routes, corridors, waterways, and other scenic areas.
Mobility Element	
Policy M 2.9	Encourage the planting of trees along streets and other forms of landscaping to enliven streetscapes by blending natural features with built features.
Policy M 2.11	In urban and suburban areas, promote the continuity of streets and sidewalks through design features, such as limiting mid-block curb cuts, encouraging access through side streets or alleys, and promoting shorter block lengths.

COUNTY OF LOS ANGELES CODE SECTION 22.44.1270 EXTERIOR LIGHTING

Section 22.44.1270 establishes light performance standards for development within the County, including standards related to acceptable power of lighting, types of lighting, height of lighting support structures, lighting shielding, sign lighting, and hours of operation.

COUNTY OF LOS ANGELES SECTION 22.174 OAK TREE PERMIT ORDINANCE

The County of Los Angeles Oak Tree Permit Ordinance protects all oak trees, whether native (indigenous) or not (Title 22 Division 8 Chapter 22.174). Under this ordinance, oak trees 8 inches or more in diameter measured at 4.5 feet above mean natural grade (i.e., diameter at breast height [dbh]), or in the case of oaks with multiple trunks, a combined diameter of 12 inches dbh or more of the two largest trunks, are protected. A permit is required to cut, destroy, remove, relocate, inflict damage, or encroach into the protected zone. The protected zone is the diameter of the tree's canopy, plus 5 feet (County of Los Angeles Zoning Code). Exemptions to the ordinance include cases of emergency caused by an oak tree being in a hazardous or dangerous condition, or being irretrievably damaged or destroyed through flood, fire, wind, or lightning, as determined after visual inspection by a licensed forester with the Department of Forestry and fire warden.

There are 13 native oak trees on the project site that meet threshold criteria for protection under the County of Los Angeles Oak Tree Permit Ordinance.

5.1.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles. Nonetheless, City regulatory and planning documents that are most relevant to the project as they relate to aesthetics and visual resources are provided herein for informational purposes.

CITY OF LOS ANGELES GENERAL PLAN

The City of Los Angeles City Council originally adopted the City of Los Angeles General Plan (City General Plan) in 1974 to serve as a comprehensive, long-term plan for future development of the City. The City General Plan Elements have been gradually updated over time and set forth goals, objectives, and programs to guide land use policies and meet the existing and future needs of the City. City objectives and policies of the Framework, Conservation, and Mobility Plan Elements related to aesthetics are provided in Table 5.1-2.

Table 5.1-2. City of Los Angeles General Plan, Relevant Policies and Objectives

Objective/Policy	Objective/Policy Description
Framework Element	
Policy 3.2.1	Provide a pattern of development consisting of distinct districts, centers, boulevards, and neighborhoods that are differentiated by their functional role, scale, and character. This shall be accomplished by considering factors such as the existing concentrations of use, community-oriented activity centers that currently or potentially service adjacent neighborhoods, and existing or potential public transit corridors and stations.

Objective/Policy	Objective/Policy Description
Policy 5.2.2	Encourage the development of centers, districts, and selected corridor/boulevard nodes such that the land uses, scale, and built form allowed and/or encouraged within these areas allow them to function as centers and support transit use, both in daytime and nighttime (see Chapter 3: Land Use). Additionally, develop these areas so that they are compatible with surrounding neighborhoods, as defined generally by the following building characteristics: • Buildings in community centers generally should be two to six stories in height, with the first several stories located along the sidewalk. They should also incorporate the pedestrian-oriented elements defined in policy 5.8.1. Either housing or office space may be located above the ground floor storefronts. • The built form of regional centers will vary by location. In areas such as Wilshire and Hollywood Boulevards, buildings will range from low- to mid-rise buildings, with storefronts situated along pedestrian-oriented streets. In areas such as Century City and Warner Center, freestanding high rises that are not pedestrian-oriented characterize portions of these centers. Nevertheless, regional centers should contain pedestrian-oriented areas, and incorporate the pedestrian-oriented design elements defined in policy 5.8.1 and policies 3.16.1–3.16.3. • Buildings located at activity nodes along mixed-use boulevards generally shall have the same characteristics as either neighborhood districts or community centers, depending on permitted land use intensities. Housing over ground-floor storefronts or in place of commercial development shall be encouraged along mixed-use boulevards.
Policy 6.4.4	Consider open space as an integral ingredient of neighborhood character, especially in targeted growth areas, in order that open space resources contribute positively to the City's neighborhoods and urban centers as highly desirable places to live (see Chapter 5: Urban Form and Neighborhood Design).
Objective 9.38	Ensure that street lighting designs meet minimum standards for quality lighting to provide appropriate visibility dependent on the character and usage of streets and sidewalks with minimum impact on the environment and adjoining property.
Policy 9.40.1	Require lighting on private streets, pedestrian oriented areas, and pedestrian walks to meet minimum City standards for street and sidewalk lighting.
Policy 9.40.2	Require parking lot lighting and related pedestrian lighting to meet recognized national standards.
Mobility Plan 2035	
Policy 2.16 Scenic Highways	Ensure that future modifications to any Scenic Highway do not impact the unique identity or characteristic of that Scenic Highway.
Policy 3(c)	Outstanding specimens of existing trees and plants located within the public right-of-way of a Scenic Highway shall be retained to the maximum extent feasible within the same public right-of-way.
Policy 3(e)	Landscaped medians of Scenic Highways shall not be removed. Such medians may be reduced in width (1) to accommodate left turn channelization within one hundred feet of a signalized intersection; or (2) to accommodate a designated Class II bikeway provided that there is compliance with Guideline 3c above, and that the resulting median width is not less than eight (8) feet.
Policy 4(a,b)	Only traffic, informational, and identification signs shall be permitted within the public right-of-way of a Scenic Highway. Off-site outdoor advertising is prohibited in the public right of-way of, and on publicly-owned land within five hundred feet of the center line of, a Scenic Highway

WILSHIRE COMMUNITY PLAN

Thirty-five community plans comprise the Land Use Element of the City General Plan. The community plans implement the City General Plan Framework at the local level and consist of both text and an accompanying generalized land use map. Community plans are intended to provide an official guide for future development, propose approximate locations and dimensions for land use, and show the locations and characteristics of public service facilities.

The project site is located within the Wilshire Community Plan area, which was approved by the City Council on September 19, 2001 (City of Los Angeles 2001). The majority of the Wilshire Community Plan area consists of gently sloping plains and includes about 8,954 acres (about 14 square miles). The eastern edge of the plan area is about 6 miles west of downtown Los Angeles, and the western edge abuts the City of Beverly Hills.

The Wilshire Community Plan objectives and policies relevant to the project regarding aesthetics are shown in Table 5.1-3.

Table 5.1-3. Wilshire Community Plan, Relevant Policies and Objectives

Objective/Policy	Objective/Policy Description
Objective 2-3	Enhance the visual appearance and appeal of commercial districts
Policy 2-3.1	Improve streetscape identity and character through appropriate controls of signs, landscaping, and streetscape improvements; and require that new development be compatible with the scale of adjacent neighborhoods.
Light and Glare Policy	• Install on-site lighting along all pedestrian walkways and vehicular access ways. • Shield and direct on-site lighting down onto driveways and walkways, away from adjacent residential uses.

The Wilshire Community Plan also contains an Urban Design chapter (Chapter 5), which includes policies that establish baseline design guidelines for commercial, multiple-family residential, and limited industrial land uses in the Wilshire community. The Urban Design chapter also includes community design and landscaping guidelines that address streetscape improvements and landscaping in public spaces and rights-of-way. These design policies and guidelines ensure that projects incorporate specific elements of good design to promote a stable and pleasant environment. For commercial areas, the emphasis is on the provision and maintenance of the visual continuity of streetscapes, and the creation of an environment that encourages both pedestrian and economic activity.

The Wilshire Community Plan includes four Designated Scenic Highways, including Wilshire Boulevard, east-west from La Brea Avenue to Fairfax Avenue. Designated Scenic Highways merit special controls and/or visual enhancement programs to protect scenic resources. The land contiguous to a scenic highway is known as a Scenic Corridor. It is appropriate that protective land use controls be established for these corridors, particularly with respect to signage and billboards.

5.1.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to aesthetics if it would:

a) have a substantial adverse effect on a scenic vista;

b) substantially damage scenic resources including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway;

c) conflict with applicable zoning and other regulations governing scenic quality, if the project is in an urbanized area; and/or

d) create a new source of substantial light and glare which would adversely affect daytime or nighttime views in the area.

5.1.4 Impact Assessment Methodology

The evaluation of aesthetics and aesthetic impacts is inherently subjective by nature. It requires the application of a process that objectively identifies the visual features of the environment and their importance. Aesthetic description involves identifying existing visual character, including visual resources and scenic vistas unique to the project site and the surrounding area. Visual resources are determined by identifying landforms (e.g., topography and graded areas), views (e.g., scenic resources

such as natural features or urban characteristics), viewpoints/locations, and existing light and glare (e.g., nighttime illumination).

Changes to aesthetic resources due to implementation of the project are identified and evaluated based on the proposed modifications as described in Chapter 3, Project Description as they relate to the existing setting and the viewer's sensitivity. Due to the project's location within the dense urban environment and the relative lack of buildings on the site compared with the surrounding urban development, the visual receptors to the aesthetic alteration of the project site would include visitors to La Brea Tar Pits and its associated museums and publicly accessible facilities located throughout Hancock Park, including LACMA. Individuals in the surrounding residential buildings and commercial buildings, as well as motorists, cyclists, and pedestrians traveling along Wilshire Boulevard, South Curson Avenue, and West 6th Street, would also be considered visual receptors of the project site. Views from private property such as balconies, rooftops, or interior living spaces are not considered public views and, thus, are not considered further in this analysis.

The aesthetics analysis in this section considers the physical and visual changes to the existing structures on the project site as well as modifications to natural features, such as trees and landscaping, and introduced features, such as structures and lighting. The analysis also considers the project's consistency with relevant plans and regulations that address issues related to visual character, scenic views, scenic highways, and light and glare. As necessary, mitigation measures are identified to minimize impacts on aesthetics to less than-significant levels.

5.1.5 Environmental Impact Analysis

a) Would the project have a substantial adverse effect on a scenic vista?

Given the topography in the project site and the relative lack of development as compared to the surrounding dense urban development, including street trees and other landscaping, scenic views or vistas are not visible from the project site. From the project site and the immediate vicinity, there are limited and intermittent views of the Hollywood Hills, located approximately 3 miles to the northwest. Additionally, no formally designated scenic viewsheds, vistas, features, or ridgelines as designated and defined by both the City and County of Los Angeles are located within or adjacent to the project site (City of Los Angeles 2001; County of Los Angeles 2015).

CONSTRUCTION

During construction of the project, the visual appearance of the project site would be temporarily altered to accommodate construction activities such as site preparation and grading, staging equipment and materials storage, renovation and construction of existing and new structures, removal and relocation of the existing surface parking lot, and modifications to landscaping and existing trees on-site. However, given there are no formally designated scenic viewsheds, vistas, features, or ridgelines located within or adjacent to the project site, construction activities associated with the project would not result in a substantial adverse effect on a scenic vista. Impacts would be *less than significant*.

OPERATION

The project would renovate the exiting Page Museum, introduce a new structure (the new museum building), relocate the parking lot by shifting its location north approximately 50 to 70 feet, and enhance landscaping features that would be visible directly from adjacent off-site locations, including high-rise residential and commercial buildings. However, due to the topography of the project site and relative lack of buildings on the site compared with the surrounding dense urban development, view changes would typically occur at limited vantage points, as opposed to along extensive roadway segments or from entire

large geographic areas. Furthermore, the new museum building would be two stories in height and integrate with the surrounding urban development along Wilshire Boulevard and the park setting of Hancock Park. Thus, while project implementation would alter the existing visual character of the project site, it would not adversely affect a scenic vista or obstruct views of visual resources. Furthermore, educational facilities and amenities on the second floor of the new museum building, which would rise above the existing earthen berm, would provide an opportunity for visitors to experience panoramic views of Hancock Park and the Hollywood Hills to the north, as well as more open, albeit focal-range views along Wilshire Boulevard. While the project site could be visible within panoramic views, such as from the Hollywood Hills to the north and west of the project site, the project site contributes to the existing urban setting of the area and would not be especially discernible among the surrounding urban development. Therefore, implementation of the project would not have a substantial adverse effect on a scenic vista and impacts would be *less than significant*.

AES Impact 1
The project would not have a substantial effect on a scenic vista either during project construction or operation. Impacts during project construction and operation would be less than significant. (CEQA Checklist Appendix G Threshold I. a)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to scenic vistas would be less than significant.

b) Would the project substantially damage scenic resources including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

As described in Section 5.1.1.4, there are no State-designated scenic highways adjacent to or within the vicinity of the project site. The closest State-designated highway is Route 110, Arroyo Seco Historic Parkway, a federal byway located approximately 5 miles to the east (Caltrans 2018). However, the portion of Wilshire Boulevard between Fairfax Avenue and Sycamore Avenue, adjacent to the project site, is a City-designated scenic highway. The landscaped median is a primary feature that contributes to the scenic value of this portion of the roadway (City of Los Angeles 2016). The Designated Scenic Highways and Guidelines contained within the Mobility Plan 2035 of the City General Plan describe roadway design, earthwork, and grading design. However, these guidelines would not be applicable to the project since the project would not be modifying Wilshire Boulevard and no earthwork along Wilshire Boulevard is proposed. The unique identity and characteristics of the Wilshire Boulevard would not be impacted during either construction or operation of the project.

CONSTRUCTION

While construction activities would involve the use of the surrounding and nearby roadways for trucks and workers to access the project site, there are no State-designated scenic highways adjacent to or within the vicinity of the project site. In addition, the project would not involve earthwork or construction activities within the landscaped median along the City-designated scenic highway portion of Wilshire Boulevard. As such, impacts associated with the project's construction activities would be *less than significant.*

OPERATION

While there are no designated scenic resources within a State Scenic Highway that would be visible from the project site, the project site does include features that are considered historical resources for the purposes of CEQA, including the Page Museum building and the Observation Pit. These are defining visual characteristics of the project site and are visible from the City-designated scenic highway segment of Wilshire Boulevard. Project implementation would result in modifications and enhancements to these project site features as described in Chapter 3, Project Description. Although project implementation would result in changes to the visual landscape as seen from Wilshire Boulevard, it would not substantially damage or altogether remove visually prominent or character-defining features of the project site, nor would the project alter the landscaped median of Wilshire Boulevard. Further, there are no rock outcroppings or significant topographic features on the project site. As described, the project site includes a variety of trees and vegetation interspersed within and along the perimeter; however, none of the trees are designated as scenic resources.

Given there are no designated scenic resources within a State Scenic Highway that would be visible from the project site and the project would not substantially damage or altogether remove visually prominent or character-defining features of the project site nor alter the landscaped median of Wilshire Boulevard, implementation of the project would not substantially damage scenic resources within a State- or City-designated scenic highway. For these reasons, impacts associated with project operation would be *less than significant.*

AES Impact 2
The project would not substantially damage scenic resources within a State- or City-designated Scenic Highway during either project construction or operation. Impacts during construction and operation of the project would be less than significant. (CEQA Checklist Appendix G Threshold I. b)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts to scenic resources within a State- or City-designated Scenic Highway would be less than significant.

c) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project is in a highly urbanized area in the city of Los Angeles. The analysis of the zoning and other regulations governing scenic quality applicable to the project is primarily provided as a policy consistency-level analysis from a project operation perspective only as most of the applicable policies would not apply to the project's construction activities, except for the County's Oak Tree Permit Ordinance as described further in the analysis below.

The project would result in the renovation of the Page Museum and construction of a new museum building to allow for enlarged exhibition space, additional storage, a ground floor café, and retail space. The new museum building would present a design that would be both distinctive and complementary to the Page Museum and would create a cohesive extension of the educational facilities. The project would require the removal of most of the existing landscaping on the project site, a significant portion of which is visible from Wilshire Boulevard. Given the visual dominance of the project site greenery, the removal

of landscaping would alter the visual character of the project site. Native trees such as Coast live oak, California [western] sycamore (*Platanus racemosa*), and buckeye (*Aesculus californica*) would be preserved unless diseased or in conflict with the new construction (e.g., the pathway, the museum expansion, the shifted parking lot on the northern side of the project site). The shifting of the parking lot on the northern side of the project site may require removal or relocation of the trees between the existing parking lot and West 6th Street; the determination of whether it is feasible to retain the existing trees on the north side of the parking lot would occur after approval of the conceptual Master Plan. If these trees need to be removed or relocated, they would be either moved to another location within the 13-acre project site or replaced elsewhere within the project site. Non-native trees and/or trees in poor health would be removed. Planted trees would be consistent with or complementary to the existing streetscape. The trees and added landscaping would reflect the redesigned pedestrian pathway that would loop through the project site and connect disparate buildings. Thus, given that the loss of on-site trees and landscaping would be temporary, that removed trees would be replaced or relocated within the 13-acre project site, and that the project would enhance the overall landscaping at the project site, the removal, relocation, and replacement of trees and landscaping would not substantially and adversely alter or degrade the existing visual character of the project site or surrounding area.

As described in Section 5.1.2.4, the project site is owned by the County of Los Angeles and the project is not subject to the regulatory controls of the City of Los Angeles. Generally, because the project is being proposed by the County on County-owned property, the project is subject to the directives and guidance of County policies and regulations. Nonetheless, plans and policies of the City of Los Angeles that are most relevant to the project are also addressed in this section for informational purposes.

COUNTY OF LOS ANGELES 2035 GENERAL PLAN

The County of Los Angeles 2035 General Plan provides policies that govern scenic quality in several elements. The project would be consistent with the Land Use Element and support the County's Goal C/NR 13 and Policy C/NR 13.1 to protect visual and scenic resources by developing compatible land uses that complement the character and existing uses within the project site and Hancock Park. The project would expand access to open space and facilitate pedestrian circulation. Further, the project would

support the County's policies to consider the built environment of the surrounding area and location in the design and scale of new buildings while promoting architecturally distinctive buildings at prominent locations. The project would also be designed to be modern, efficient, and sustainable pursuant to the County's Best Practices for Design Excellence (County of Los Angeles 2022). Therefore, implementation of the project would not conflict with the policies that govern scenic quality in the County of Los Angeles 2035 General Plan.

COUNTY OF LOS ANGELES OAK TREE PERMIT ORDINANCE

Thirteen native oak trees are currently within the La Brea Tar Pits project site. All native oaks on-site are protected by the Los Angeles County Oak Tree Permit Ordinance; therefore, disturbance (removal or relocation) of these trees during project construction has the potential to conflict with the Los Angeles County Oak Tree Permit Ordinance. While the project is exempt from obtaining a permit under the ordinance because the project is on County-owned property, the Los Angeles County Museum of Natural History Foundation (Foundation) and the County intend to ensure compliance with the Los Angeles County Oak Tree Permit Ordinance. Mitigation measures are outlined in Section 5.3, Biological Resources, to provide appropriate mitigation for any relocation or removal of native oak trees.
The Foundation and/or the County Museum of Natural History would coordinate with the County of Los Angeles Department of Regional Planning prior to commencement of any work on-site. Therefore, implementation of the project would not conflict with the County of Los Angeles Oak Tree permit during both construction and operation of the project.

CITY OF LOS ANGELES GENERAL PLAN AND MOBILITY PLAN 2035

Regarding consistency with the City of Los Angeles General Plan, the project would support the City's policy to provide a pattern of development consisting of distinct districts, centers, boulevards, and neighborhoods by enhancing museum uses within an area historically associated with a large concentration of museums, consistent with Policy 3.2.1. Similarly, the project would contribute to the City's policies that provide for the siting and design of new development that enhances the character of commercial districts and are adjacent to existing or potential public transit. The new museum building would be similar in height and scale to the Page Museum and surrounding buildings. The project would revitalize a publicly accessible outdoor open space that is integral to neighborhood character, as emphasized in Framework Element Policies 6.1.6 and 6.4.4. The project would also enhance pedestrian activity by providing landscaping and pedestrian pathways that would be designed to integrate the new museum building and existing uses within Hancock Park. These pedestrian pathways would connect to surrounding streets, providing access to nearby neighborhoods and transit. Therefore, the project would be generally consistent with the applicable objectives and policies that support the goals set forth in the Framework Element.

As discussed in AES Impact 2, the project would be consistent with Mobility Element Policy 2.16 and would not modify the unique identity or character of a Scenic Highway. The project would adhere to Mobility Element Policy 3(c) as much as feasible and design the landscaping plan to retain outstanding specimens of existing trees and plants located within the public right-of-way of a Scenic Highway. Therefore, implementation of the project would not conflict with the policies that govern scenic quality in the City of Los Angeles General Plan nor the Mobility Plan 2035.

WILSHIRE COMMUNITY PLAN

Regarding consistency with the Wilshire Community Plan, the project would orient the new museum building toward Wilshire Boulevard, preserve the existing open space, and enhance the pedestrian access through the expansion of the Wilshire Gateway and West 6th Street Gateway. This would contribute to the project's consistency with Objective 2-3 of the Wilshire Community Plan. The site planning of the new museum building and the rehabilitation of existing buildings would promote the continuity of the historic context of buildings in relationship to the existing pattern and scale of streets, sidewalks, and parking. As stated previously, the new museum building would be similar in height to the Page Museum and smaller in scale than most of the buildings along Wilshire Boulevard.

The project would expand educational facilities, outdoor dining opportunities, and recreational amenities, including pedestrian pathways through the site. Project signage would be improved and consistent with existing museum signage and other signage in the vicinity of the project site. New landscaping would be provided along Wilshire Boulevard that would extend and be compatible with the existing landscaping along the perimeter of Hancock Park. The project would also retain the landscaped median along Wilshire Boulevard. Therefore, implementation of the project would not conflict with the policies that govern scenic quality in the Wilshire Community Plan.

CONCLUSION

The project would be consistent with the applicable policies that govern scenic quality in both County and City plans during project construction and operation. Therefore, the project would not conflict with applicable zoning and other regulations governing scenic quality, and impacts would be *less than significant*.

AES Impact 3
The project would not conflict with applicable zoning and other regulations governing scenic quality during either project construction or operation. Impacts during construction and operation of the project would be less than significant (CEQA Checklist Appendix G Threshold I. c).
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to conflict with applicable zoning and other regulations governing scenic quality would be less than significant.

d) Would the project create a new source of substantial light and glare which would adversely affect daytime or nighttime views in the area?

Existing sources of lighting on and around the project site include street, security, and wayfinding outdoor lighting, vehicle headlights, and interior building illumination. Implementation of the project would result in the renovation of the Page Museum, construction of the new museum building, and enhanced landscaping features that collectively would introduce new and redesigned sources of lighting on-site that would be visible from adjacent off-site locations. Impacts associated with project implementation are discussed for construction and operation of the project.

CONSTRUCTION

Construction of the project has the potential to generate light and glare spillover to off-site visual receptors in the vicinity of the project site, including visitors to the publicly accessible facilities located throughout Hancock Park and individuals in the surrounding residential buildings and commercial buildings adjacent to the project site, as well as motorists, cyclists, and pedestrians traveling along Wilshire Boulevard, South Curson Avenue, and West 6th Street. Sources of artificial light associated with construction activities could include floodlights, spotlights, and/or headlights. Daytime glare could potentially occur during construction activities if reflective construction materials were positioned in highly visible locations where the reflection of sunlight could occur. Given that construction of the project is anticipated to occur over a period of 3 to 4 years, impacts from project-related sources of artificial light and glare during construction and demolition of project could be significant.

OPERATION

Upon project completion, lighting within the project site would include interior and low-level exterior lights adjacent to the buildings and along pathways for security and wayfinding purposes. In addition, low-level lighting for accent signage, parking information, and architectural features would also be incorporated. The new museum building would introduce a new source of light that would include exterior lights adjacent to the building and for the second-floor outdoor amenities when in use.
The current design of the project does not include electronic signage or signs with flash, mechanical, or strobe lights. However, given the conceptual nature of the project at this stage of design and development, the resulting lighting and design features cannot be determined with certainty, and design details that could create light and potential glare may be introduced as the building plans are more fully developed.

The County's Zoning Ordinance (Title 22 of the County Code) contains provisions intended to limit adverse light and glare impacts. Application of the requirements of Section 22.44.1270, Exterior Lighting,

of the County Code related to lighting and shielding would limit the potential of increased lighting on sensitive uses. Additionally, the California Building Code contains standards for outdoor lighting that are intended to reduce light pollution by regulating light power and brightness, shielding, and sensor controls. Currently, the façade of the new museum building and the renovated Page Museum would be constructed using nonreflective materials, consistent with the exterior materials of nearby buildings. However, the architectural plans for the new buildings are at a conceptual stage and reflective materials, obtrusive lighting, and other design features could be introduced during the later design stages that may not be consistent with specifications included in Title 22 of the County Code. Further, given the project site is not zoned by the County, enforcement of the application of Title 22 of the County Code cannot be assured without the provision of a mitigation measure requiring application of these requirements. For these reasons, light and glare impacts after construction of the project could be *significant*.

AES Impact 4	
The project could create a new source of substantial light or glare during both construction activities and project operation as part of the final building and project design which could adversely affect daytime or nighttime views in the area. Impacts during construction and operation of the project could be significant. (CEQA Checklist Appendix G Threshold I. d)	
Mitigation Measures	
Construction Mitigation	
AES/mm-4.1	*During project construction, the following measures shall be required:* • *The hours of construction activities shall be limited to between 7:00 a.m. and 9:00 p.m. on weekdays and between 8:00 a.m. and 6:00 p.m. on Saturdays and national holidays, with no construction permitted on Sundays.* • *If construction during evening hours is deemed necessary, construction-related illumination shall be used for safety and security purposes only. Additionally, any construction lighting shall be directed toward the area undergoing work, which requires that construction lighting be shielded and/or aimed so that no direct beam illumination would fall outside of the project site boundary.*
Operational Mitigation	
AES/mm-4.2	*The project shall implement the following design features:* • *All facades and/or building surfaces including glass windows shall be constructed using non-reflective materials or be treated with non-reflective coating.* • *All light emanating from new uses shall be either low scaled lighting or shielded to focus lighting and prevent lighting from spilling onto adjacent sensitive uses.* • *The project shall not include outdoor lighting that causes residential property to be illuminated by more than two footcandles of lighting intensity or receive direct glare from the light source.* • *All lights used to illuminate parking areas shall be designed, located, and arranged to reflect the light away from any street and any adjacent premises.* • *Signage with a light intensity of greater than three footcandles above ambient lighting, as measured at the property line of the nearest residentially zoned property, shall be prohibited.*
Impacts Following Mitigation	
Implementation of Mitigation Measures AES/mm-4.1 during project construction and AES/mm-4.2 during project operation would reduce impacts related to light and glare to less than significant.	

5.1.6 Cumulative Impact Analysis

A list of related development projects and their locations relative to the project site is provided in Chapter 4, Environmental Setting. Identified related projects in the vicinity of the project are at varying stages of approval/entitlement/development and consist of a variety of land uses, including residential, institutional, commercial, office, and mixed use. These related projects occur primarily as urban infill within the existing land use setting of the downtown Los Angeles area.

The geographic context for the cumulative impact analysis of aesthetics, scenic views, and lighting is the immediate project vicinity (defined as the area directly adjacent to the project site and roadways directly surrounding the project site), as such impacts are highly localized given the relatively flat topography of the project site and the developed nature of the surrounding land uses. As shown in Figure 4-3 in Chapter 4, Environmental Setting, the related projects within the project site's viewshed would include the following:

- **LACMA Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction. Construction activities are estimated to be completed at the end of 2024.
- **Wilshire Curson Project (Wilshire Courtyard Redevelopment Project):** Located approximately 0.03 mile southeast of the project site at 5700–5780 Wilshire Boulevard, 712–752 South Curson Avenue, 5721–5773 West 8th Street, and 715–761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of new buildings. The project is currently under environmental review and the anticipated construction timeframe was not available at the date of publication for this EIR.

As identified in the project analysis above, formally designated scenic viewsheds, vistas, features, or ridgelines (as designated and defined by both the City and County of Los Angeles) are not located within or adjacent to the project site (threshold a). In addition, the project would not substantially damage scenic resources within a State- or City-designated Scenic Highway (threshold b), nor would it conflict with applicable zoning and other regulations governing scenic quality (threshold c). Accordingly, the project could not contribute to cumulative impacts related to these topics. Furthermore, related developments would be subject to applicable regulations and zoning requirements, such as height limits, density, and setback requirements, and would be reviewed by the City to ensure consistency with adopted guidelines and standards that relate to aesthetics. The design of these projects would also be required to be consistent with the Mobility Plan 2035 Designated Scenic Highways and Guidelines related to the designation of Wilshire Boulevard as a Scenic Highway. As such, the project would not result in cumulative contributions to impacts related to these thresholds, and impacts would not be cumulatively considerable when viewed in conjunction with related development projects.

However, the project, in conjunction with the identified related projects, could contribute to the cumulative increase in light and glare in and around the project site during both construction activities and during operation of the project (threshold d) and impacts could be cumulatively considerable. Mitigation Measures AES/mm-4.1 and AES/mm-4.2 would be required to reduce project impacts to less than significant. The area surrounding the project site and related projects is urbanized and generates ambient light. Similar to the project, the related projects would be required to minimize excessive light and glare that would be inappropriate for the setting. With implementation of these project mitigation measures, impacts from the project would not be cumulatively considerable and cumulative impacts associated with light and glare would be *less than significant*.

AES Impact 5 (Cumulative Impacts)
The project has the potential to contribute considerably to cumulative impacts associated with light and glare during both project construction and operation.
Mitigation Measures
Implement Mitigation Measures AES/mm-4.1 and AES/mm-4.2.
Impacts Following Mitigation
With implementation of the identified mitigation measures, the project's contribution to cumulative impacts related to aesthetics would be less than significant.

5.2 AIR QUALITY

This section describes the existing air quality conditions of the site and the regulatory setting and evaluates potential impacts resulting from construction and operation of the proposed project. This section is based on the following document (included in Appendix C of this EIR): *Air Quality and Greenhouse Gas Technical Report for the La Brea Tar Pits Master Plan* (SWCA 2023).

5.2.1 Existing Conditions

5.2.1.1 Overview of Air Pollution and Potential Health Effects

CRITERIA AIR POLLUTANTS

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants in order to protect the public health and welfare. These pollutants are referred to as "criteria air pollutants" and the national and state standards have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment, either directly or in reaction with other pollutants due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in the air quality with the South Coast Air Basin (Air Basin). The criteria air pollutants for which national and state standards have been promulgated and which are most relevant to current air quality planning and regulation in the Air Basin include carbon monoxide (CO), ozone (O_3), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, sulfates, and hydrogen sulfide (H_2S). These pollutants, as well as volatile organic compounds (VOCs) and toxic air contaminants (TACs), are discussed in the following paragraphs. The national and state criteria pollutants and the applicable ambient air quality standards are listed in Table 5.2-1.

Ozone

O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly oxides of nitrogen (NO_x) and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone). The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good" O_3 is found naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

Table 5.2-1. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	–	Same as Primary
	8 hour	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)	
Respirable particulate matter (PM_{10})	24 hour	50 µg/m³	150 µg/m³	Same as Primary
	Annual mean	20 µg/m³	–	
Fine particulate matter ($PM_{2.5}$)	24 hour	–	35 µg/m³	Same as Primary
	Annual mean	12 µg/m³	12.0 µg/m³	15 µg/m³
Carbon monoxide (CO)	1 hour	20 ppm (23 µg/m³)	35 ppm (40 mg/m³)	–
	8 hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	–
Nitrogen dioxide(NO_2)	1 hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	–
	Annual mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
Sulfur dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
	3 hour	–	–	0.5 ppm (1,300 µg/m³)
	24 hour	0.04 ppm (105 µg/m³)	0.14 ppm	–
	Annual mean	–	0.030 ppm	–
Lead	30-day average	1.5 µg/m³	–	–
	Calendar quarter	–	1.5 µg/m³	Same as Primary
	Rolling 3-month average	–	0.15 µg/m³	Same as Primary
Visibility-reducing particles	8 hour	10-mile visibility standard, extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 hour	25 µg/m³		
Hydrogen sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m³)		
Vinyl chloride	24 hour	0.01 ppm (265 µg/m³)		

Source: California Air Resources Board (2016)

Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; – = no standard.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2022a). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2022a).

Carbon Monoxide

CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions (EPA 2022a).

Sulfur Dioxide

SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel (EPA 2022a).

Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SOx), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead,

sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in $PM_{2.5}$ and PM_{10} (EPA 2022a).

Lead

Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead (EPA 2022a).

Others

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen sulfide. H_2S is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of H_2S include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to H_2S can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

VOLATILE ORGANIC COMPOUNDS

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as TACs. While there are no specific VOC ambient air quality standards, VOC is a prime component (along with NO_x) of the photochemical processes by which such criteria pollutants as O_3, NO_2, and certain fine particles are formed. They are, thus, regulated as “precursors” to the formation of those criteria pollutants.

TOXIC AIR CONTAMINANTS

TACs refer to a diverse group of "non-criteria" air pollutants that can affect human health but have not had ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hot spots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

The federal TACs are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, although there are no ambient standards established for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or other acute (short-term) or chronic (long-term) health problems. For TACs that are known or suspected carcinogens, the CARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risks they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health effects, a similar factor, called a Hazard Index, is used to evaluate risk. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Examples of TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TACs that are relevant to the implementation of the project include diesel particulate matter (DPM) and airborne asbestos.

DPM was identified as a TAC by the CARB in August 1998 (CARB 1998). DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57% attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3% of emissions, include shipyards, warehouses, heavy-equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities.

Exposure to DPM can have immediate health effects. DPM can have a range of health effects including irritation of eyes, throat, and lungs, causing headaches, lightheadedness, and nausea. Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. Children, the elderly, and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. In California, DPM has been identified as a carcinogen.

Naturally occurring asbestos areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks. Asbestos has been designated a TAC by the CARB and is a known carcinogen. When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Exposure to asbestos can result in adverse health effects such as lung cancer, mesothelioma

(cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing) (Van Gosen and Clinkenbeard 2011). According to the California Geologic Survey, the project site is not located in an area of naturally occurring asbestos (CARB 2000).

Asbestos-containing materials become a health hazard once they are disturbed. Intact, asbestos fibers imbedded within construction materials and components are inert and do not pose a health hazard; however, once they are disturbed, through physical contact or building renovation and demolition activities, asbestos fibers may be rendered airborne (South Coast Air Quality Management District [SCAQMD] 2007).

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

A unique feature of the project is the existing subsurface conditions which consist of a relatively thin layer of artificial fill overlying alluvial deposits. The alluvial deposits consist of stiff clay and dense tar-bearing sands. Tar-bearing sands are saturated with hydrocarbons, whereas the upper clay soils contain less hydrocarbons. The presence of the hydrocarbons in the sediments is the result of the project site being over an oil field. Hydrogen sulfide and methane gases generated within the oil field are present in the subsurface. Because the project site is located within an area of known shallow methane and H_2S gas accumulation, crude oil and methane gas leak out from the petroleum deposits and migrate through fractures and faults located within the bedrock until encountering the alluvial soils, where they permeate into the alluvium and continue to travel upward to the ground surface. These unique subsurface conditions are a potential source of odors due to the presence of H_2S. Many of the light petroleum components are lost to evaporation and biogenic processes, resulting in viscous tar seeping out of the ground surface (Deane et al. 2018).

5.2.1.2 Existing Air Quality Conditions in the Project Area

The project is located within the South Coast Air Basin, an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and San Diego County to the south. The South Coast Air Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the Coachella Valley area in Riverside County. The air quality within the Air Basin is primarily influenced by meteorology and a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry.

Air pollutant emissions within the Air Basin are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack, such as combustion equipment that produces electricity or generates heat. Area sources are widely distributed and include residential and commercial water heaters, agricultural fields, landfills, and others. Mobile sources include emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified

as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

REGIONAL AIR QUALITY

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatology pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The regional climate within the Air Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity.

The extent and severity of air pollution in the Air Basin is a function of the area's natural physical characteristics (e.g., weather and topography), as well as human-made influences (e.g., land use development patterns, heavy vehicular traffic, and industry). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography affect the accumulation and dispersion of pollutants throughout the Air Basin, making it an area of high pollution potential.

Pollutant concentrations in the Air Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Air Bain and adjacent desert. The most severe air pollution throughout the Air Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, causing elevated air pollution levels. Over the past 30 years, substantial progress has been made in reducing air pollution levels in Southern California (CARB 2018). However, the Air Basin still fails to meet the national standards for O_3 and $PM_{2.5}$. In addition, Los Angeles County still fails to meet the national standard for lead. On May 24, 2012, the CARB approved the State Implementation Plan (SIP) revision for the federal lead standard, which the EPA revised in 2008. The SIP revision addresses attainment of the federal lead standard in the South Coast Air Basin portion of Los Angeles County, the only area in California designated as nonattainment for lead. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. SCAQMD has the responsibility for ensuring that all national and state air quality standards are achieved and maintained throughout the Air Basin. To meet the standards, SCAQMD has adopted a series of air quality management plans (AQMPs), discussed below in Section 5.2.2, Regulatory Setting.

REGIONAL ATTAINMENT STATUS

Depending on whether the applicable ambient air quality standards are met or exceeded, the Air Basin is classified on a federal and state level as being in "attainment" or "nonattainment." The EPA and CARB determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state and local ambient air monitoring stations with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable/unclassified designation is treated as an attainment designation. The Air Basin currently fails to meet the NAAQS for lead, O_3, and $PM_{2.5}$. Therefore, Los Angeles County South Coast Air Basin is considered a "non-attainment" area for these pollutants on the federal level. As of September 2022, the Air Basin is also considered in non-attainment for O_3, $PM_{2.5}$, and PM_{10} on the state level (EPA 2022b).

REGIONAL MULTIPLE AIR TOXICS EXPOSURE STUDY

The SCAQMD has released an Air Basin–wide air toxics study, the Multiple Air Toxics Exposure Study V (MATES V). The MATES V study was developed to evaluate the cancer risk from toxic air emissions

throughout the Air Basin by conducting a comprehensive monitoring program, an updated emissions inventory of TACs, and a modeling effort to fully characterize health risks for those living in the Air Basin. In the past iterations of the MATES study, the air toxics cancer risks were evaluated based on inhalation exposures only. However, in MATES V, the methodology was updated to include multiple exposure pathways, such as oral and dermal. The MATES V study concluded that the average carcinogenic risk from air pollution in the Air Basin is approximately 424 in 1 million over a 70-year duration (SCAQMD 2021a). Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 50% of the risk is attributed to diesel particulate emissions, approximately 25% to other toxic emissions associated with mobile sources (including benzene, butadiene, and carbonyls), and approximately 25% of all carcinogenic risk is attributed to stationary sources, which include large industrial operations, such as refineries and metal processing facilities, as well as smaller businesses, such as gas stations and chrome plating.

As part of the MATES V study, the SCAQMD prepared a series of maps that shows regional trends in estimated outdoor inhalation cancer risk from toxic emissions, as part of the ongoing effort to provide insight into relative risks. The maps' estimates represent the number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The MATES V map is the most recently available map to represent existing conditions near the project site. The estimated cancer risk for the vast majority of the urbanized area within the Air Basin ranges from 200 to 1,000 cancers per million over a 70-year duration. Generally, the risk from air toxics is lower near the coastline, with higher risks concentrated near large diesel sources (e.g., freeways, airports, and ports).

LOCAL AIR QUALITY

Air pollutants emissions are generated in the local vicinity by stationary and area-wide sources, such as commercial and industrial activity, space and water heating, landscape maintenance, consumer products, and mobile sources primarily consisting of automobile traffic. Motor vehicles are the primary source of pollutants in the local vicinity.

Existing Criteria Pollutant Levels at Nearby Monitoring Stations

The SCAQMD maintains a network of air quality monitoring stations located throughout the Air Basin and has divided the Air Basin into 38 source receptor areas (SRAs) in which 31 monitoring stations operate. The project site is located within SRA 1, which covers the Central Los Angeles area.
The monitoring station most representative of the project site is the North Main Street Station, located at 1630 North Main Street in the city of Los Angeles, approximately 7.3 miles east of the project site. Criteria pollutants monitored at this station include PM_{10}, $PM_{2.5}$, O_3, CO, NO_2, lead, and sulfate.
Table 5.2-2 shows the ambient pollutant concentrations that have been measured in SRA 1 for the period 2018–2020, as well as any exceedances of the NAAQS and CAAQS.

Table 5.2-2. Summary of Ambient Air Quality in the Central Los Angeles Area

Pollutant		Year		
		2018	2019	2020
O_3	Maximum 1-hour concentration (ppm)	0.098	0.085	0.185
	Days exceeding CAAQS (0.09 ppm)	2	0	14
	Maximum 8-hour concentration (ppm)	0.073	0.08	0.118
	Days exceeding NAAQS (0.07 ppm)	4	2	22
	Days exceeding CAAQS (0.07 ppm)	4	2	22

Pollutant		Year		
		2018	2019	2020
Respirable PM_{10}	Maximum 24-hour concentration (µg/m^3)	81	62	77
	Days exceeding NAAQS (150 µg/m^3)	0	0	0
	Days exceeding CAAQS (50 µg/m^3)	31	3	24
	Annual arithmetic mean (µg/m^3)	34.1	25.5	23
	Does measured AAM exceed CAAQS (20 µg/m^3)?	Yes	Yes	Yes
Fine $PM_{2.5}$	Maximum 24-hour concentration (µg/m^3)	43.8	43.5	47.3
	Days exceeding NAAQS (35 µg/m^3)	3	1	2
	Annual arithmetic mean (µg/m^3)	12.58	10.85	12.31
	Does measured AAM exceed NAAQS/CAAQS (12 µg/m^3)?	Yes	No	Yes
CO	Maximum 1-hour concentration (ppm)	2.0	2.0	1.9
	Days exceeding NAAQS (35.0 ppm)	0	0	0
	Days exceeding CAAQS (20.0 ppm)	0	0	0
	Maximum 8-hour concentration (ppm)	1.7	1.6	1.5
	Days exceeding NAAQS and CAAQS (9 ppm)	0	0	0
NO_2	Maximum 1-hour concentration (ppm)	0.0701	0.0697	0.0618
	Days exceeding CAAQS (0.18 ppm)	No	No	No
	Annual arithmetic mean (ppm)	0.0185	0.0177	0.0169
	Does measured AAM exceed NAAQS (0.0534 ppm)?	No	No	No
	Does measured AAM exceed CAAQS (0.03 ppm)?	No	No	No
SO_2	Maximum 1-hour concentration (ppm)	0.0179	0.01	0.0038
	Days exceeding CAAQS (0.25 ppm)	0	0	0
	Maximum 24-hour concentration (ppm)	0.003	0.003	0.003
	Days exceeding CAAQS (0.04 ppm)	0	0	0
	Days exceeding NAAQS (0.14 ppm)	0	0	0
	Annual arithmetic mean (ppm)	0.001	0.001	0.001
	Does measured AAM exceed NAAQS (0.030 ppm)?	No	No	No
Lead	Maximum 30-day average concentration (µg/m^3)	0.011	0.012	0.013
	Does measured concentration exceed NAAQS (1.5 µg/m^3)?	No	No	No
	Maximum calendar quarter concentration (µg/m^3)	0.011	0.01	0.011
	Does measured concentration exceed CAAQS (1.5 µg/m^3)?	No	No	No
Sulfates	Maximum 24-hour concentration (µg/m^3)	4.5	5.1	3.3
	Does measured concentration exceed CAAQS (25 µg/m^3)?	No	No	No

Source: SCAQMD (2022b)

Notes: AAM = annual arithmetic mean; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Existing Health Risks in the Project Vicinity

Based on the MATES V model, the multi-pathway cancer risk in the area immediately surrounding the project site in the 90036 zip code is approximately 495 in 1 million (SCAQMD 2021b). The cancer risk in this area includes diesel particulate matter, benzene, formaldehyde, and arsenic. However, the cancer risk is predominantly related to nearby sources of diesel particulate (e.g., the Harbor Freeway [Interstate

110]). In general, the risk at the project site is comparable to other urbanized areas in Los Angeles as air toxics cancer risk in this zip code is higher than 63.0% of the South Coast AQMD population (OEHHA 2021).

OEHHA, on behalf of the California Environmental Protection Agency (CalEPA), provides a screening tool called CalEnviroScreen that can be used to help identify California communities disproportionately burdened by multiple sources of pollution. According to CalEnviroScreen, the project is located in the 47th percentile, which means the project area is about average in comparison to other communities within California.

Sensitive Uses

Some population groups, including children, elderly, and acutely and chronically ill persons (especially those with cardiorespiratory diseases), are considered more sensitive to air pollution than others. A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. The following are land uses where sensitive receptors are typically located:

- schools, playgrounds, and childcare centers
- long-term health care facilities
- rehabilitation centers
- convalescent centers
- hospitals
- retirement homes
- residences

The project site is located in a highly urbanized area and is surrounded by a mix of commercial uses, residential uses, and open spaces. Specifically, the project is bounded by the Los Angeles County Museum of Art, Park La Brea Pool, parking lots, commercial uses, and multi-family uses. The closest sensitive land uses to the project site are off-site residential uses located 50 to 150 feet from the project site. The nearest school to the project site is Fusion Academy Miracle Mile, a private learning institution for middle school and high school students, located approximately 0.12 mile away, and the nearest daycare is Michal Daycare located approximately 0.28 mile away.

5.2.2 Regulatory Setting

5.2.2.1 Federal

FEDERAL CLEAN AIR ACT

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to the EPA. The EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the EPA has established the NAAQS for six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. O_3, CO, NO_2, SO_2, lead, and particulate matter (PM_{10} and $PM_{2.5}$) are the six criteria air pollutants. Ozone is a secondary pollutant; NO_x and VOCs are of particular interest as they are precursors to ozone formation. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin

of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 5.2-1.

The CAA requires the EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant, based on whether the NAAQS have been achieved. The act also mandates that the State submit and implement a state implementation plan for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

TOXIC SUBSTANCE CONTROL ACT

The Toxic Substances Control Act (TSCA) of 1976 provides the EPA with authority to require reporting, recordkeeping, and testing, and provides restrictions relating to chemical substances and/or mixtures. TSCA became law on October 11, 1976, and became effective on January 1, 1977. The TSCA authorized the EPA to secure information on all new and existing chemical substances, as well as to control any of the substances that were determined to cause unreasonable risk to public health or the environment. Congress later added additional titles to the act, with this original part designated at Title I – Control of Hazardous Substances. TSCA regulatory authority and program implementation rests predominantly with the federal government (i.e., the EPA). However, the EPA can authorize States to operate their own, EPA-authorized programs for some portions of the statute. TSCA Title IV allows States the flexibility to develop accreditation and certification programs and work practice standards for lead-related inspection, risk assessment, renovation, and abatement that are at least as protective as existing federal standards.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (ASBESTOS)

The EPA air toxics regulation for asbestos is intended to minimize the release of asbestos fibers during activities involving the handling of asbestos. Asbestos was one of the first hazardous air pollutants regulated under the air toxics program as there are major health effects associated with asbestos exposure (lung cancer, mesothelioma, and asbestosis). On March 31, 1971, the EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA promulgated the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), currently found in 40 Code of Federal Regulations 61(M). The Asbestos NESHAP has been amended several times, most comprehensively in November 1990. In 1995, the rule was amended to correct cross-reference citations to Occupational Safety and Health Administration, Department of Transportation, and other EPA rules governing asbestos. Air toxics regulations under the CAA have guidance on reducing asbestos in renovation and demolition of buildings; institutional, commercial, and industrial building; large-scale residential demolition; exceptions to the asbestos removal requirements; asbestos control methods; waste disposal and transportation; and milling, manufacturing, and fabrication.

5.2.2.2 State

CALIFORNIA CLEAN AIR ACT

The California Clean Air Act (CCAA) was adopted by the CARB in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for O_3, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. The CARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level AQMPs that would be incorporated into the state implementation plan. In California, the EPA has delegated authority to prepare state implementation plans to CARB, which in turn, has delegated that authority to individual air districts. Each district plan is required to either

1) achieve a 5% annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or 2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969, under the mandate of the Mulford-Carrell Act. The CCAA requires all air districts of the state to achieve and maintain the CAAQS by the earliest practical date. Table 5.2-1 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the State. The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, H_2S, vinyl chloride, and visibility-reducing particles (see Table 5.2-1).

CALIFORNIA CODE OF REGULATIONS

The California Code of Regulations (CCR) is the official compilation and publication of regulations adopted, amended, or repealed by the state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, Section 2485 in Title 13 of the CCR states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to 5 minutes at any location. In addition, Section 93115 in Title 17 of the CCR states that operation of any stationary, diesel-fueled, compression-ignition engine shall meet specified fuel and fuel additive requirements and emission standards.

TOXIC AIR CONTAMINANTS REGULATIONS

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, also known as the Tanner Air Toxics Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 – Connelly). In the early 1980s, the CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Air Toxics Act (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks (CARB 2011).

In August 1998, CARB identified DPM emissions from diesel-fueled engines as a TAC. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles (CARB 2000b). The goal of the plan is to reduce diesel PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75% in 2010, and by 85% by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce DPM emissions from diesel-fueled engines and vehicles were evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce DPM emissions. The project would be required to comply with applicable diesel control measures.

SCAQMD has adopted two rules to limit cancer and noncancer health risks from facilities located within its jurisdiction. Rule 1401 (New Source Review of Toxic Air Contaminants) regulates new or modified facilities, and Rule 1402 (Control of Toxic Air Contaminants from Existing Sources) regulates facilities that are already operating. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities.

5.2.2.3 Regional

SCAQMD shares responsibility with CARB for ensuring that all state and federal ambient air quality standards are achieved and maintained throughout all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, including all of Orange County and Los Angeles County, except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Air Basin is a subregion of the SCAQMD jurisdiction.

To meet the CAAQS and NAAQS, the SCAQMD has adopted a series of AQMPs. The 2016 AQMP incorporates the SCAG 2016 Regional Transportation Plan/Sustainable Community Strategy (2016-2040 RTP/SCS)[1] and updated emission inventory methodologies for various source categories. The 2016 AQMP also includes the new federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

The AQMP provides emissions inventories, ambient measurements, meteorological episodes, and air quality modeling tools. The AQMP also provides policies and measures to guide responsible agencies in achieving federal standards for healthful air quality in the Air Basin. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to project construction or operation. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads.

The SCAQMD is currently in the process of replacing the CEQA Air Quality Handbook, approved in 1993, with the Air Quality Analysis Guidance Handbook (SCAQMD 2022a). In order to assist the CEQA practitioner in conducting an air quality analysis in the interim while this replacement air quality analysis guidance handbook is being prepared, supplemental guidance/information is provided on the SCAQMD website and includes: 1) EMission FACtor (EMFAC) on-road vehicle emission factors; 2) background CO concentrations; 3) localized significance thresholds (LSTs); 4) mitigation measures and control efficiencies; 5) mobile source toxics analysis; 6) off-road mobile source emission factors; 7) $PM_{2.5}$ significance thresholds and calculation methodology; and 8) updated SCAQMD air quality significance thresholds (SCAQMD 2022a). The SCAQMD also recommends using approved models to calculate emissions from land use products projects, such as the California Emission Estimator Model (CalEEMod) Version 2022.1.1.17 (California Air Pollution Control Officers Association [CAPCOA] 2022). These recommendations were followed in the preparation of this analysis.

The SCAQMD has also adopted land use planning guidelines in the *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* (SCAQMD 2005), which considers impacts to sensitive receptors from facilities that emit TAC emissions. SCAQMD's siting distance recommendations are the same as those provided by CARB. The SCAQMD document introduces land use–related policies that rely on design and distance parameters to minimize emissions and lower potential health risk.

[1] Due to the AQMD publish date of 2016, the 2016 Regional Transportation Plan was incorporated. As discussed in the 2020-2045 RTP/SCS, the actions and strategies included in the 2020-2045 RTP/SCS remain unchanged from those adopted in the 2012-2035 and 2016-2040 RTP/SCS.

SCAQMD's guidelines are voluntary initiatives recommended for consideration by local planning agencies. The following SCAQMD rules and regulations would be applicable to the project:

SCAQMD Rule 403 required projects to incorporate fugitive dust control measures at least as effectively as the following measures:

- Use water to control dust generation during demolition of structures;
- Clean up mud and dirt carried onto paved streets from the site;
- Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site;
- All haul trucks would be covered or would maintain at least 6 inches of freeboard;
- All material transported off-site shall be sufficiently watered or securely covered to prevent excessive amounts of spillage or dust;
- Suspend earthmoving operations or additional watering would be implemented to meet Rule 403 criteria if wind gusts exceed 25 miles per hour;
- The owner or contractor shall keep the construction area sufficiently dampened to control dust caused by construction and hauling, and at all times provide reasonable dust control of dust caused by wind. All paved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust cover shall be used to reduce dust emissions; and
- An information sign shall be posted at the entrance to the construction site that identifies the permitted construction hours and provides a telephone number to call and receive information about the construction project or to report complaints regarding excessive fugitive dust generation. A construction relations officers shall be appointed to act as a community liaison concerning on-site activity, including investigation and resolution of issues related to fugitive dust generating.

SCAQMD Rule 1113 limits the volatile organic compound content of architectural coating.

SCAQMD Rule 1403 establishes survey requirements, notifications, and work practice requirements to prevent asbestos emissions from emanating during building renovation and demolition activities. Any activities at the project site that would renovate or modify the existing structures, including the proposed project, would be required to comply with this rule.

SCAQMD Regulation XIII, New Source Review, requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available technology control technology for new combustion sources such as boilers and water heaters).

SCAQMD has adopted two rules to limit cancer and non-cancer health risks from facilities located within its jurisdiction. Rule 1401 (New Source Review of Toxic Air Contaminants) regulates new or modified facilities, and Rule 1402 (Control of Toxic Air Contaminants from Existing Sources) regulates facilities that are already operating. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities.

5.2.2.4 County of Los Angeles

The County Board of Supervisors adopted the County of Los Angeles 2035 General Plan (2035 General Plan) on October 6, 2015. The adopted County General Plan represents a compromise comprehensive update intended to reflect changing demographics, growth, and infrastructure conditions in the county.

The County General Plan contains an Air Quality Element that addresses air quality and related issues. Included in the Air Quality Element are goals encouraging mixed-use development, the use of "green building" principles, energy and water efficiency, reducing vehicle miles traveled and vehicle trips, and promoting alternative modes of transportation (County of Los Angeles 2015).

The Air Quality Element of the County General Plan establishes the following goals that are relevant to the project:

Goal AQ 1. Protection from exposure to harmful air pollutants

Goal AQ 2. The reduction of air pollution and mobile source emissions through coordinated land use, transportation, and air quality planning.

Goal AQ3. Implementation of plans and programs to address the impact of climate change.

> ***Policy AQ 3.2.*** Reduce energy consumption of County operations by 20% by 2015.
>
> ***Policy AQ 3.3.*** Reduce water consumption of County operations.
>
> ***Policy AQ 3.5.*** Encourage energy conservation in new development and municipal operations.
>
> ***Policy AQ 3.6.*** Support rooftop solar facilities on new and existing buildings.

The County has the authority and responsibility to reduce air pollution by assessing and mitigating air emissions resulting from its land use decisions. Consistent with CEQA, the County assesses the air quality impacts of new development projects and requires mitigation of potentially significant air quality impacts by applying required conditions to projects through the projects through the County approval process. Depending on the location, the County uses either SCAQMD's CEQA Air Quality Handbook and SCAQMD's supplemental online guidance/information or CEQA guidance from the Antelope Valley Air Quality Management District for the environmental review of plans and development proposals within its jurisdiction. These guidance documents are more specific than the 2035 General Plan goals and policies noted above. Implementation of these guidance documents and consistency with the thresholds contained therein generally ensures that development projects are supportive and consistent with the 2035 General Plan.

5.2.2.5 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the regulatory guidance of both the City and the County are provided in this section for informational purposes.

The Air Quality Element of the City General Plan was adopted on November 24, 1992, and sets forth the goals, objectives, and policies which guide the City in the implementation of its air quality improvement programs and strategies. The Air Quality Element acknowledges the interrelationships among transportation and land use planning in meeting the City's mobility and air quality goals. The Air Quality Element of the City General Plan establishes six goals:

Goal 1. Good air quality in an environment of continued population growth and healthy economic structure;

> ***Objective 1.1.*** It is the objective of the City of Los Angeles to reduce air pollutants consistent with the Regional Air Quality Management Plan (AQMP), increase traffic mobility, and sustain economic growth citywide.

Objective 1.3. It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas. parking lots, and construction sites.

Policy 1.3.1. Minimize particulate emissions from construction sites.

Policy 1.3.2. Minimize particulate emissions from unpaved roads and parking lots associated with vehicular traffic.

Goal 2. Less reliance on single-occupant vehicles with fewer commute and non-work trips;

Objective 2.1. It is the objective of the City of Los Angeles to reduce work trips as a step toward attaining trip reduction objectives necessary to achieve regional air quality goals.

Policy 2.1.1. Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling–related facilities in order to reduce vehicle trips and/or vehicle miles traveled (VMT) as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.

Policy 2.2.2. Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel by instituting parking management practices.

Objective 4.1. It is the objective of the City of Los Angeles to include regional attainment of ambient air quality standards as a primary consideration in land use planning.

Policy 4.1.1. Coordinate with all appropriate regional agencies in the implementation of strategies for the integration of land use, transportation, and air quality policies.

Objective 4.2. It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.

Policy 4.2.2. Improve accessibility for the City's residents to places of employment, shopping centers, and other establishments.

Policy 4.2.3. Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.

Policy 4.2.4. Require that air quality impacts be a consideration in the review and approval of all discretionary projects.

Policy 4.2.5. Emphasize trip reduction, alternative transit, and congestion management measures for discretionary projects.

Goal 3. Efficient management of transportation facilities and systems infrastructure using cost-effective system management and innovative demand-management techniques;

Objective 5.1. It is the objective of the City of Los Angeles to increase energy efficiency of City facilities and private developments.

Policy 5.1.2. Effect a reduction in energy consumption and shift to nonpolluting sources of energy in its buildings and operations.

Policy 5.1.4. Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.

Objective 5.3. It is the objective of the City of Los Angeles to reduce the use of polluting fuels in stationary sources.

Policy 5.3.1. Support the development and use of equipment powered by electric or low-emitting fuels.

Goal 4. Minimal impacts of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality;

Objective 4.1. It is the objective of the City of Los Angeles to include regional attainment of ambient air quality standards as a primary consideration in land use planning.

Policy 4.1.1. Coordinate with all appropriate regional agencies in the implementation of strategies for the integration of land use, transportation, and air quality policies.

Objective 4.2. It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.

Policy 4.2.2. Improve accessibility for the City's residents to places of employment, shopping centers, and other establishments.

Policy 4.2.3. Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.

Policy 4.2.4. Require that air quality impacts be a consideration in the review and approval of all discretionary projects.

Policy 4.2.5. Emphasize trip reduction, alternative transit, and congestion management measures for discretionary projects.

Goal 5. Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implementation of conservative measures including passive measures such as site orientation and tree planting; and

Goal 6. Citizens' awareness of the links between personal behavior and air pollution, and participation and efforts to reduce air pollution.

In accordance with CEQA requirements. the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The City uses SCAQMD's CEQA Air Quality Handbook and SCAQMD's supplemental online guidance/information for the environmental review of plans and development proposals within its jurisdiction.

5.2.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to air quality if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) Result in a cumulatively considerable new increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

c) Expose sensitive receptors to substantial pollutant concentrations.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

5.2.4 Impact Assessment Methodology

The following impact analysis is based, in part, on the *Air Quality and Greenhouse Gas Technical Report for the La Brea Tar Pits Master Plan* (SWCA 2023; see Appendix C). The following analysis evaluates the potential increase in criteria air pollutants resulting from the project. The evaluation of potential impacts is based on the criteria discussed in the following paragraphs.

CONSISTENCY WITH APPLICABLE AIR QUALITY PLANS

State CEQA Guidelines Section 15125 requires an analysis of project consistency with applicable governmental plans and policies. In accordance with SCAQMD's CEQA Air Quality Handbook, the following criteria were used to evaluate the project's consistency with SCAQMD's AQMP and SCAG's regional plans and policies:

- Criterion 1: Will the project result in any of the following:
  - An increase in the frequency or severity of existing air quality violations;
  - Cause or contribute to new air quality violations; or
  - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP?
- Criterion 2: Will the project exceed the assumptions utilized in preparing the AQMP?
  - Is the project consistent with the population and employment growth projections upon which AQMP forecasted emission levels are based;
  - Does the project include air quality mitigation measures; or
  - To what extent is the project development consistent with AQMP control measures?

As noted in Section 5.2.2.4, in the project area, the County assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by applying required conditions to projects through the County approval process in accordance with the SCAQMD's CEQA Air Quality Handbook (SCAQMD 2022a). This guidance document is more specific than the 2035 General Plan goals and policies as well as the Air Quality Element of the City General Plan. Adherence with the SCAQMD's CEQA Air Quality Handbook and AQMP control measures would ensure that the project is supportive of and consistent with the air quality goals and policies contained in the 2035 General Plan and the City General Plan.

CONSTRUCTION

The SCAQMD has established significance thresholds based on the State CEQA Guidelines. Specifically, based on criteria set forth in the SCAQMD CEQA Handbook Air Quality Significance Thresholds, the project would have a significant impact with regard to construction emissions if any of the following would occur:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD-prescribed threshold levels: 1) 100 pounds per day for NO_X; 2) 75 pounds per day for VOCs; 3) 150 pounds per day for PM_{10} or sulfur oxides; 4) 55 pounds per day for $PM_{2.5}$; or 5) 550 pounds per day for CO.

- Maximum on-site daily localized emissions exceed the LST, resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for CO (20 parts per million [ppm] over a 1-hour period, or 9.0 ppm averaged over an 8-hour period) and NO_2 (0.18 ppm over a 1-hour period, 0.1 ppm over a 3-year average of the 98th percentile of the daily maximum 1-hour average, 0.03 ppm averaged over an annual period).
- Maximum on-site localized PM_{10} or $PM_{2.5}$ emissions during construction exceed the applicable LSTs, resulting in predicted ambient concentrations in the vicinity of the project site to exceed the incremental 24-hour threshold of 10.4 micrograms per cubic meter ($\mu g/m^3$) or 1.0 $\mu g/m^3$ PM_{10} averaged over an annual period.

OPERATION

Based on criteria set forth in the SCAQMD CEQA Handbook Air Quality Significance Thresholds, the project would have a significant impact with regard to project operations if any of the following would occur:

- Operational emissions exceed any of the following SCAQMD prescribed threshold levels: 1) 55 pounds per day for NO_X; 2) 55 pounds per day for VOCs; 3) 150 pounds per day for PM_{10} or sulfur oxides; 4) 55 pounds per day for $PM_{2.5}$; or 5) 550 pounds per day for CO.
- Maximum on-site daily localized emissions exceed the LST, resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for CO (20 ppm over a 1-hour period or 9.0 ppm averaged over an 8-hour period) and NO_2 (0.18 ppm over a 1-hour period, 0.1 ppm over a 3-year average of the 98th percentile of the daily maximum 1-hour average, 0.03 ppm averaged over an annual period).
- Maximum on-site localized operational PM_{10} or $PM_{2.5}$ emissions exceed the incremental 24-hour threshold of 2.5 $\mu g/m^3$ or 1.0 $\mu g/m^3$ PM_{10} averaged over an annual period.
- The project causes or contributes to an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 ppm, respectively.
- The project creates an odor nuisance pursuant to SCAQMD Rule 402.

TOXIC AIR CONTAMINANTS

The determination of significance shall be made on a case-by-case basis, considering the following factors:

- the regulatory framework for the toxic material(s) and process(es) involved;
- the proximity of the toxic air contaminants to sensitive receptors;
- the quantity, volume, and toxicity of the contaminants expected to be emitted;
- the likelihood and potential level of exposure; and
- the degree to which project design would reduce the risk of exposure.

Based on the criteria set forth in SCAQMD's CEQA Air Quality Handbook, the project may have a significant TAC impact if:

- The project results in the exposure of sensitive receptors to carcinogenic or toxic air contaminants that exceed the maximum incremental cancer risk of 10 in 1 million or an acute or chronic hazard index of 1.0. For projects with a maximum incremental cancer risk between 1 in 1 million and

10 in 1 million, a project would result in a significant impact if the cancer burden exceeds 0.5 excess cancer cases.

5.2.5 Environmental Impact Analysis

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

According to the SCAQMD's CEQA Air Quality Handbook, in order to be consistent with the SCAQMD and SCAG regional plans and policies, including the AQMP, the project must be consistent with the air quality standards and the land use assumptions identified in the AQMP, as evaluated below.

AQMP AIR QUALITY STANDARDS

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from asphalt pavement application) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$ are the primary pollutants of concern during construction activities.

In addition, operation of the project would generate VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; water, waste, off-road, and stationary sources; and energy sources, including combustion of fuels used for space and water heating.

As described in detail in AQ Impact 2, below, the project would not increase the frequency or severity of an existing air quality violation or cause or contribute to new violations for any pollutants during either construction or operation of the project. As the project would not exceed any of the state and federal standards, the project would also not delay timely attainment of air quality standards or interim emission reductions specified in the AQMP. Therefore, the project would be consistent with air quality standards included in the AQMP during both construction and operation.

AQMP AIR QUALITY ASSUMPTIONS

Table 5.2-3 summarizes the project's consistency with the assumptions included in the AQMP. As shown in Table 5.2-3, the project would be consistent with the land uses assumptions identified in the AQMP.

Table 5.2-3. Consistency with Assumptions of the AQMP

Assumptions	
Is the project consistent with the population and employment growth projections upon which AQMP forecasted emission levels are based?	**Consistent.** The project would result in the renovation and expansion of an existing museum facility. The project would not directly contribute to population growth in the vicinity of the project as the project does not include new housing. Further, the project is not expected to create a significant increase in the number of employees because the proposed improvements are not expected to result in an increase in the average amount of programming, hours, or the daily or annual attendance levels that have been experienced at La Brea Tar Pits. Therefore, projected levels of project employees and visitors would be consistent with the population and employment forecast for the subregion as adopted by SCAG. Because these same projections form the basis of the 2016 AQMP, it could be concluded that the project would be consistent with the population and employment growth projections of the AQMP.

Assumptions	
Does the project include air quality mitigation measures?	**Consistent.** The project would incorporate a number of key control measures identified by the SCAQMD, which have been included as Mitigation Measure AQ/mm-3.1. As such, the project meets this AQMP consistency criteria since all feasible mitigation measures would be implemented.
To what extent is project development consistent with the AQMP land use policies?	**Consistent.** The project includes various characteristics that minimize VMT and vehicle trips to the project site, including providing a diversity and mix of uses on the project site and within the "Miracle Mile" area, which would minimize vehicle trips and VMT by encouraging walking and non-automotive forms of transportation, and improved design including developing ground-floor museum uses and improved streetscape, which would enhance walkability in the project vicinity, among other project characteristics. Mitigation Measure GHG/mm-1.1 has been included in Section 5.7, Greenhouse Gas Emissions, to reduce project employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare through the preparation and implementation of a Transportation Demand Management program, which will be developed in consultation with Los Angeles Department of Transportation. Because the project implements the County of Los Angeles, City of Los Angeles, and SCAQMD objectives of minimizing VMT and the related vehicular air emissions, the project would be consistent with AQMP land use policies.

CONCLUSION

As evaluated above, the project would not have a significant long-term impact on the region's ability to meet state and federal air quality standards. Further, the project would be consistent with the land use assumptions included in the AQMP. Therefore, the project would be consistent with the SCAQMD's AQMP during both project construction and operation, and impacts would be *less than significant*.

AQ Impact 1
The project would not conflict with or obstruct implementation of applicable air quality plans during either construction or operation. Construction and operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. a)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to consistency with applicable air quality plans would be less than significant.

b) Would the project result in a cumulatively considerable new increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Air Basin is designated as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and the rolling 3-month average lead standard. It is designated as a nonattainment area for state O_3, PM_{10}, and $PM_{2.5}$ standards (CARB 2017; EPA 2022b). The Air Basin is designated as attainment or unclassified for all other federal and state pollutants.

CONSTRUCTION

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from asphalt pavement application) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. Construction emissions can vary substantially from day to day depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions.

CalEEMod was used to calculate air pollutant emissions that would occur during proposed construction activities, which is anticipated last a total of approximately 4 years. Table 5.2-4 identifies the estimated unmitigated maximum daily construction emissions generated during construction of the project in comparison to the applicable SCAQMD regional significance thresholds. See Appendix C for a description of modeling inputs.

Table 5.2-4. Unmitigated Daily Construction Emissions Summary

Construction Year	Unmitigated Construction Emissions Summary					
	ROG	NOx	CO	PM10	PM2.5	SO2
	Pollutant Emission (pounds per day)					
2024	1.66	29.6	48.3	21.8	9.7	0.11
2025	1.47	12.0	30.4	4.74	0.96	0.03
2026	8.96	11.8	32.2	6.38	1.19	0.03
2027	1.76	11.7	38.6	6.5	1.21	0.04
Peak daily emission	*8.96*	*29.6*	*48.3*	*21.8*	*9.7*	*0.11*
SCAQMD regional significance thresholds	*75*	*100*	*550*	*150*	*55*	*150*
Threshold exceeded?	*No*	*No*	*No*	*No*	*No*	*No*

Note: ROG = reactive organic gases. Emissions were quantified using CalEEMod version 2022.1.1.17 (CAPCOA 2022).

Summer model results are presented above. Model results (summer, winter, and annual) and assumptions are provided in Appendix A of the Air Quality and Greenhouse Gas Technical Report (see Appendix C) (SWCA 2023).

As shown in Table 5.2-4, estimated unmitigated construction emissions for all pollutants are below SCAQMD regional significance thresholds.

The project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active dust areas up to three times per day, depending on weather conditions, using water to control dust emissions during demolition activities, washing vehicle wheels before they leave the site, etc. Adherence to SCAQMD Rule 403 would further reduce construction-related emissions of fugitive dust at the project site. Therefore, construction-related impacts would be *less than significant*.

OPERATION

Project operations would generate VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; water, waste, off-road, and stationary sources; and energy sources, including combustion of fuels used for space and water heating.

CalEEMod was used to calculate the maximum daily emissions associated with operation of the project in 2028 at buildout. Table 5.2-5 identifies the estimated unmitigated maximum daily operational emissions of the project in comparison to the applicable SCAQMD regional significance thresholds. See Appendix C for a description of modeling inputs.

Table 5.2-5. Unmitigated Daily Operational Emissions Summary

Operations Source Type	Unmitigated Operations Emissions Summary					
	ROG	NOx	CO	PM10	PM2.5	SO2
	Pollutant Emission (pounds per day)					
Mobile	4.98	3.17	37.0	8.40	2.17	0.09
Area	2.59	0.04	4.61	0.01	0.01	<0.005
Energy	0.17	3.02	2.54	0.23	0.23	0.02
Off-road	0.03	0.29	0.52	0.01	0.01	<0.005
Stationary	0.84	2.73	3.04	0.12	0.12	<0.005
Total	***8.61***	***9.25***	***47.71***	***8.77***	***2.54***	***0.13***
SCAQMD regional operational significance thresholds	*55*	*55*	*550*	*150*	*55*	*150*
Threshold exceeded?	*No*	*No*	*No*	*No*	*No*	*No*

Note: ROG = reactive organic gases. CalEEMod emissions were quantified using CalEEMod, version 2022.1.1.17 (CAPCOA 2022).

Summer model results are presented above for daily emissions. Model results (summer, winter, and annual) and assumptions are provided in Appendix A of the Air Quality and Greenhouse Gas Technical Report (see Appendix C) (SWCA 2023).

The values for each operational source type shown are the maximum summer daily emissions results from the CalEEMod output, assuming operational year 2028. The total values may not sum exactly due to rounding.

As shown in Table 5.2-5, maximum daily operational emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ generated by the project would not exceed the SCAQMD's significance thresholds. Therefore, operational impacts would be *less than significant*.

AQ Impact 2
The project would not result in a cumulatively considerable net increase of criteria pollutants that would exceed applicable SCAQMD thresholds during either construction or operation. Construction and operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. b)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to a net increase of criteria pollutants would be less than significant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and dust-generating activities, which could adversely affect nearby sensitive land uses. The closest sensitive land uses to the project site are off-site residential uses located between 50 to 150 feet from the project site.

A localized significance threshold (LST) analysis was performed to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of project activities. A detailed description of the localized significance threshold analysis is included in Appendix C. Table 5.2-6 shows the maximum daily on-site construction emissions generated during construction of the project in comparison to SCAQMD thresholds.

Table 5.2-6. Construction Localized Significance Thresholds Analysis

Year	NOx	CO	PM10	PM2.5
	Pounds per Day*			
2024	29.6	48.3	9.01	4.07
2025	12.0	30.4	3.39	0.85
2026	11.8	32.2	4.05	0.97
2027	11.7	38.6	4.02	0.99
SCAQMD construction LST criteria	*161*	*1,861*	*16*	*8*
Threshold exceeded?	*No*	*No*	*No*	*No*

Source: SCAQMD (2009)

* Localized significance thresholds are shown for a 5.0-acre disturbed area corresponding to a distance to a sensitive receptor of 25 meters in SRA 1. Conservatively includes on-site and off-site emissions.

As shown in Table 5.2-6, proposed construction activities would not generate emissions in excess of LSTs for the Central Los Angeles area; therefore, project construction would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards, and construction impacts related to localized emissions concentrations would be *less than significant*.

In addition to construction-related emissions, maximum daily on-site operational emissions in comparison to SCAQMD thresholds are shown in Table 5.2-7.

As shown in Table 5.2-7, proposed operations would not generate emissions in excess of site-specific LSTs; therefore, project operation would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards, and operation impacts related to localized emissions concentrations would be *less than significant*.

Table 5.2-7. Operational Localized Significance Thresholds Analysis

Year	NOx	CO	PM10	PM2.5
	Pounds per Day (On-site)*			
2028	6.08	10.71	0.37	0.37
SCAQMD operational LST criteria	*161*	*1,861*	*4*	*2*
Threshold exceeded?	*No*	*No*	*No*	*No*

Source: SCAQMD (2009)
* Localized significance thresholds are shown for a 5.0-acre disturbed area corresponding to a distance to a sensitive receptor of 25 meters in SRA 1.

TOXIC AIR CONTAMINANTS CONSTRUCTION HEALTH RISK ASSESSMENT

A construction health risk assessment (HRA) was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors resulting from project construction. Table 5.2-8 summarizes the results of the construction HRA.

As shown in Table 5.2-8, the HRA results from the unmitigated scenario show that project construction would result in a Residential Chronic Hazard Index of 0.08, which is below the 1.0 significance threshold; however, project construction would result in cancer risks exceeding the 10 in 1 million threshold. For these reasons, without mitigation, project construction could result in toxic air contaminants exposure that could be *significant*.

Table 5.2-8. Construction Health Risk Assessment Results – Unmitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	78.07	10	Potentially Significant
Chronic Hazard Index – Residential	Index Value	0.08	1.0	Less than Significant

Source: SCAQMD (2019)
Note: See Appendix C (SWCA 2023) for detailed results.

TOXIC AIR CONTAMINANTS OPERATIONAL HEALTH RISK ASSESSMENT

In addition, an operational HRA was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors as a result of operation of the project, including truck trips and off-road/stationary equipment. Table 5.2-9 summarizes the results of the operational HRA.

Table 5.2-9. Operational Health Risk Assessment Results – Unmitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	8.59	10	Less than Significant
Chronic Hazard Index – Residential	Index Value	0.007	1.0	Less than Significant

Source: SCAQMD (2019)
Note: See Appendix C (SWCA 2023) for detailed results.

As shown in Table 5.2-9, project operational activities would result in a Residential Maximum Individual Cancer Risk of 7.81 in 1 million, which would be less than the significance threshold of 10 in 1 million. Project operations would also result in a Residential Chronic Hazard Index of 0.003, which is below the 1.0 significance threshold. Thus, operational impacts associated with potential cancer risk would be *less than significant*.

LOCAL CARBON MONOXIDE CONCENTRATIONS

At the time that the SCAQMD 1993 Handbook was published, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS as a result of the steady decline in CO concentrations in the Air Basin due to turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities. The SCAQMD conducted CO modeling for

the 2003 AQMP for the four worst-case intersections in the Air Basin: 1) Wilshire Boulevard and Veteran Avenue, 2) Sunset Boulevard and Highland Avenue, 3) La Cienega Boulevard and Century Boulevard, and 4) Long Beach Boulevard and Imperial Highway. At the time the 2003 AQMP was prepared, the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. Using CO emission factors for 2002, the peak modeled CO 1-hour concentration was estimated to be 4.6 ppm at the intersection of Wilshire Boulevard and Veteran Avenue. When added to the maximum 1-hour CO concentration from 2018 through 2020 at the North Main Street monitoring station, which was 2 ppm in 2019, the 1-hour CO would be 6.6 ppm, while the CAAQS is 20 ppm.

The 2003 AQMP also projected 8-hour CO concentrations at these four intersections for 1997 and from 2002 through 2005. From years 2002 through 2005, the maximum 8-hour CO concentration was 3.8 ppm at the Sunset Boulevard and Highland Avenue intersection in 2002; the maximum 8-hour CO concentration was 3.4 ppm at the Wilshire Boulevard and Veteran Avenue in 2002. Adding the 3.8 ppm to the maximum 8-hour CO concentration from 2018through 2020 at the North Main Street monitoring station, which was 1.7 ppm in 2018, the 8-hour CO would be 5.5 ppm, while the CAAQS is 9.0 ppm. Accordingly, CO concentrations at congested intersections would not exceed the 1-hour or 8-hour CO CAAQS unless projected daily traffic would be at least over 100,000 vehicles per day. Because the project would not increase daily traffic volumes at any study intersection to more than 100,000 vehicles per day as shown in the La Brea Tar Pits Master Plan Final Transportation Assessment (Kittelson and Associates, Inc. 2022), a CO hot spot is not anticipated to occur during either construction or operation, and associated impacts would be *less than significant*.

AQ Impact 3	
The project could expose sensitive residential receptors to substantial pollutant concentrations during construction related to diesel exhaust. Construction impacts could be significant. Operation of the project would not expose sensitive residential receptors to substantial pollutant concentrations. Operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. c)	
Mitigation Measures	
AQ/mm-3.1	*To reduce the potential for health risks as a result of construction of the project, the following measures shall be implemented:* • *Prior to the start of construction activities, it shall be ensured that all 75 horsepower or greater diesel-powered equipment are powered with CARB-certified Tier 4 Interim engines, except where the County establishes that Tier 4 Interim equipment is not available.* *There are several other SCAQMD rules and regulations that serve as mitigation measures for the project construction. These rules are:* • *SCAQMD Rule 403, which requires projects to incorporate fugitive dust control measures;* • *SCAQMD Rule 1113, which limits the volatile organic compound content of architectural coating; and* • *SCAQMD Regulation XIII, New Source Review, which requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available technology control technology for new combustion sources such as boilers and water heaters).*

AQ Impact 3
Impacts Following Mitigation
With implementation of Mitigation Measure AQ/mm-3.1, diesel particulate matter would be reduced during the construction period and substantial pollutant concentrations would be less than significant, as demonstrated by the analysis conducted to calculate the effectiveness of the mitigation measures, shown in Table 5.2-10.

Mitigation Measure AQ/mm-3.1 has been identified to reduce project construction-generated DPM emissions to the extent feasible through requiring all 75 horsepower or greater diesel-powered equipment to be powered with CARB-certified Tier 4 Interim engines. The HRA results following implementation of Mitigation Measure AQ/mm-3.1 are presented in Table 5.2-10. With the implementation of Mitigation Measure AQ/mm-3.1, the estimated cancer risk during project construction would be reduced below the SCAQMD threshold of 10 in 1 million (see Table 5.2-10).

Table 5.2-10. Construction Health Risk Assessment Results – Mitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	8.59	10	Less than Significant
Chronic Hazard Index – Residential	Index Value	0.007	1.0	Less than Significant

Source: SCAQMD (2019)

Note: See Appendix C (SWCA 2023) for detailed results.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project does not include any uses identified by the SCAQMD as being associated with odors.

CONSTRUCTION

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would be temporary and would not generate a new, long-term source of odor within the project area. In addition, the project would be required to comply with 13 CCR 2449(d)(3) and 2485, which require minimizing construction equipment idling time by either shutting it off when not in use or by reducing the time of idling to no more than 5 minutes, which would further reduce the detectable odors from heavy-duty equipment exhaust. The project would also be required to comply with the SCAQMD Regulation XI, Rule 1113 – Architectural Coating, which would minimize odor impacts from reactive organic gas emissions during architectural coating. The project site is not located in an area of naturally occurring asbestos and asbestos-containing materials are a potential due to a small amount of demolition. However, any modification to the existing buildings would be required to comply with SCAQMD Rule 1403, which specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials. SCAQMD Rule 403 also contains measures that are required to be incorporated that would further reduce any odors associated with construction emissions. Therefore, impacts related to the generation of adverse odors or other emissions during project construction would be *less than significant*.

OPERATION

Operation of the project does not include any component with the potential to generate odorous emissions that could affect a substantial number of people. Therefore, impacts related to the generation of adverse odors or other emissions during project operation would be *less than significant*.

AQ Impact 4
The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people during either project construction or operation. Construction and operation impacts would be less than significant. (CEQA Checklist Appendix G Threshold III. d)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to adverse odors and other emissions would be less than significant.

5.2.6 Cumulative Impact Analysis

The geographic area affected by the project and its potential to contribute to cumulative impacts varies based on the environmental resource under consideration. For air quality, the geographic scope for the project's cumulative impact analysis encompasses the Air Basin.

Based on SCAQMD guidance, individual construction projects that exceed SCAQMD's recommended daily thresholds for project-specific impacts would cause a cumulatively considerable increase in emissions for those pollutants for which the Air Basin is in non-attainment, as discussed below (SCAQMD 2003):

> *As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR… Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.*

Therefore, consistent with the accepted and established SCAQMD cumulative impact evaluation methodologies, the project's construction or operation emissions would be considered cumulatively considerable if project-specific emissions exceed an applicable SCAQMD-recommended significance threshold.

As analyzed in Section 5.2.5, the project would be consistent with the SCAQMD's AQMP during both project construction and operation (threshold a), and the project would not result in a cumulatively considerable net increase of criteria pollutants that would exceed applicable SCAQMD thresholds during either construction or operation (threshold b). In addition, the project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people during either project construction or operation (threshold d). As such, and consistent with SCAQMD guidance, the project would not contribute significantly to cumulative impacts associated with these issues.

However, the project's toxic air contamination HRA determined the project could expose sensitive residential receptors to substantial pollutant concentrations during construction related to diesel exhaust emissions (threshold c). Given the construction and diesel exhaust emissions that could occur in the vicinity of the project concurrent with project construction, prior to mitigation, this impact could be considered both a direct impact and a contribution to cumulative impacts related to diesel emissions.

In summary, for most of the threshold issue areas for the topic of air quality, the project would not contribute significantly to cumulative impacts. However, regarding toxic air contamination, the HRA determined that the project could contribute significantly to pollutant concentrations during construction (threshold c). Prior to mitigation, this contribution would be both a significant direct impact of the project as well as a potentially significant contribution to cumulative toxic air contamination in the vicinity of the project. The project's air pollutant emissions related to diesel exhaust during construction could result in a cumulative contribution to air pollution in the region, which would be *significant*. Operation of the project would not result in a significant contribution to air pollution in the region.

Implementation of Mitigation Measure AQ/mm-3.1 would reduce project construction emissions below the SCAQMD threshold, as shown in Table 5.2-10. As such, and consistent with SCAQMD guidance, after implementation of the mitigation measure, the project's contribution to diesel emissions would be less than significant both individually and cumulatively.

AQ Impact 5 (Cumulative Impacts)
The project's air pollutant emissions related to diesel exhaust during construction could result in a cumulative contribution to air pollution in the region. Operation of the project would not result in a significant contribution to air pollution in the region.
Mitigation Measures
Implement Mitigation Measure AQ/mm-3.1.
Impacts Following Mitigation
With implementation of the identified mitigation measure to reduce project-specific impacts, the project's contribution to cumulative impacts would be less than significant.

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5.3 BIOLOGICAL RESOURCES

This section evaluates the potential for the project to impact sensitive biological resources. The analysis in this section is based on the biological resources characteristics and species potential for the project site included a review of published literature and an online database review, as well as a reconnaissance-level flora and fauna survey of the project site, conducted on March 18, 2022, and again on November 3, 2022.

5.3.1 Existing Conditions

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits, which includes the George C. Page Museum (see Figure 3-2 in Chapter 3, Project Description). Located in a highly urbanized area, the project site is surrounded by a variety of development including commercial uses, museums, residential buildings, and schools.

The project topography is primarily level, with sloped areas adjacent to the existing museum. The current landscape is dominated by a large lawn surrounding the museum and extending to the west. Paved walkways meander through the project site, with mature trees and shrubs, primarily non-native. Oil Creek is an ephemeral or intermittent creek that flows from the northeast by the parking area off South Curson Avenue to the southwest, where it appears to dissipate on-site with no downstream connectivity. It supports a community of hydrophytic and riparian vegetation near the parking lot. Because entrance to the park grounds is free, it is well used by the public.

5.3.1.1 Vegetation

Three natural vegetation communities including California sycamore–coast live oak riparian woodlands, hardstem and California bulrush marshes (California Native Plant Society [CNPS] 2023), and oak woodlands (County of Los Angeles 2011) along with four habitat types including urban-ornamental, urban-grass lawns, barren-developed, and lacustrine (California Wildlife Habitat Relationships System 2023) were identified within the project site (Figure 5.3-1).

The California sycamore–coast live oak riparian woodlands community is associated with Oil Creek and is restricted to the northwestern portion of the project site. This community constitutes approximately 0.28 acre of coverage. Hardstem and California bulrush marshes are restricted to the margins of the Lake Pit and constitute approximately 0.18 acre of the project site. While various forms of oak woodlands are recognized by the *Manual of California Vegetation* (CNPS 2023), oak woodlands were assessed based on the Los Angeles County Oak Woodland Conservation Management Plan guidance (County of Los Angeles 2014:3), as this guidance observes a more conservative approach defining an oak woodland as consisting of "...two or more oak trees of at least five inches in diameter measured at 4.5 feet above mean natural grade, with greater than 10 percent canopy cover". The oak woodlands are restricted to the northern portion of the project site and constitute approximately 1.51 acres of coverage within the project site. California sycamore–coast live oak riparian woodlands and hardstem and California bulrush marshes are CNPS California sensitive communities with an S3 (vulnerable statewide) and S3/S4 (denoting uncertainty in the rarity of the community with an accurate vulnerability assessment ranging from vulnerable statewide to apparently secure statewide) rarity rank, respectively. The CNPS (2023) ranks coast live oak woodlands and forests as S4, apparently secure statewide.

Figure 5.3-1. Vegetation communities on the project site.

While the CNPS (2023) recognizes some semi-natural communities, those recognized semi-natural communities were not present on the project site. However, these developed areas are included in the California Department of Fish and Wildlife (CDFW) California Wildlife Habitat Relationships System as urban and barren. The two forms of urban habitat are the most ubiquitous communities in the project site, and they include urban-ornamental trees and urban-grass lawns. Urban-ornamental trees encompasses approximately 5.01 acres of the project site, and urban-grass lawns covers approximately 2.16 acres of the project site. Lacustrine, covering approximately 0.98 acre, is restricted to the Lake Pit, and barren-developed, consisting of the hardscape throughout the project site, covers approximately 4.35 acres of the project site.

Project site vegetation consists of large expanses of lawn with primarily non-native planted trees and shrubs, including pines (*Pinus* spp.), gum trees (*Eucalyptus* spp.), Brazilian peppertree (*Schinus terebinthifolius*), various species of palm tree (e.g., fan, queen), London planetrees (*Platanus x hispanica*), and other trees. Native trees are present, including coast live oak (*Quercus agrifolia*), California [western] sycamore (*Platanus racemosa*), buckeye (*Aesculus californica*), and coast redwood (*Sequoia sempervirens*). Table 5.3-1 lists plants identified within the project site during reconnaissance field survey conducted by SWCA on March 18, 2022.

Table 5.3-1. Plant Species Observed at the La Brea Project Site

Scientific Name and Taxonomic Reference	Common Name
Acacia sp.*	acacia
Acer negundo L.	boxelder
Aesculus californica (Spach) Nutt.	California buckeye
Agave americana L.*	century plant
Anemopsis californica (Nutt.) Hook. & Arn.	yerba mansa
Apiastrum angustifolium Nutt.	wild celery
Artemisia californica Less.	California sagebrush
Ceratonia siliqua L.*	carob, St. John's beard
Chorisia [*Ceiba*] *speciosa* St.-Hil.*	floss silk tree
*Cycas revoluta**	sago palm
Cyperus sp.*	flatsedge
Distichlis spicata	saltgrass
Eleocharis sp.	spikerush
Eriogonum fasciculatum (Benth.) Torr. & A. Gray	interior buckwheat
Erythrina sp.*	coral tree
Eucalyptus spp.*	gum trees
Festuca arundinacea Schreb.*	reed fescue
Frangula californica (Eschsch.) A. Gray	coffeeberry
Fraxinus sp. Marsh.	ash
Heteromeles arbutifolia (Lindl.) M. Roem.	toyon
Juglans californica S. Watson	Southern California black walnut†
Muhlenbergia rigens (Benth.) Hitchc.	deergrass
Pinus sp.*	ornamental (non-native) pines

Scientific Name and Taxonomic Reference	Common Name
Platanus x *hispanica* Mill. Ex Muenchh.	London planetree
Platanus racemosa Nutt.	California (western) sycamore
Polypogon interruptus Kunth*	ditch rabbitsfoot grass
Quercus agrifolia Nee	coast live oak
Salix lasiolepis Nutt.	arroyo willow
Salvia leucantha Cav.*	Mexican bush sage
Salvia mellifera E. Greene	black sage
Salvia spathacea Greene	hummingbird sage
Salvia cultivars*	sages
Sambucus nigra L. subsp. *caerulea* (Raf.) Bolli	blue elderberry
Schinus molle L.*	Peruvian peppertree
Scirpus sp.	bulrush
Sequoia sempervirens (D. Don) Endl.	coast redwood
Syagrus romanzoffiana (Cham.) Glassman*	queen palm
Tipuana tipu (Benth.) Kuntze*	tipa, rosewood
Washingtonia robusta H. Wendl.*	Mexican fan palm
Yucca spp.*	ornamental yucca

* Non-native species and/or cultivars

† California Native Plant Society (CNPS 2022) Rare Plant Rank 4.2 = Plants of limited distribution; fairly threatened in California. Walnut groves are of concern to CDFW/CNPS, not individual or planted (landscape) trees.

Oil Creek supports a community of hydrophytic and riparian vegetation. It is dominated by mowed grasses and non-native plants, with scattered native species. Non-native plants present include reed fescue (*Festuca arundinacea*), Mexican fan palm (*Washingtonia robusta*), wild celery (*Apium graveolens*), and nutgrass (*Cyperus* sp.). Native plants found included yerba mansa (*Anemopsis californica*), spikerush (*Eleocharis* sp.), rush (*Scirpus* sp.), and saltgrass (*Distichlis spicata*). Non-native London planetrees form the overstory in the southwestern portion. The northeastern extent is planted with California native plants between the southwest corner of the parking area and the footbridge over Oil Creek, signed as the Richard Simun Pleistocene Garden. A tree overstory primarily composed of arroyo willows (*Salix lasiolepis*) with California [western] sycamore is present with little understory. Along the border and in openings, scattered native trees and perennials include walnut (*Juglans* sp.), hummingbird sage (*Salvia spathacea*), toyon (*Heteromeles arbutifolia*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), coffeeberry (*Frangula californica*), box elder (*Acer negundo*), and sage species (*Salvia* spp.).

The Lake Pit supports sparse emergent herbaceous vegetation, as well as a narrow band of riparian vegetation along the margins. The emergent vegetation likely consists of bulrush (*Schoenoplectus* sp.). The bulrush can also be observed along the edges of the Lake Pit along with what appears to be cattails (*Typha* sp.). Exclusionary fencing and a lack of identifiable diagnostic reproductive parts made identification to species unfeasible during the reconnaissance survey.

Approximately 24 trees are located around Hancock Park to honor those killed during the September 11, 2001, terrorist attacks. There is a commemorative plaque near the northwest end of the parking lot, although the individual trees do not appear to be labeled. Depending on the final project design, the trees and plaques may be relocated and/or reconfigured within the park's 13 acres, while still maintaining recognition of the memorial.

5.3.1.2 Wildlife

The project site provides limited wildlife habitat due to the combination of high levels of human activity and the lack of surface water.

Birds were the only wildlife encountered (seen, heard, and/or flying over the site) during the field survey conducted on March 18, 2022, and all were species typical of urban areas: Anna's hummingbird (*Calypte anna*); American crow (*Corvus brachyrhynchos*); house finch (*Haemorhous mexicanus*); dark-eyed junco (*Junco hyemalis*); bushtit (*Psaltriparus minimus*); black phoebe (*Sayornis nigricans*); and yellow-rumped warbler (*Setophaga coronata*). No records of birds in or immediately adjacent to the park are recorded in the California Natural Diversity Database (CNDDB). Over the last 10 years, citizen scientists and professional scientists on staff at the Natural History Museum have reported over 90 native bird species (and several non-native species) flying over, foraging, or otherwise detected in and around Hancock Park.

No amphibians, reptiles, mammals, or indication of site use by wildlife (burrows, tracks, scat, etc.) were found during the March 18 field survey. Common urban wildlife expected to occur includes eastern fox squirrel (*Sciurus niger*), desert cottontail rabbit (*Sylvilagus audobonii*), mice, rats, and lizards. It is assumed that the hydrocarbon content in Oil Creek is too high for wildlife use; no wildlife was seen in or near this drainage. Table 5.3-2 lists the bird species observed by SWCA at the project site (2022).

Table 5.3-2. Bird Species Observed at the La Brea Project Site

Scientific Name	Common Name
Aphelocoma californica	California scrub-jay
Buteo jamaicensis	red-tailed hawk
Calypte anna	Anna's hummingbird
*Columba livia**	rock dove
Haemorhous mexicanus	house finch
Corvus brachyrhynchos	American crow
Junco hyemalis	dark-eyed junco
Psaltriparus minimus	bushtit
*Passer domesticus**	European house sparrow
Mimus polyglottos	northern mockingbird
Sayornis nigricans	black phoebe
Setophaga coronata	yellow-rumped warbler
*Sturnus vulgaris**	European starling
Zenaida macroura	mourning dove

* Non-native species

NESTING BIRD HABITAT

Suitable habitat for nesting birds is present in many of the mature trees on the project site and in the native plant area of Oil Creek. The highest nesting potential is in areas away from human activity, in trees that have not been thinned or heavily pruned. No incidental sightings of nesting activity were noted during the reconnaissance-level survey conducted by SWCA on March 18, 2022, although a nesting bird survey was not completed at this stage of the project. The reconnaissance survey was conducted within

the relatively early portion of the nesting bird season (February 1 through September 15); however, absence of nesting activity observations does not preclude future nest development within the project site.

SPECIAL-STATUS SPECIES

A query of the ~~California Natural Diversity Database (~~CNDDB~~)~~ for a 1-mile radius of the project site yielded three recent records (within 20 years) of special-status species: Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*); coastal California gnatcatcher (*Polioptila californica ssp. californica*); and Nevin's barberry (*Berberis nevinii*) (CDFW 2022a). The online community science database iNaturalist (2022) reports observations of adult monarch butterflies. No birds listed as sensitive by the Los Angeles Audubon Society (2009) or other sensitive wildlife or plants were observed during the field survey conducted for the project. Table 5.3-3 and Table 5.3-4 summarize these results. The sections following the table provide an assessment of the potential for the six ~~three~~ species that were identified in the records search within the 1-mile radius of the site.

Table 5.3-3. Special-Status Plants Reported in Vicinity of the La Brea Tar Pits Project Site

Common Name ***Scientific Name***	**Status**	**Lifeform**	**Blooming Period**	**Habitat**	**Elevation (feet)**	**Potential to Occur**
Nevin's barberry *Berberis nevinii*	CRPR 1B.1, CE, FE	Perennial evergreen shrub	(February) March–June	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; sandy or gravelly.	225–2,705	**Absent.** Evergreen shrub discernible year-round deemed absent during March 2022 survey. Calflora report from 2022 and CNDDB records from 2010 are in Griffith Park (over 4 miles northeast of the project site) and noted as probably planted. This species is widely available in the landscape trade and frequently planted.

Note: Records within 1-mile radius of project site (all within U.S. Geological Survey 7.5-minute Hollywood quadrangle) and within previous 20 years (CNDDB [CDFW 2022a]; iNaturalist 2022).

Status Definitions: CRPR 1B = California Rare Plant Rank. Plants rare, threatened, or endangered in California and elsewhere; Rarity Rank 0.1 = Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat); CE = State of California listed as Endangered; FE = Federally listed as Endangered (CDFW 2022b).

Table 5.3-4. Special-Status Fauna Reported in Vicinity of the La Brea Tar Pits Project Site

Common Name ***Scientific Name***	**Status**	**Habitat**	**Potential to Occur**
Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	WL	Resident in Southern California; confined to moderate to steep rocky slopes with a mix of low shrubs, grasses, forbs, and open ground. Highly correlated with coastal sage scrub and dry chaparral.	**Unlikely.** Potentially suitable coastal sage scrub and rocky habitat is not present. No eBird reports are in the project vicinity (all are from the Hollywood Hills north of the site). CNDDB report is from 2014, about 0.25 mile northwest of Mulholland Dam near Pilgrimage Bridge, approximately 4 miles east-northeast of project site.
Coastal California gnatcatcher *Polioptila californica* ssp. *californica*	FT, SSC	Obligate, permanent resident of coastal sage scrub below 2,500 feet in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	**Unlikely.** Suitable coastal sage scrub nesting habitat is not present on-site. Current (2022) eBird and CNDDB reports are from 2014 in Kenneth Hahn State Recreation Area (KHSRA), north end of Baldwin Hills about 3.5 miles southwest of the project site. KHSRA supports suitable coastal sage habitat dominated by California coastal sagebrush (*Artemisia californica*; Google Earth street view March, 2022, 34.012722°, −118.367963°). eBird does not track the subspecies; however, given geographic distributions, species observed at KHSRA can be assumed to be coastal California gnatcatcher.

Common Name ***Scientific Name***	**Status**	**Habitat**	**Potential to Occur**
Monarch butterfly *Danaus plexippus*	FC – Wherever found	Overwintering roost sites are typically located in wind-protected tree groves of gum trees (*Eucalyptus* spp.), Monterey pine (*Pinus radiata*), and/or cypress trees (*Hesperocyparis* spp.) where nectar and water sources are nearby and within about 1.5 miles of the ocean. Egg laying is known to occur on obligate milkweed host plant (primarily *Asclepias* spp.).	**Absent (overwintering) – Low (foraging and egg laying).** No overwintering habitat is present on-site and site is too far inland (Western Monarch Count 2022); however, individual monarchs have been seen in the area. iNaturalist (2022) reports 31 observations of adult monarch butterflies in Hancock Park, inclusive of the project area, between 2014 and 2019, including results of the 2017 La Brea Wildlife Survey (iNaturalist 2017). iNaturalist reports seven observations of *Asclepias curassavica* (tropical milkweed) within Hancock Park including observations from 2022, which is known to host monarch larvae and provide nectar for adults.
Yuma myotis *Myotis yumanensis*	G5 S4 ICUN:LC BLM:S	Common and widespread across California, generally below 8,000 feet. Preferred habitats include open forests and woodlands with sources of water providing foraging habitat. Known to roost in warm and dark sites in buildings, mines, caves, or natural crevices. Generalist invertebrate forager including moths, midges, flies, termites, ants, homopterans and caddisflies.	**Absent (roosting) – Low (foraging)** No roosting habitat is present on-site and site presents limited opportunities for foraging. The only known occurrence is documented from Natural History Museum of Los Angeles article published October 9, 2014 (Foundation 2014).
Hoary bat *Lasiurus cinereus*	G3G4 S4 ICUN:LC	Common and widespread across North America, generally below 13,200 feet. Preferred habitats for bearing young include forests and woodlands with medium to large-sized trees. Primarily feeds on moths, although various flying insects are taken.	**Absent (roosting) – Low (foraging)** No roosting habitat is present on-site and site presents limited opportunities for foraging. The only known occurrence is documented from Miguel Ordeñana, Natural History Museum of Los Angeles staff biologist, dated February 3, 2024 (Foundation 2024).

Note: Records within 1-mile radius of project site (all within U.S. Geological Survey 7.5-minute Hollywood quadrangle) and within previous 20 years (CNDDB [CDFW 2022a]; iNaturalist 2022).

Status Definitions: FC = Federal candidate; FT = Federally listed as Threatened; SSC = Species of Special Concern (CDFW); WL = Watch List (North American Bird Conservation Initiative); IUCN:LC = International Union for Conservation of Nature: Least Concern; BLM:S = Bureau of Land Management: Sensitive; S4 = State Ranking - Vulnerable (CDFW); G3 = Global Ranking – Vulnerable (CDFW); G4 = Global Ranking - Apparently Secure (CDFW); G5 = Global Ranking - Secure (CDFW) (CDFW 2022c).

SOUTHERN CALIFORNIA RUFOUS-CROWNED SPARROW

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) is a CDFW Species of Special Concern. It frequents relatively steep, often rocky hillsides with grass and forb patches and is resident in Southern California coastal sage scrub and mixed chaparral. It is unlikely to occur on the project site due to lack of suitable habitat.

COASTAL CALIFORNIA GNATCATCHER

Coastal California gnatcatcher (*Polioptila californica* ssp. *californica*) is a federally threatened species and is a CDFW Species of Special Concern. It is a resident of scrub-dominated plant communities where it is strongly associated with sage scrub in its various successional stages. Suitable habitat is not present on the project site for this bird.

NEVIN'S BARBERRY

Nevin's barberry (*Berberis nevinii*) is a plant that is both state- and federally listed as endangered. Wild plants occur on steep north-facing slopes and low-grade sandy washes in chaparral, cismontane woodland, and coastal and riparian scrub communities. ~~Because this plant is available at plant nurseries and widely planted, it can be difficult to distinguish natural from introduced plants. This species would have been observable and was not found on the project site during the site visit of March 18, 2022.~~ This plant is available at plant nurseries and widely planted. Planted specimens are included in the landscape, but no natural occurrences of Nevin's barberry were found at the project site during the site visit of March 18, 2022, and are not expected to occur.

MONARCH BUTTERFLY

The monarch butterfly is a candidate species for listing under the federal Endangered Species Act (ESA), which extends to cover the species "wherever found", including overwintering congregations and individuals documented foraging for nectar and eggs and larvae documented on host plants. The CDFW lists the monarch as a Species of Greatest Conservation Need in the State Wildlife Action Plan (CDFW 2015). Of highest conservation concern are monarch overwintering aggregations, which are documented, mapped, and monitored annually.

Adult monarch females lay eggs on their obligate milkweed host plant (primarily *Asclepias* spp.), which developing monarch larvae use as a primary food source and to sequester cardenolides as defense from predators. In California, as noted by CDFW, there are two distinct groups of monarch butterflies: those engaging in long-distance migration which use the California coastal groves as overwintering habitat, and resident monarchs that breed year-round and do not engage in migration. Resident monarchs are thought to use the abundance of non-native tropical milkweed (*Asclepias curassavica*) as an inducement for winter breeding where historically they only engaged in breeding activity in selective season conditions. Unlike native milkweed hosts plants, tropical milkweed is an evergreen species that does not die back in winter months and can provide a refuge for *Ophyrocystis elektroscirra* (Oe), a protozoan parasite with known detrimental effects on monarch vitality and reproduction (CDFW 2021).

Adult migratory monarchs form overwintering aggregations in large mature tree groves, often non-native gum (*Eucalyptus* spp.) trees as well as native Monterey and Sargent cypress (*Hesperocyparis* [*Cupressus*] *macrocarpa*; *H. sargentii*), Monterey pine (*Pinus radiata*), and, less commonly, other native trees including California [western] sycamore and coast redwood.

Suitable overwintering sites must contain several specific elements which together form the correct microclimate conditions. According to the Xerces Society for Invertebrate Conservation (2022), the majority of overwintering sites are at low elevations (less than 200–300 feet), within about 1.5 miles of the ocean, and contain specific microclimate elements such as moderate temperatures, wind protection, dappled shade, high humidity, available fresh water, and fall–winter blooming nectar sources, surrounded or partially enclosed by large tree groves or windrows.

iNaturalist records indicate that non-native tropical milkweed is likely present within the project site; however, this species was not observed during the reconnaissance-level survey. Habitats suitable for supporting foraging and breeding of resident monarchs are possibly present in low density at the project site, but habitats suitable for supporting overwintering monarchs are absent from the project site. Additionally, overwintering aggregations characteristically occur within about 1.5 miles of the coast. The project site is approximately 9 miles northeast of the coast. No monarchs were observed during the site survey.

BAT SPECIES

Initial background database reviews did not indicate known bat presence at, or within the vicinity of the project site and no CNDDB records less than 30 years old were found within 5-miles of the site. Additionally, during the initial reconnaissance survey on March 18, 2022, no species of bats nor obvious signs indicating potential bat roosts, were detected within the project area. The project site includes open water features which may present suitable foraging habitat and nearby trees which may provide suitable roosting habitat for some bat species.

Between 2014 and 2024, Natural History Museum staff biologists have documented the presence of five bat species in the park, but their abundance and persistence are unknown. The following five species of bats have been identified: big brown bat (*Eptesicus fuscus*), canyon bat (*Parastrellus hesperus*), Mexican free-tailed bat (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*), and hoary bat (*Lasiurus cinereus*) (Foundation 2014; Foundation 2024). Based on the habitat requirements and habits of these species, it is likely that these bats are transient foragers of the project area.

None of these species are listed under the CESA or the ESA and of the five species discussed, only the Yuma myotis and the hoary bat occur on the CDFW Special Animals List. Yuma myotis has a NatureServe Global rank of G5 (Secure; at very low risk of extinction due extensive range, abundant populations or occurrences, and little to no concern from declines or threats) and State Rank of S4 (Apparently secure; uncommon but not rare; no immediate conservation concern). The hoary bat has a NatureServe Global rank of between G3 (Vulnerable; At moderate risk of extinction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors) and G4 (Apparently secure; at fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors) and State Rank of S4 (Apparently secure; uncommon but not rare; no immediate conservation concern).

5.3.1.3 Aquatic Resources

Two aquatic features were identified within the project site: Oil Creek and the Lake Pit (Figure 5.3-2). Oil Creek is a historic feature which, as early as 1941 (based on historical aerial imagery), conveyed flow from approximately the intersection of 6th Street and South Curson Avenue southwest to the intersection of Wilshire Boulevard and South Ogden Drive. Historical imagery shows a well-defined channel supporting possible riparian vegetation based on distribution patterns suggesting an intermittent or wetter hydrologic regime. In its current state, Oil Creek appears to receive its primary hydrologic input source from groundwater; it also receives hydrologic inputs from precipitation and irrigation system runoff. Oil Creek appears to dissipate on-site. Dense vegetation and heavy leaf litter exist in the northeastern portion of the creek; Oil Creek supports a robust community of hydrophytic vegetation. The density of hydrophytic vegetation, and hydrology indicators such as water-stained leaves, suggest that Oil Creek may support wetlands.

The Lake Pit has existed in its current or similar state since the late 1800s, following the abandonment of asphalt mining operations and the subsequent accumulation of groundwater and rainwater above asphalt. The Lake Pit supports aquatic vegetation along its margins; however, vegetation management in the form of weeding can be observed from the edge of the aquatic vegetation to the exclusionary fencing. Any potential wetlands supported by the Lake Pit would likely coincide with the limits of the aquatic vegetation.

Figure 5.3-2. Aquatic resources on the project site.

The reconnaissance surveys suggest there may be approximately 1.5 acres of regulated aquatic resources within the project site, of which 0.3 acre is associated with Oil Creek, and 1.2 acres are associated with the Lake Pit. However, a formal aquatic resources delineation was not conducted. Potential jurisdictional limits were assessed based on vegetation composition and surface hydrology only. Based on vegetation compositions, both features may support marginal wetlands, however soils were not evaluated for hydric indicators to make this determination. Oil Creek has been disturbed and manipulated over time. It is partially paved where the parking lot is located and is channelized with pavers near its terminus. It is dominated by non-native grasses in parts and planted with native riparian vegetation in other parts. The drainage is a relic of a natural stream which, in its previous, natural state, would be considered a regulated aquatic resource. However, the current regulatory status of the drainage cannot accurately be determined without a jurisdictional analysis including a determination of hydric soils. Based on the site surveys conducted to support the preparation of this analysis, it is anticipated that Oil Creek and the Lake Pit may be subject to the jurisdiction of the California Regional Water Quality Control Board, and CDFW jurisdictional limits such as the streambed of Oil Creek, the ordinary high-water mark of the Lake Pit, and their associated riparian habitat. Oil Creek may also be regulated by the U.S. Army Corps of Engineers (USACE) under the Clean Water Act (CWA).

5.3.2 Regulatory Setting

The following section provides the federal, state, and local regulations pertaining to the project as they relate to biological resources. It is noted here that there are no federal, state, or local designated conservation areas on or directly adjacent to the project site. The project site is not within an identified wildlife corridor, there are no U.S. Fish and Wildlife Service (USFWS)-designated critical habitats within a 10-mile radius, no Habitat Conservation Plans, and no CDFW Natural Community Conservation Plans in the project vicinity. Beyond the project site itself, there are no large open-space areas or parks contiguous or adjacent to the project site. The Kenneth Hahn State Recreation Area is located approximately 5 miles south of the site and Griffith Park, a City of Los Angeles park, is about 5.5 miles to the northeast. Griffith Park is the nearest area to La Brea Tar Pits that is broadly considered a conservation area, as it is designated as a County of Los Angeles Significant Ecological Area (SEA).

5.3.2.1 Federal

ENDANGERED SPECIES ACT

The U.S. Congress passed the ESA in 1973 to protect endangered species and species threatened with extinction (federally listed species). The ESA operates in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

Section 9 of the ESA prohibits the “take” of endangered or threatened wildlife species. The legal definition of “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 United States Code 1532 [19]). “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] 17.3). “Harassment” is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR 17.3). Actions that result in take can result in civil or criminal penalties.

The USFWS is authorized to issue permits under Sections 7 and 10 of the ESA. Section 7 mandates that all federal agencies consult with the USFWS for terrestrial species and/or National Marine Fisheries Service for marine species to ensure that federal agency actions do not jeopardize the continued existence of a listed species or adversely modify critical habitat for listed species. Any anticipated adverse effects

require preparation of a biological assessment to determine potential effects of the project on listed species and critical habitat. If the project adversely affects a listed species or its habitat, the USFWS or National Marine Fisheries Service prepares a Biological Opinion. The Biological Opinion may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat, including "take" limits.

The ESA defines critical habitat as habitat deemed essential to the survival of a federally listed species. The ESA requires the federal government to designate "critical habitat" for any species it lists under the ESA. Under Section 7, all federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat. These complementary requirements apply only to federal agency actions, and the latter only to specifically designated habitat. A critical habitat designation does not set up a preserve or refuge, and applies only when federal funding, permits, or projects are involved (i.e., when there is a federal nexus). Critical habitat requirements do not apply to activities on private land that do not involve a federal nexus.

Section 10 of the ESA includes provisions to authorize take that is incidental to, but not the purpose of, activities that are otherwise lawful. Under Section 10(a)(1)(B), the USFWS may issue permits (incidental take permits) for take of ESA-listed species if the take is incidental and does not jeopardize the survival and recovery of the species. To obtain an incidental take permit, an applicant must submit a habitat conservation plan outlining steps to minimize and mitigate permitted take impacts to listed species.

MIGRATORY BIRD TREATY ACT

The federal Migratory Bird Treaty Act (MBTA) prohibits any person, unless permitted by regulations, to:

> …pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatsoever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention … for the protection of migratory birds ... or any part, nest, or egg of any such bird. (16 United States Code 703)

The list of migratory birds includes nearly all bird species native to the United States. The statute was extended in 1974 to include parts of birds, as well as eggs and nests. The Migratory Bird Treaty Reform Act of 2004 further defined species protected under the MBTA and excluded all non-native species. Thus, it is illegal under the MBTA to directly kill or destroy a nest of nearly any native bird species.

CLEAN WATER ACT

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972, when the Act with amendments became known as the "Clean Water Act".

Section 404 of the CWA requires authorization from the Secretary of the Army, acting through the USACE, for the discharge of dredged or fill material into all waters of the United States, including wetlands. Discharges of fill material generally include: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection or reclamation devices such as riprap, groins, seawalls, breakwaters, and revetments; beach nourishment; levees; fill for intake and

outfall pipes and subaqueous utility lines; fill associated with the creation of ponds; and any other work involving the discharge of fill or dredged material. A USACE permit is required whether the work is permanent or temporary. Examples of temporary discharges include dewatering of dredged material prior to final disposal, and temporary fills for access roadways, cofferdams, and storage and work areas.

Section 401 of the CWA requires every applicant for a federal permit or license for any activity which may result in a discharge to a water body to obtain State Water Quality Certification that the proposed activity would comply with state water quality standards.

Requirements of the CWA are reflected in the environmental impact analysis contained in this section, specifically in response to threshold questions b) and c).

5.3.2.2 State

CALIFORNIA ENDANGERED SPECIES ACT

The CDFW administers the California Endangered Species Act (CESA), which prohibits the "taking" of listed species except as otherwise provided in state law. Section 86 of the California Fish and Game Code (CFGC) defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Under certain circumstances, the CESA applies these take prohibitions to species petitioned for listing (state candidates). Pursuant to the requirements of the CESA, state lead agencies (as defined under CEQA Public Resources Code Section 21067) are required to consult with the CDFW to ensure that any action or project is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat. Additionally, the CDFW encourages informal consultation on any proposed project that may impact a candidate species.
The CESA requires the CDFW to maintain a list of threatened and endangered species. The CDFW also maintains a list of candidates for listing under the CESA, and of species of special concern (or watch list species).

CALIFORNIA FISH AND ~~F~~ GAME CODE

The CFGC is written in 13 Divisions, which establish the basis of fish, wildlife, and native plant protections and management in the state. Section 3511 includes provisions to protect Fully Protected species, such as: 1) prohibiting take or possession "at any time" of the species listed in the statute, with few exceptions; 2) stating that "no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to "take" the species; and 3) stating that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession.
The CDFW is unable to authorize incidental take of "fully protected" species when activities are proposed in areas inhabited by those species. CFGC Sections 3503 and 3503.5 state that it is unlawful to take, possess, or destroy the nest or eggs of any bird, with occasional exceptions. In addition, Section 3513 states that it is unlawful to take or possess any migratory bird as designated in the MBTA or any part of such migratory birds except as provided by rules and regulations under provisions of the MBTA.
The CDFW also manages the California Native Plant Protection Act of 1977 (CFGC Section 1900, et seq.), which was enacted to identify, designate, and protect rare plants. In accordance with CDFW guidelines, CNPS 1B list plants are considered "rare" under the CESA and are evaluated in CEQA documents.

OTHER SECTIONS OF THE CALIFORNIA FISH AND GAME CODE

Fully Protected species may not be taken or possessed without a permit from the California Fish and Game Commission and/or CDFW. Section 5050 lists protected amphibians and reptiles, and Section 3515

prohibits take of fully protected fish species. Eggs and nests of Fully Protected birds are under Section 3511; migratory nongame birds are protected under Section 3800; and mammals are protected under Section 4700. Except for take related to scientific research, all take of Fully Protected species is prohibited.

CALIFORNIA FISH AND GAME CODE SECTION 1602

CFGC Section 1602 requires any person, state or local government agency, or public utility proposing a project that may affect a river, stream, or lake to notify the CDFW before beginning the project. If activities would result in the diversion or obstruction of the natural flow of a stream, substantially alter its bed, channel, or bank, impact riparian vegetation, or adversely affect existing fish and wildlife resources, a Streambed Alteration Agreement is required. A Streambed Alteration Agreement lists the CDFW conditions of approval relative to the proposed project and serves as an agreement between an applicant and the CDFW for a term of not more than 5 years (for standard agreements) for the performance of activities subject to this section. Implementation of the proposed project may require a Section 1602 Streambed Alteration Agreement for any impacts within the banks of drainages and extending to the outer edge of riparian vegetation (whichever is greater) if these areas are determined to be jurisdictional by CDFW.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) states that the California State Water Quality Control Board has the authority over State water rights and water quality policy and procedures. The Porter-Cologne Act establishes nine Regional Waters Quality Control Boards which regulate all discharge of waste to land through the Waste Discharge Requirement (WDR) Program. Waste discharge requirements adopted under the WDR Program protect surface water by either prohibiting discharge of a pollutant to waters of the U.S. or prescribing requirements for discharge to surface waters that are not waters of the U.S., and they protect groundwater by prescribing waste containment, treatment, and control requirements. The WDR Program is a mandated program that regulates the discharge of municipal, industrial, commercial, and other wastes to land that would affect or would have the potential to affect groundwater.

Requirements of the Porter-Cologne Act are reflected in the environmental impact analysis contained in this section, specifically in response to threshold questions b) and c).

5.3.2.3 County of Los Angeles

COUNTY OF LOS ANGELES 2035 GENERAL PLAN CONSERVATION AND NATURAL RESOURCES ELEMENT

The County's 2035 General Plan Conservation and Natural Resources Element guides the long-term conservation of natural resources and preservation of available open space areas. The Conservation and Natural Resources Element addresses the following conservation areas: open space resources; biological resources; local water resources; agricultural resources; mineral and energy resources; scenic resources; and historic, cultural, and paleontological resources. Applicable goals and policies pertaining to open space resources and biological resources are included below.

Goal C/NR 1: Open space areas that meet the diverse needs of Los Angeles County.

> ***Policy C/NR 1.1***: Implement programs and policies that enforce the responsible stewardship and preservation of dedicated open space areas.

> ***Policy C/NR 1.2:*** Protect and conserve natural resources, natural areas, and available open spaces
>
> ***Policy C/NR 1.5:*** Provide and improve access to dedicated open space and natural areas for all users that considers sensitive biological resources.

Goal C/NR 3: Permanent, sustainable preservation of genetically and physically diverse biological resources and ecological systems including: habitat linkages, forests, coastal zone, riparian habitats, streambeds, wetlands, woodlands, alpine habitat, chaparral, shrublands, and SEAs.

> ***Policy C/NR 3.1***: Conserve and enhance the ecological function of diverse natural habitats and biological resources.
>
> ***Policy C/NR 3.10***: Require environmentally superior mitigation for unavoidable impacts on biologically sensitive areas, and permanently preserve mitigation sites.

Goal C/NR 4: Conserved and sustainably managed woodlands.

> ***Policy C/NR 4.1***: Preserve and restore oak woodlands and other native woodlands that are conserved in perpetuity with a goal of no net loss of existing woodlands.

COUNTY OF LOS ANGELES OAK TREE ORDINANCE

The County of Los Angeles Oak Tree Ordinance protects all oak trees, whether native (indigenous) or not (Title 22 Division 8 Chapter 22.174). Under this ordinance, oak trees 8 inches or more in diameter measured at 4.5 feet above mean natural grade (i.e., diameter at breast height [dbh]), or in the case of oaks with multiple trunks, a combined diameter of 12 inches dbh or more of the two largest trunks, are protected. A permit is required to cut, destroy, remove, relocate, inflict damage, or encroach into the protected zone. The protected zone is 15 feet from the trunk or 5 feet beyond the dripline, whichever distance is greater (Los Angeles County Planning and Zoning Code [Title 22]). Exemptions to the ordinance include cases of emergency caused by an oak tree being in a hazardous or dangerous condition, or being irretrievably damaged or destroyed through flood, fire, wind, or lightning, as determined after visual inspection by a licensed forester with the County.

There are 13 native oak trees on-site, all over 8 inches dbh, which meets the size criteria for protection under the County ordinance. Because the project is a County-led project, it is exempt from obtaining a permit under the ordinance; nevertheless, the project must be consistent with County policies and ordinances despite this exemption. If development of the project would result in encroachment or removal of oak trees, coordination with the County's Department of Regional Planning would be required prior to commencement of any work on-site. Any encroachment or removal requests must be reviewed by the County's Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site.

COUNTY OF LOS ANGELES SIGNIFICANT ECOLOGICAL AREAS

The County's SEA Program began in 1980 with the adoption of SEAs as Special Management Areas in the Los Angeles County General Plan. The objective of the SEA Program is to preserve the genetic and physical ecological diversity of Los Angeles County by designing biological resource areas capable of sustaining themselves into the future. The SEA designation is given to land that contains irreplaceable biological resources and includes undisturbed or lightly disturbed habitats that support valuable and threatened species and linkages and corridors to promote species movement.

The project site not within a County SEA. Griffith Park is the closest SEA, located approximately 5.5 miles to the northeast of the subject property.

5.3.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, the biological resource policy and regulatory documents of the City of Los Angeles that are most relevant to the project are provided herein for informational purposes.

CITY OF LOS ANGELES GENERAL PLAN CONSERVATION ELEMENT

The Conservation Element of the 2001 City of Los Angeles General Plan includes two objectives related to biological resources, below.

Section 6: Endangered Species. Objective: protect and promote the restoration, to the greatest extent practical, of sensitive plant and animal species and their habitats.

> ***Policy 1:*** continue to require evaluation, avoidance, and minimization of potential significant impacts, as well as mitigation of unavoidable significant impacts on sensitive animal and plant species and their habitats and habitat corridors relative to land development activities.
>
> ***Policy 2:*** continue to administer City-owned and managed properties so as to protect and/or enhance the survival of sensitive plant and animal species to the greatest practical extent.
>
> ***Policy 3***: continue to support legislation that encourages and facilitates protection of endangered, threatened, sensitive, and rare species and their habitats and habitat corridors.

Section 12: Habitats. Objective: preserve, protect, restore and enhance natural plant and wildlife diversity, habitats, corridors and linkages so as to enable the healthy propagation and survival of native species, especially those species that are endangered, sensitive, threatened or species of special concern.

> ***Policy 1***: continue to identify significant habitat areas, corridors, and buffers and to take measures to protect, enhance, and/or restore them.
>
> ***Policy 2***: continue to protect, restore, and/or enhance habitat areas, linkages, and corridor segments, to the greatest extent practical, within City-owned or -managed sites.
>
> ***Policy 3***: continue to work cooperatively with other agencies and entities in protecting local habitats and endangered, threatened, sensitive, and rare species.
>
> ***Policy 4:*** continue to support legislation that encourages and facilitates protection of local native plant and animal habitats.

WILSHIRE COMMUNITY PLAN

The project site is located within the Wilshire Community Plan area, which was approved by the City Council on September 19, 2001. The majority of the Wilshire Community Plan area consists of gently sloping plains and includes about 8,954 acres (about 14 square miles). The Wilshire Community Plan includes policies to protect the existing open spaces areas within the planning area. This plan does not include other specific policies related to biological resources or tree-removal activities. The plan includes community design and landscaping guidelines which provide guidance for the selection of street trees for new placement as well as requirements for planting and replacing trees in proximity to streetlights.

5.3.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to biological resources if it would:

a) have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;

b) have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;

c) have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d) interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.3.4 Impact Assessment Methodology

The methodology used to determine the biological resources characteristics and species potential for the project site included a review of published literature and an online database review, as well as a reconnaissance-level flora and fauna survey of the project site, conducted on March 18, 2022, and again on November 3, 2022. The impact assessment below is based on the results of the literature review and site-specific surveys.

5.3.5 Environmental Impact Analysis

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

One candidate species for listing under the ESA ~~federal Endangered Species Act~~ —monarch butterfly— has been recorded on the project site in iNaturalist between 2014 and 2023 ~~2019~~, including results as part of the 2017 La Brea Wildlife Survey (iNaturalist 2017). ~~No~~ The potential for other candidate, sensitive, or special-status species of flora or fauna ~~are expected~~ to occur at the project site is low or unlikely. As such, direct and indirect impacts to other sensitive wildlife species during construction (from temporary noise, dust, construction personnel, and equipment) and project operation are not anticipated because no other special-status species are present or expected to occur at the project site.

Monarch butterflies are present in Southern California year-round and may be seen in a variety of habitats where nectar plants are present, in both urban and rural areas. The project site does not offer the required elements for overwintering of migratory western monarchs, such as preferred roost trees, wind protection, or proximity to the ocean (the site is approximately 9 miles from the ocean) and as such, the project site

does not support overwintering aggregations of monarch butterflies. Therefore, no direct adverse impacts to overwintering monarch butterflies during project construction or operation are anticipated.

While not recorded during field surveys in March and November 2022, presence of non-native tropical milkweed (*A. curassavica*), a known nectar source and host plant and potentially harmful ecological trap for both resident and migratory monarchs, is documented as likely to occur on-site.

Bats potentially use the project area for foraging but are not known to roost in the project area and current proposed construction activities would have little to no direct impact on bat species. Potential indirect impacts to existing bat populations may be sustained from changes to the existing habitat including those related to the removal of vegetation and changes to lighting. However, no significant change in the amount of lighting from within buildings is proposed. The new museum building would close at 5 pm, as the Page Museum closes now. Thus, no change in the timing of building illuminations would occur. In addition, only warm-white toned LEDs would be incorporated into lighting regimes during the nighttime (between dawn and dusk). Light shields that limit the light flux only to required areas and thereby avoiding as much light trespass into potential transitory pathways of the bats may be used. Lighting in areas of highest sensitivity where bats are most likely to occur (i.e., any ponding or surface water and areas of dense canopy) would be limited. For these reasons, impacts created by the proposed project would not result in a demonstrable change from existing conditions and would not be significant.

CONSTRUCTION

The monarch butterfly is a federal candidate species and is not listed or proposed for listing at this time. Consultation with USFWS is not required for candidate species such as the monarch, but implementation of conservation efforts for these species is encouraged. If monarch butterfly eggs and larvae are present on existing milkweed and the milkweed is removed during construction, direct impacts to those individual eggs and larvae of the species could occur. Removal of milkweed would also remove habitat for the species. Therefore, project construction could result in adverse effects, either directly or through habitat modifications, on the federal candidate monarch butterfly. Impacts during project construction could be *significant.*

OPERATION

Given the project site does not support overwintering aggregations of monarch butterflies and ~~no~~ the potential for other candidate, sensitive, or special-status species of flora or fauna is low or unlikely ~~are expected~~ to occur at the project site, operation of the project would not result in impacts, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Impacts during project operation would be *less than significant*.

BIO Impact 1	
The project could result in in significant effects during the construction process on one species, the federal candidate monarch butterfly, either directly or through habitat modifications. Impacts during project construction could be significant. During project operation, the project would not result in significant effects, either directly or through habitat modifications, on any identified candidate, sensitive, or special-status species. Impacts during project operation would be less than significant. (CEQA Checklist Appendix G Threshold IV. a)	
Mitigation Measures	
BIO/mm-1.1	*To protect the federal candidate monarch butterfly, which is a candidate species for listing under the federal Endangered Species Act, the following measures (BIO/mm-1.1a or BIO/mm-1.1b) shall be implemented:* *a. Full avoidance of impacting any milkweed populations on-site with observable monarch eggs and larvae. After obtaining permits and prior to construction, all individual milkweed plants will be surveyed. All individual plants found with eggs or larvae will be flagged for re-survey and avoidance. Individual plants without eggs and larvae will be removed. Flagged plants will be re-surveyed and removed when no eggs or larvae are present. All tropical milkweed will be replaced with native narrowleaf milkweed (*Asclepias fascicularis*) following construction.* *OR* *b. If monarch eggs and larvae are not present, any tropical milkweed populations in the project area should be replanted with native narrowleaf milkweed and other nectar-providing plants following construction activities. All tropical milkweed on the property will be assessed for the absence of monarch eggs and larvae and replaced with narrowleaf milkweed after construction.*
Impacts Following Mitigation	
Implementation of BIO/mm-1.1 would reduce construction impacts to any candidate, sensitive, or special-status species to less than significant.	

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Riparian habitat that may be considered under the jurisdiction of the CDFW is present in and along Oil Creek and the Lake Pit. Riparian vegetation supported by Oil Creek can be described as California sycamore-coast live oak riparian woodlands (S3), and riparian vegetation supported by the Lake Pit can be characterized as hardstem and California bulrush marshes (S3/S4). As previously described, historical imagery shows a well-defined channel supporting possible riparian vegetation based on distribution patterns suggesting an intermittent or wetter hydrologic regime at the Oil Creek location. In its current state, Oil Creek appears to receive its primary hydrologic input source from groundwater. Oil Creek also receives hydrologic inputs from precipitation and irrigation system runoff. Dense vegetation and heavy leaf litter exist in the northeastern portion of the creek; Oil Creek supports a robust community of hydrophytic vegetation. The density of hydrophytic vegetation, and hydrology indicators such as water-stained leaves, suggest that Oil Creek may support wetlands. A determination of hydric soils would need to be made to confirm wetlands. With the information available and gathered during the site visits, it is anticipated that Oil Creek and the Lake Pit may be subject to the jurisdiction of the California Regional

Water Quality Control Board and CDFW. Oil Creek may also be regulated by the USACE under the CWA. The Lake Pit supports riparian vegetation along its margins. Based on Google Earth aerial imagery (2023), these stands of riparian vegetation seem to fluctuate in size. Google Earth street view suggests that some of this vegetation around the Lake Pit may be subject to routine mowing. Fluctuation in stand size may also be subject to variation of water levels at the Lake Pit.

No other sensitive natural communities were found on the project site during the field survey or have been reported in readily available literature.

Project construction activities have the potential to disturb the riparian habitat present in and along Oil Creek and the Lake Pit through ground-disturbing activities associated with construction and renovation of the proposed pathways in and around these areas and through the implementation of the proposed features, bioswales, and other modifications proposed by the project.

During project operation, indirect impacts to riparian habitat may result from increased visitation and necessary maintenance to sustain the proposed bioswale. Increased visitation may require additional changes to the project's proposed infrastructure. Future implementation of these changes may result in impacts to riparian habitat. Maintenance of the bioswale and the associated riparian habitat may change over time depending on groundwater availability. It is assumed that the primary hydrologic input supporting the riparian habitat is groundwater, with supplemental precipitation and landscape irrigation. A decrease in groundwater availability may result in a decline of the existing riparian habitat if no additional external sources of input are incorporated. External sources of hydrologic input such as irrigation systems may be necessary and have a potential to alter the quality of the water supporting the riparian habitat.

Therefore, the project could result in direct and indirect impacts during project construction and operation associated with the riparian wetland habitat present in and along Oil Creek and in or along the Lake Pit. Feasibility of aquatic resources avoidance will be subject to final design, including exact facility locations and construction efforts to be determined in the future. Impacts could be *significant*.

BIO Impact 2	
The project could directly and indirectly impact the riparian wetland habitat associated with Oil Creek during both construction and operation as a reconnaissance survey suggests there may be approximately 0.3 acre of regulated aquatic resources associated with Oil Creek. Impacts during construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. b)	
Mitigation Measures	
BIO/mm-2.1	*Impacts to Oil Creek may be avoidable but are subject to final project design. To protect sensitive and regulated aquatic resources associated with Oil Creek, one of the following measures (BIO/mm-2.1a or BIO/mm-2.1b) shall be implemented:* *a. Full avoidance of Oil Creek, including riparian habitats. To attain full avoidance of Oil Creek, construction and ground disturbance shall not occur within 125 feet of the centerline of Oil Creek. The limits of riparian habitat shall be flagged and construction fencing erected to clearly denote the limits of construction. No overnight staging of equipment or materials shall occur within the protected "no work" zone as delineated by the fencing. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for*

BIO Impact 2	
	vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area. *OR* *b. If full avoidance of Oil Creek and a designated "no work" buffer is not possible after determination of final design, the following measures shall be required:* *i. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Oil Creek feature. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the "protected zone"). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site.* *ii. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to removed diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event.* *iii. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing Oil Creek riparian corridor, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following:* • *Native tree replacement requirements consistent with the requirements of the Plant Pest and Disease Management Plan (BIO/mm-6.2).* • *A detailed planting scheme identifying the location and sizes of all container stock.* • *Details on planned irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years.* • *Annual monitoring, maintenance, and adaptive management measures and annual reporting requirements.* *iv. The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter Oil Creek and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in*

BIO Impact 2	
	the designated staging area. *v. Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.*
Impacts Following Mitigation	
Implementation of BIO/mm-2.1 would reduce construction and operation impacts to riparian and wetlands associated with Oil Creek to less than significant.	

BIO Impact 3	
The project could directly and indirectly impact the Lake Pit lakebed and its associated riparian habitat during both construction and operation as a reconnaissance survey suggests there may be approximately 1.2 acres of regulated aquatic resources associated with the Lake Pit. Impacts during construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. b)	
Mitigation Measures	
BIO/mm-3.1	*This mitigation measure only applies to project features implemented in and around the Lake Pit, including the pedestrian path and bridge. The following measures shall be implemented prior to the implementation of these features:* *a. A formal aquatic resources delineation shall be implemented to determine the jurisdictional boundaries of the Lake Pit features. The delineation shall determine the limits of potentially regulated aquatic resources, the riparian features, and an appropriate buffer for protection (the "protected zone"). The aquatic resources delineation shall identify all appropriate jurisdictional agencies and be used in securing all applicable permits prior to construction and after a project final design has been determined. At the discretion of the regulatory agencies, the requirements of the permits may supplement or exceed the requirements of this measure. If permits are required, all environmental requirements of the regulatory permits shall be implemented, and the executed permits shall be kept on-site.* *b. Within the riparian habitat and buffer, vegetation removal shall be kept to the minimum necessary to remove diseased and/or non-native vegetation and to implement the features of the Master Plan. Initial removal of vegetation within the riparian habitat shall be monitored full-time by a qualified biologist, and weekly spot-check monitoring shall continue throughout the construction of the project. Work within riparian habitat shall not be conducted during or immediately after a rain event.* *c. A restoration plan, prepared by a qualified restoration ecologist, shall be prepared and implemented. The restoration plan will include detailed success criteria, typically associated with 80% relative cover to pre-project baseline conditions with less than 10% invasive cover, to provide replacement habitat at an equal or better value than the existing riparian vegetation within and along the margins of the Lake Pit, within 5 years of planting. The final plan shall be approved by the County of Los Angeles Museum of Natural History, the County Department of Regional Planning, and the permitting agencies (if any). At a minimum, restoration requirements included in the plan and implemented shall include the following:* • *A detailed planting scheme identifying the location and sizes of all container stock.* • *Details on planned Irrigation which shall provide for successful plant establishment; survival should occur without supplemental irrigation for at least 2 years.*

BIO Impact 3	
	• *Five years of annual monitoring, maintenance, and adaptive management measures and annual reporting requirements.* d. *The riparian habitat and buffer specified in the aquatic resources delineation shall be flagged and construction fencing erected to clearly denote the limits of the protected zone. No overnight staging of equipment or materials shall occur within the protected zone. Storing, fueling, and equipment maintenance shall not occur in locations where spilled materials could potentially enter the Lake Pit and its associated riparian habitat. Spill kits/absorbent clean-up materials shall be available on-site. All equipment and vehicles shall be checked and maintained daily to prevent spills of fuel, oil, and other hazardous materials. A designated staging area shall be established for vehicle/equipment parking and storage of fuel, lubricants, and solvents a minimum of 100 feet outside of the protected zone. All fueling and maintenance activities shall take place in the designated staging area.* e. *Mitigation requirements and permit conditions shall be conveyed to construction crews prior to construction.*
Impacts Following Mitigation	
Implementation of BIO/mm-3.1 would reduce construction and operation impacts to riparian and wetlands associated with the Lake Pit to less than significant.	

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrologic interruption, or other means?

As noted above, potential jurisdictional wetland/aquatic resources may be present in and along Oil Creek and the Lake Pit. A determination of hydric soils would need to be made to confirm wetlands. With the information available and gathered during the site visits, it is anticipated that Oil Creek and the Lake Pit may be subject to the jurisdiction of the California Regional Water Quality Control Board and CDFW. Oil Creek may also be regulated by the USACE under the CWA. Indirect impacts could result from increased visitation to the park and required maintenance to the proposed bioswale. Increased visitation may require additional changes to the project's proposed infrastructure. Project construction and operation may result in impacts to wetland habitat. Therefore, impacts could be *significant*.

BIO Impact 4
The project site may contain potential jurisdictional wetland/aquatic resources in and along Oil Creek and the Lake Pit. Project construction and operation may result in impacts to wetland habitat. Impacts during construction and operation of the project could be significant. (CEQA Checklist Appendix G Threshold IV. c)
Mitigation Measures
Implement BIO/mm-2.1 and BIO/mm-3.1.
Impacts Following Mitigation
Implementation BIO/mm-2.1 and BIO/mm-3.1 would reduce construction and operation impacts associated with riparian and wetlands to less than significant.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife corridors serve as essential links between separate patches of suitable habitat, bridging the gaps created by harsh landscapes, shifts in plant life, or human disruptions. As urban expansion fractures open spaces, it transforms them into isolated habitat "islands" for wildlife. Without these crucial connections facilitating access to adjacent open areas, research indicates that certain wildlife species, particularly larger and more mobile mammals, may not survive over the long term. Wildlife movements typically categorize into three types: (1) dispersal, such as young animals leaving their birthplaces or individuals expanding their territories; (2) seasonal migrations; and (3) routine activities within their home territory, including searching for food or water, territory defense, mate finding, breeding, or seeking shelter. While these movement behaviors vary by species, expansive open areas tend to support a wide range of wildlife, encompassing all movement types. Furthermore, these movements can occur on different scales, from localized non-migratory travels to the extensive regional journeys of large mammals.

The project site is not within an identified regional or wildlife corridor habitat linkage (South Coast Wildlands 2008); and, like most of urban Los Angeles, is identified as a Limited Connectivity Opportunity area in the CDFW Areas of Conservation Emphasis Terrestrial Connectivity Factsheet (CDFW 2024). The project area is located 8.5 miles west of Large Natural Habitat and 12 miles east of Irreplaceable and Essential Corridors in the Santa Monica Mountains. Since the project site is not identified as a linkage by the South Coast Wildlands and does not support habitat that connects two or more habitat patches that would otherwise be fragmented or isolated from one another, the project site is not considered a wildlife corridor. The project site supports limited potential live-in habitat and provides an ecological oasis or stop over site for local resident and migrating birds, within a heavily developed urban center.

The potential for terrestrial wildlife to move locally is constrained by the limited availability of resources, as well as physical barriers such as roads, buildings, and other human activity. The project site is bounded on all sides by urban development; 6th Street to the north, Curson Avenue to the east, Wilshire Boulevard to the south, and the Los Angeles County Museum of Art to the west. Wilshire Boulevard is particularly likely to limit wildlife movement as it is 76-feet wide and supports four lanes of traffic (City of Los Angeles 2016). Beyond the boundary, the project site is surrounded almost entirely by residential and commercial developments. However, the neighborhood directly to the north (Park La Brea), nearby parks and golf courses, and many of the surrounding streets have a relatively large density of landscape and street trees that can and would continue to support foraging and nesting birds.

The project site does not support the movement of wildlife on a regional level, nor is it recognized as a vital corridor for dispersal or seasonal migration. However, the site may provide refuge for transitory and migrating bird species, and the large network of street trees in the nearby area may enhance migration to open space areas in the surrounding regional hills and mountains. The site does not contain on-site drainage courses that would provide migratory fish movement since Oil Creek is not connected to other surface drainages. No impact would result to such resources during project construction or operation.

Movement across the site occurs on a local scale for species that have adapted to urban settings, such as bats, birds, and rodents. Species that fly, including bats and birds, possess the capability to navigate over or bypass potential barriers to movement. In and around the project site, a variety of trees, shrubs, and vegetation offer suitable environments for these aerial species to roost, nest, and forage.

There is potentially suitable nesting bird habitat present on-site and within 500 feet of the project site boundaries in street trees and landscape vegetation. The nesting season is generally defined as January 1

to September 15. Construction conducted during this period could result in adverse impacts to nesting birds. Temporary impacts to nesting birds would result from the removal of existing mature trees and shrubs during project construction. Although many more trees would be added than are proposed for removal, it would take many years for newly installed trees to reach the size and structural complexity of existing trees.

During project operation, indirect impacts could result from increased visitation use to the park and required maintenance of updated park facilities during nesting bird breeding season. Indirect impacts may also include beneficial impacts from an overall increase in native trees and associated improvement of native habitat for local bird species. Additional and higher-quality habitat for wildlife would be incorporated into site design.

In conclusion, due to the presence of potentially suitable nesting bird habitat, the project could directly impact nesting birds during project construction and temporally impact nesting bird habitat during project operation. Impacts could be *significant*.

While project construction may initially decrease the number of birds on-site due to the proposed tree removals, bird occurrence is expected to increase over the long-term due to the proposed increase in native plant species on-site, which generally provide better quality resources (i.e., food, nesting sites, roosting sites, cover from predators) for native birds.

The birds present on-site are susceptible to collisions with the existing buildings within the project site and surrounding area. The proposed project would pose similar risks, as the exterior of the new museum building could largely consist of glass windows. Birds do not necessarily perceive glass as an obstacle due to its transparency and thus, are subject to collide with windows or other structures that reflect the sky, trees, or other habitat. Migratory birds are particularly susceptible to glass collisions because they are less familiar with their surroundings and are less likely to be aware of risks while being fatigued from migration. The extent of glazing on a building and the presence of vegetation opposite the glazing are two of the strongest factors in bird collision risk. The greatest risk of avian collisions with glazed facades is within 60 feet of the ground because this is the area in which most bird activity occurs (San Francisco Planning Department, 2011). As the maximum building height of the new museum is 60 feet, the entirety of the building is assumed to pose some risk for avian collisions. This risk would be greater along the building's west façade and the westernmost portions of the north and south facades as these areas are closest to Oil Creek and the proposed Pleistocene bioswale. This area currently supports a community of hydrophytic and riparian vegetation with native plant species most likely to support native birds.

To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing. Additionally, the façade of the new museum building and the renovated Page Museum would be constructed using nonreflective materials, consistent with the exterior materials of nearby buildings, as required by AES/mm-4.2. With adoption, these measures would reduce the potential for bird collisions with the new museum building and the renovated Page Museum.

With these considerations in mind, while some bird collisions may still occur, bird collisions are an unfortunate reality for virtually all buildings, the project design features described above would reduce the potential for bird collisions to the extent feasible. While this impact would be less than significant without mitigation, the County is incorporating a mitigation measure to ensure that the above design feature would be adopted through the project's mitigation monitoring and reporting program.

BIO Impact 5	
The project could directly impact nesting birds during project construction and temporally impact nesting bird habitat during project operation. Impacts during construction and operation of the project could be significant. The project would not create a significant impact related to bird collisions. While this impact would be less than significant prior to mitigation, the County recommends a mitigation measure to provide assurances that appropriate features would be integrated into new construction to reduce bird collision incidents. (CEQA Checklist Appendix G Threshold IV. d)	
Mitigation Measures	
BIO/mm-5.1	*To avoid impacts to nesting birds, one of the following measures (BIO/mm-5.1a or BIO/mm-5.1b) shall be implemented:* a. *If possible, no vegetation trimming, pruning, removal, construction, or grading shall occur during the nesting and breeding season (January 1 through September 15).* *OR* b. *If activities associated with vegetation trimming, pruning, removal, construction, or grading are necessary during the bird nesting and breeding season (January 1 through September 15), the following measures shall be implemented:* • *A qualified biologist shall conduct surveys for active nests weekly, beginning 14 days prior to initiation of any new construction activities, with the last survey conducted no more than 3 days prior to the start of clearance/construction work. If ground-disturbing activities are delayed, additional pre-construction surveys should be conducted so that no more than 3 days have elapsed between the survey and ground-disturbing activities.* • *Active nests found within 100 feet of the construction zone shall be delineated with highly visible construction fencing or other exclusionary material that would inhibit entry by personnel or equipment into the buffer zone. The size of the buffer zone shall be at the discretion of the qualified biologist and shall be no less than 25 feet. Raptors may require a larger buffer zone, up to 300 feet. Installation of the exclusionary material shall be completed by construction personnel under the supervision of a qualified biologist prior to initiation of construction activities. The buffer zone shall remain intact and maintained while the nest is active (i.e., occupied or being constructed by at least one adult bird) and until young birds have fledged and no continued use of the nest is observed, as determined by a qualified biologist. The barrier shall be removed by construction personnel only at the direction of the biologist.*
BIO/mm-5.2	*New and replacement trees shall be 24-inch box specimen trees or larger to reduce temporary impacts to nesting birds.*
BIO/mm-5.3	*To reduce the risk of birds striking or colliding with the building, new construction would include deterrent features on glass barriers, windows, and building elements likely to present imperceptible barriers for avian species. These features would include ceramic frit patterns and/or other features that meet the criteria from the American Bird Conservancy for bird friendly glazing.*
Impacts Following Mitigation	
Implementation of BIO/mm-5.1 and BIO/mm-5.2 would reduce construction and operation impacts to nesting birds to less than significant. Beneficial impacts would result from the addition of ground cover, shrubs, and trees native to California. While the project would not create a significant impact related to bird collisions, BIO/mm-5.3 would provide for assurances that appropriate features would be integrated into new construction to reduce bird collision incidents.	

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The County of Los Angeles Oak Tree Ordinance protects all oak trees, whether native (indigenous) or not (Title 22 Division 8 Chapter 22.174). There are 13 native oak trees on-site, and all meet the size criteria for protection under the ordinance (i.e., all 13 oak trees on-site are 8-inch dbh or larger).

During both project construction and operation, it is possible that removal, relocation, trimming, or replacement of protected oak trees may be required. However, because the project is a County-led project, it is exempt from obtaining a permit under the ordinance. If oak tree removal is required during construction or operation of the project, coordination with the County's Department of Regional Planning would be required prior to commencement of any work on-site. Any encroachment or removal requests shall be reviewed by the County's Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Impacts related to potential conflicts with the County of Los Angeles Oak Tree Ordinance during project construction and operation could be *significant.*

BIO Impact 6	
Removal, relocation, trimming, or replacement of the 13 protected oak trees on the project site during project construction and operation could potentially conflict with the County of Los Angeles Oak Tree Ordinance. Impacts during construction and operation of the project could be significant. (CEQA Checklist Appendix G Threshold IV. e)	
Mitigation Measures	
BIO/mm-6.1	*For oak trees within the project site that are to be retained in their current location, prior to construction, chain-link fencing shall be installed around the protected zone of the trees (5 feet beyond the dripline, the outermost extent of the tree's branches, or 15 feet from the trunk, whichever is greater). The fencing shall remain in place throughout the entire period of construction. Any excavation or grading allowed within the protected zone shall be limited to hand tools or small hand-powered equipment. This measure shall only apply to existing trees where the limits of construction work are within 20 feet of the protected zone.* *In addition, one of the following measures (BIO/mm-6.1a or BIO/mm-6.1b) shall be implemented:* a. *If possible, removal, relocation, trimming, or replacement of the oak trees at the Tar Pits site shall be avoided.* b. *If modification (removal, relocation, trimming, or replacement) of protected oaks is required, coordination with the County of Los Angeles Department of Regional Planning shall occur prior to commencement of any work on-site. Any encroachment or removal requests must be reviewed by the County of Los Angeles Department of Regional Planning for consistency with County policies and ordinances relating to oak tree protection prior to commencement of any work on-site. Although an oak tree permit is not required, measures to mitigate for impacts to oak trees shall include the following:* • *Removed oak trees shall be mitigated by planting coast live oaks at a 2:1 ratio on the project site. Each replacement tree shall be at least a 15-gallon specimen.* • *The replacement oaks shall be monitored for a period of 5 years, with any failures resulting in a new oak being planted and initiation of a new 5-year monitoring period for the replanted tree.*
BIO/mm-6.2	*A Plant Pest and Disease Management Plan shall be prepared prior to initiation of landscape planting and developed in consultation with an International Society of Arboriculture Certified Arborist. The Plant Pest and Disease Management Plan shall define methods to ensure new*

BIO Impact 6	
	plant materials (container stock) are free of insect pests and diseases prior to delivery to the project site. Implementation of the Plant Pest and Disease Management Plan shall occur through the life of the project; modification and adaptation may occur to ensure applicability and viability of the plan.
Impacts Following Mitigation	
Implementation of BIO/mm-6.1 and BIO/mm-6.2 would reduce construction and operation impacts related to conflicts with the County of Los Angeles Oak Tree Ordinance to less than significant.	

f) Would the project conflict with the provisions of an adopted habitat Conservation Plan, Natural Community Conservation Plan, or other approved Local, Regional, or State Habitat Conservation Plan?

There are no federal, state, or local designated conservation areas on or directly adjacent to the project site. The project site is not within an identified wildlife corridor, there are no USFWS-designated critical habitats within a 10-mile radius, no Habitat Conservation Plans, and no CDFW Natural Community Conservation Plans in the project vicinity. Therefore, project construction and operation would not conflict with any approved state, regional, or local habitat conservation plans, and *no impact* would occur.

BIO Impact 7
Construction and operation of the project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact would occur. (CEQA Checklist Appendix G Threshold IV. f)
Mitigation Measures
No mitigation required.
Impacts Following Mitigation
Not applicable. No impact would occur.

5.3.6 Cumulative Impact Analysis

A cumulative impact to biological resources may occur if a project has the potential to collectively degrade the quality of the environment, substantially reduce wildlife species habitat, cause a population to drop below self-sustaining levels, thereby threatening to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal species. To consider the cumulative environment, SWCA's biological resources team examined the CEQA environmental analyses for other projects in the vicinity of the project, including those for the three geographically closest projects:

- **Los Angeles County Museum of Art Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction.

- **Wilshire Curson Project:** Located approximately 0.03 mile southeast of the project site at 5700-5780 Wilshire Boulevard, 712-752 South Curson Avenue, 5721-5773 West 8th Street, and 715-761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of new buildings. The project is currently under environmental review.
- **Fairfax Avenue Apartments and Restaurant:** Located approximately 0.50 mile southeast of the project site at 800-840 South Fairfax Drive. The project includes residential and restaurant uses and is currently under environmental review.

It is noted here that in the independent CEQA analyses for each of these projects, impacts to biological resources were all found to be less than significant.

The project site is not within an identified wildlife corridor, and there are no USFWS-designated critical habitats within a 10-mile radius, no Habitat Conservation Plans, and no CDFW Natural Community Conservation Plans in the project vicinity (threshold f). Therefore, the project would not result in impacts related to conflict with any approved state, regional, or local habitat conservation plans. Accordingly, the project could not contribute to cumulative impacts related to this topic and it would not be cumulatively considerable when viewed in conjunction with related development projects.

The project could result in significant construction and operation impacts to biological resource as identified in Section 5.3.5. The project could result in significant effects during the construction process on one species, the federal candidate monarch butterfly, either directly or indirectly through habitat modifications (threshold a). The project also has the potential to adversely impact riparian habitat and/or aquatic resources in and along Oil Creek and at the Lake Pit and impact potentially designated jurisdictional wetland/aquatic resources during both construction and operation (thresholds b and c). In addition, the project site does support trees which could potentially provide suitable nesting bird habitat (threshold d). The removal and/or disturbance of trees during project construction could directly impact nesting birds during project construction and temporally impact nesting bird habitat through project operation. Lastly, the project may potentially conflict with the County's oak tree removal permit during both construction and operation due to the removal and/or relocation of 13 protected oak trees on-site (threshold e).

For each identified impact, related project mitigation measure(s) have been developed to address the project's construction and operation impacts to biological resources (i.e., BIO/mm-1.1 through BIO/mm-6.2). These mitigation measures have been developed to address both impacts from temporary construction and long-term impacts from project operation. Although the CEQA analyses for the other development projects in close proximity to the project site noted above found that biological resource impacts would be less than significant, if the project were to be implemented without mitigation it may still contribute to a broader cumulative impact to the resources that the project could impact. Therefore, without mitigation, the project could contribute significantly to cumulative biological resources impacts; these contributions could be considerable and, thus, *significant*.

BIO Impact 8 (Cumulative Impacts)
During construction and operation, the project has the potential to contribute considerably to cumulative impacts to biological resources.
Mitigation Measures
The project would be required to implement Mitigation Measures BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1, BIO/mm-5.2, BIO/mm-6.1, and BIO/mm-6.2.

BIO Impact 8 (Cumulative Impacts)
Impacts Following Mitigation
With implementation of the identified mitigation measures, the project's contribution to potential cumulative impacts related to biological resources would be less than significant.

5.4 CULTURAL RESOURCES – ARCHAEOLOGICAL RESOURCES

This section of the EIR addresses the potential impacts of the project on archaeological resources. Archaeological resources include sites, objects, and artifacts affiliated with Native Americans, and historical archaeological resources, which are non-Native American in origin. The analysis in this section is based on the *Archaeological and Tribal Cultural Resources Assessment for the La Brea Tar Pits Master Plan Environmental Impact Report, Los Angeles, California* prepared by SWCA Environmental Consultants (Millington and Dietler 2023). This report will remain part of the confidential administrative record because of the detail describing the specific location of the archaeological site components. This section, in combination with Section 5.5, Cultural Resources – Historical Resources, addresses the potential impacts encompassing cultural resources as described within Section V of the environmental checklist form (Appendix G) of the State CEQA Guidelines.

5.4.1 Existing Conditions

5.4.1.1 Native American Archaeological Record

The Native American archaeological record for California is generally organized into three broad temporal periods—the Paleoindian, Archaic, and Emergent periods. Numerous chronological sequences were also devised to characterize cultural changes on a smaller scale, specifically within the subregion of Southern California. The chronology used by Wallace (1955) is applicable for near-coastal and some inland settings in the Southern California coastal region and is composed of four sequential horizons: Horizon I, Early Man; Horizon II, Milling Stone; Horizon III, Intermediate; and Horizon IV, Late Prehistoric (Late Period). Wallace's horizons are presented below to provide a reference point for the primary periods and cultural traditions. Because contemporary archaeological studies increasingly use geological time periods as a means of grouping diverse regional typologies, these have been incorporated into the structure below and are further denoted by years before present (B.P.) and calendar ages (B.C. and A.D.).

A description of the lifeways of Native Americans who lived in the vicinity of the project site can be found in Section 5.14, Tribal Cultural Resources. See Section 5.5, Cultural Resources – Historical Resources for a description of the history of the project site.

TERMINAL PLEISTOCENE (BEFORE ~11,500 B.P.)

Paleoindian/Paleocoastal Tradition

Any discussion of human occupation of coastal areas during the Terminal Pleistocene must be prefaced with an understanding that sea level rise during this period of severely shifting climate inundated many kilometers of shoreline worldwide and along Southern California coastlines specifically, submerging an unknown number of archaeological sites. Therefore, any evidence that we do have of human occupation in what are now coastal settings is likely only a small fraction of what originally existed. Recent studies using offshore core samples have made important progress in reconstructing paleoshorelines and the paleoenvironment of Southern California's Terminal Pleistocene coast.

The earliest evidence for human occupation in Southern California is found on the northern Channel Islands, where multiple Terminal Pleistocene sites have been identified and dated in the past couple decades, firmly establishing the presence of early coastal-adapted people in the region. On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13,000 years ago. Recent excavations and radiometric dating of multiple archaeological assemblages on San Miguel, Santa Rosa, and Santa Cruz Islands document Paleoindian technologies, subsistence strategies, and

seasonality of site occupation during the latter part of the Terminal Pleistocene (~11,700 B.P.), with similarities to the Western Stemmed Tradition found across much of western North America.

Finely crafted chipped stone crescents like those recorded on the northern Channel Islands as part of the Paleocoastal toolkit were also found in surficial contexts on San Nicolas Island, suggesting an earlier occupation for the southern Channel Islands as well. It is possible that similarly early sites were also present on the mainland California coast; however, the rate and degree of development beginning with Spanish colonization and continuing to the present has likely destroyed most early sites along the California mainland coast. Nevertheless, three fluted points representing the Clovis culture have been found in Southern California mainland coastal areas, including one in Santa Barbara County, one in Los Angeles County near Malibu, and one in El Morro Canyon, in what is now Crystal Cove State Park in Orange County. Additionally, numerous fluted projectile points of the Clovis and Folsom Traditions have been reported from inland contexts in central and southern California.

Two sites in the Ballona area, LAN-61 and LAN-63, are believed to include occupations from this time period based on diagnostic artifacts (crescents and stemmed points). However, recent data recovery excavations and analyses, including numerous radiocarbon dates, failed to provide incontrovertible evidence that people were using this area during the Paleocoastal period, although this lack of radiocarbon dates does not necessarily negate the possibility that an earlier occupation occurred and might be uncovered in the future.

EARLY HOLOCENE (~11,500 TO ~7000 B.P.)

Horizon I: Early Man

Mainland sites attributed to Horizon I generally indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas and a greater emphasis on large-game hunting inland. Fundamental elements of lithic tool technology described by Wallace (1955) for this period include numerous scrapers, choppers, chipped and notched crescents, and large blades and points. Wallace also describes clamshell and bone beads, along with an absence of seed-grinding implements from the type site for this period, Malaga Cove. Several sites in Orange and San Diego Counties contain components that date to between 9,000 and 10,000 years ago, and radiocarbon dates from the Goleta Slough area in Santa Barbara County indicate occupations spanning ca. 9300 to 8400 cal B.P. (ca. 7300–6400 B.C.) with a primary subsistence focus on lagoon/bay shellfish.

Horizon II: Millingstone

The Millingstone horizon corresponds to the Early Holocene when rising sea levels continued to encroach on coastlines, although the global climate was slowly stabilizing. Set during a warmer and drier climatic regime than the previous horizon, the Millingstone horizon is characterized by subsistence strategies centered on collecting plant foods and small animals, although in coastal areas where archaeological assemblages have been preserved, there is also ample evidence of marine resource use during this time as well. The importance of seed processing is apparent in the dominance of stone grinding implements in archaeological assemblages from this period, namely milling stones (metates) and hand stones (manos).

Millingstone assemblages are characterized by the extensive use of milling implements (particularly manos and metates) and mullers along with scraper planes, choppers, and core tools and a general lack of finely crafted projectile points, although leaf-shaped points believed to be darts are present. The general lack of faunal remains along with bone and shell tools at some sites dated to this period have led researchers to suggest a stronger reliance of plant food resources (i.e., seeds) with only a minor focus on hunting. Several sites have been described for this horizon throughout Southern California, including

Little Sycamore in Ventura, Porter Ranch in San Fernando, and the La Jolla shell mounds in San Diego. Los Angeles County sites with Millingstone components include Malaga Cove (Level 2, LAN-138), the Tank Site (LAN-1) in Topanga Canyon, the La Brea Tar Pits Archaeological Site (LAN-159/H), the Zuma Creek Site (LAN-174), the Sweetwater Mesa Site (LAN-267), the Shobhan Paul Site (LAN-958); and the Parker Mesa site (LAN-215). Primary sites with Millingstone components in Orange County include Bolsa Chica (ORA-83), ORA-64, and the Landing Hill Site.

MIDDLE HOLOCENE (~7000 TO 4000 B.P.)

Horizon III: Intermediate

This horizon corresponds with the Middle Holocene and early Late Holocene time periods geologically and marks the point when current shorelines were established in most parts of the world. Consequently, evidence for marine resource use appears to have increased after 5,000 to 6,000 years ago.
The Intermediate horizon is characterized by important changes in almost all aspects of culture, including settlement patterns, economic activities, mortuary practices, and technology. During this period, economic practices shifted toward a hunting and maritime subsistence strategy, along with a wider use of plant foods. An increasing variety and abundance of fish, land mammal, and sea mammal remains are found in sites from this horizon along the California coast. Related chipped stone tools suitable for hunting, including side-notched projectile points, are more abundant and diversified, and shell fishhooks became part of the toolkit during this period. Mortars and pestles became more common during this period, gradually replacing manos and metates as the dominant milling equipment and signaling a shift away from the processing and consuming of hard-shelled seed resources to the increasing importance of fleshier fruits like the acorn. Bow and arrow technology is first seen toward the end of the Intermediate periods (ca. 1500–1000 B.P.) when it appears to have spread to the Southern California coast from the north and east.

Technological markers described for this horizon consist of basket-hopper mortars, mortars and pestles, diverse and plentiful chipped stone assemblages with greater numbers and a wider variety of projectile point types, and bone and antler tools, which are present to some degree but not in the quantity seen during later phases, along with occasional use of bitumen (asphalt) and steatite. Faunal assemblages often include terrestrial mammals representing wild game, along with some marine mammal bones and often high densities of shellfish remains.

The Middle Holocene also marks a time of cultural innovation in the archaeological record of California. Significant cultural developments are seen in the increasing formation of larger settlements, the intensification of long-distance trade networks including distinct cultural spheres throughout western North America, and the elaboration of art and personal aesthetics (e.g., shell and stone pendants and increasing variety of shell bead types and styles).

There is also evidence suggesting migrations into coastal Southern California by desert peoples from the east during the Intermediate period, based on changes in mortuary practices (i.e., cremations), the presence of desert tanged projectile points, and increased numbers of stone as opposed to shell beads. This question has been discussed by several archaeologists with most suggesting an arrival date of approximately 1500 cal B.P., although some argue for a much earlier migration at around 3500 cal B.P., which coincides with the Millingstone/Intermediate period transition. Of course, it is possible, and even likely, that multiple migrations of various scales occurred over the course of hundreds, or thousands, of years.

LATE HOLOCENE (~3000 B.P. TO SPANISH COLONIZATION)

Horizon IV: Late Prehistoric

The Late Prehistoric period extended from the end of the Intermediate period (~A.D. 500) until Spanish colonization, marked by the Cabrillo expedition in A.D. 1542. This period is characterized by extensive population growth and a large increase in the number and types of sites along the Southern California coast. During this period, there was a significant increase in the population of Native peoples in Southern California accompanied by the advent of larger, more permanent villages, particularly at the mouths of large mainland coastal canyons and drainages with year-round water supplies. Large populations and, in places, high population densities are characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages in which people resided year-round, although the populations of these villages may have also increased seasonally. The development of social differentiation is indicated during this period by the complexity of site layouts with numerous complex features and the highly variable nature of mortuary treatments and burial grounds.

During the Late Prehistoric period, there was an increase in the use of plant food resources in addition to an increase in terrestrial and marine mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during the Late Prehistoric horizon, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely flaked projectile points suggests increased use of the bow and arrow rather than the atlatl (spear thrower) and dart for hunting. Steatite cooking vessels and containers are also present in sites from this time, and there is an increased presence of composite bone gorges and circular shell fishhooks, perforated stones, arrow shaft straighteners made of steatite, a variety of bone tools, and personal ornaments such as beads made from shell, bone, and stone. Olivella shell bead styles include a variety of wall and callus beads in addition to the previous spire-lopped, and cup beads. There was also an increased use of asphaltum, or bitumen, for waterproofing basketry and caulking canoes and as an adhesive.

Technological markers of this horizon include the increased use of the bow and arrow, stemless points with concave or convex bases, steatite containers, widespread use of asphaltum as adhesive, and increased abundance and types of bone tools, as well as shell, bone, and stone ornaments. Wallace also describes notable distinctions between northern and southern groups during this period, including less pottery north of Orange County, where steatite vessels were more prevalent, and the presence of portable mortars and pestles and basket-hopper slabs in the north with bedrock mortars and milling stones being more prevalent in the San Diego area.

By A.D. 1000, fired clay smoking pipes and ceramic vessels were being used at some sites. The scarcity of pottery in coastal and near-coastal sites implies that ceramic technology was not well developed, or that occupants were trading with neighboring groups to the south and east for ceramics. The lack of widespread pottery manufacture is usually attributed to the high quality of tightly woven and watertight basketry that was caulked with bitumen (asphaltum) and functioned in the same capacity as ceramic vessels.

5.4.1.2 Existing Cultural Resources

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

On February 28, 2022, SWCA received the results of a confidential search of the California Historical Resources Information System (CHRIS) records conducted by the South Central Coastal Information

Center (SCCIC) on the campus of California State University, Fullerton (SCCIC 2022). The CHRIS records search was conducted to identify previously documented cultural and potential tribal cultural resources in and within a 0.5-mile radius of the project site, and to aid in the assessment of resource sensitivity. In addition, archival research included a literature review of archaeological, ethnographic, and historical sources to identify information relevant to the project site, including sources specific to the history of Rancho La Brea and La Brea Tar Pits (Millington and Dietler 2023). The CHRIS records search identified a total of 18 cultural resources within a 0.5-mile radius. Of these cultural resources, four included archaeological components (Table 5.4-1).

Table 5.4-1. Archaeological Sites within 0.5 mile of the Project Site

Primary No.	Trinomial	Name(s) or Designations	Time Period	Resource Type	Recording Year (Affiliation: Name)	Proximity to Project Site
P-19-000159	LAN-159*	La Brea Tar Pits (Archaeological Site)	Multicomponent	Site	1949 (R.F. Heizer)	Within
P-19-001261	LAN-1261H*	Shin'en Kan Pavilion	Historic	Site	1986 (UCLA: Roy Salls)	Outside: less than 10 m west
P-19-002964	LAN-2964H	Park La Brea	Historic	Site	2002 (Greenwood & Associates: Alice Hale)	Outside: 500 m north
P-19-003045	LAN-3045H	The Grove at Farmer's Market and the Gilmore Adobe	Historic	Building, Structure, Site	2002 (Cogstone: Sara Dietler, Sherri Gust, and Sara Alarcon)	Outside: 640 m north
P-19-171007	–	Hancock Park–La Brea	Historic	Site	1982 (Westec Services: T. Jaques and N. Michali)	Within

* The components of LAN-1261H will be merged with those of LAN-159 and the former site number will be deaccessioned. The revised site trinomial is expected to henceforth be known as LAN-159/H.

As shown in Table 5.4-1, previously recorded resources that overlap the project site include two archaeological sites (LAN-159 and LAN-1261H), referenced herein as the La Brea Tar Pits Archaeological Site (LAN-159/H) and Hancock Park–La Brea (P-19-171007), which does not specifically have an archaeological component, but is referenced here because of its relevance to broader resource management considerations (Millington and Dietler 2023). See Section 5.5, Cultural Resources – Historical Resources for a detailed discussion of the historic resources inventory results.

LAN-159/H contains the material remains of Native American use between at least 10,000 to 3,200 years ago, and historical refuse from as long ago as the 1860s and through the twentieth century (Millington and Dietler 2023). In terms of the Native American component of the La Brea Tar Pits Archaeological Site, 77 Native American artifacts were recovered, in addition to the skeletal remains of a female Native American and a domesticated dog. The date range for the Native American component is based on radiocarbon dating on samples of the young female remains dated to 10,200–10,250 cal B.P., a wooden atlatl foreshaft dated to 4536–5583 cal B.P., and a domesticated dog dated to 3250–3400 cal B.P. The historical component of the site (formerly LAN-1261H) was recovered from a single feature recorded in 1986. The feature was composed of various pieces of historical refuse items with manufacturing dates that indicated a date as old as the 1860s.

The CHRIS search also identified a listing for P-19-171007, which is separate from either of the archaeological sites recorded within Hancock Park, and is associated with the designation California Historical Landmark (CHL) No. 170, known as Hancock Park–La Brea. The original designation as a CHL in the 1930s defined the resource in a general way that highlights the importance of the site to the

study of paleontology, but also recognizes the Native American archaeological components, history of Rancho La Brea, and the role of the Hancock family in developing Hancock Park and supporting the scientific research. The site was first listed in the CHRIS as P-19-171007 either just before or in conjunction with a National Register of Historic Places (NRHP) evaluation completed in the early 1980s. The NRHP eligibility determination provided clarification of the boundary, constituents, and significance based on an established set of criteria. The NRHP evaluation ultimately found the site eligible under Criterion A for the role played in the history of paleontology in North America, but also for having played a significant part in the development of science at an international level. While this determination ultimately established the significance based specifically on its paleontological history, the explicitly archaeological and broadly historical components were still considered in both the original landmark designation and in the updated recording for the NRHP evaluation. Accordingly, the resource is discussed here as a type of cultural resource for purposes of the current analysis. And in keeping with this prior association between the landmark designation and listing in the CHRIS, the designation of CHL No. 170 and the NRHP eligibility determination made for P-19-171007 will be considered in tandem for this report as they are largely referring to the same resource, the latter being an updated recording of the former. The boundary for the Hancock Park–La Brea landmark designation was originally defined as the 23-acre footprint of Hancock Park, including the space occupied by the Los Angeles County Museum of Art, which also corresponds to the boundary for P-19-171007.

SACRED LANDS FILE SEARCH

The Native American Heritage Commission (NAHC) Sacred Lands File search produced negative results, indicating that no sacred lands have previously been recorded on the property (NAHC 2022). The NAHC provided a list of Native American contacts and suggested contacting them to provide information on sacred lands that may not be listed in the Sacred Lands File. The County of Los Angeles (County) conducted informational outreach to tribes across Los Angeles County for the project, as well as formal consultation with tribes included on the County's Assembly Bill 52 consultation list which requested to proceed with consultation. The responses to this outreach and consultation confirmed the sensitivity of existing archaeological discoveries and the potential for additional Native American materials to be preserved as buried deposits within the project site. A detailed discussion of the County's Native American consultation process is included in Section 5.14, Tribal Cultural Resources.

PHASE 1 AND PHASE 2 INVESTIGATION

After completion of the initial phase of background research, an archaeological field investigation occurred that focused on three key areas within the project site. The field investigation was conducted using shovel test pits and manual auger units—designated STP and AUG—that were placed at 10-meter intervals within sample testing areas. The locations were determined based on the following four criteria:

1) the location of new project components that would have the greatest degree of associated ground disturbance—i.e., the new museum facility and parking lot;
2) current open space that avoids obstructions from current developments, including artificial fill associated with the extant museum building;
3) areas of highest Native American and historical archaeological sensitivity as determined from preliminary background research; and
4) avoiding paleontologically sensitivity or protected areas, including any surface asphalt seeps.

During the field investigation, artifacts, fossilized bone, and some environmental samples were collected. The collected materials were stored during fieldwork and later analyzed in the laboratory at the George C. Page Museum (Page Museum) and will remain in the Natural History Museums of Los Angeles

County collections. Based on Phase 1 and Phase 2 investigations at the site, there is potential for previously undocumented cultural resources to be located within the project site (Millington and Dietler 2023).

5.4.2 Regulatory Setting

The following section describes the regulations that are most relevant to the archaeological resources that may be affected by the project. Additional regulations that are relevant, but less directly so, are described in related sections of this EIR, including Section 5.5, Cultural Resources – Historical Resources, and Section 5.14, Tribal Cultural Resources.

5.4.2.1 Federal

There are no federal regulations related to cultural resources applicable to the project.

5.4.2.2 State

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires a lead agency to analyze whether historic and/or archaeological resources may be adversely affected by a proposed project. Under CEQA, a "project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment" (Public Resources Code [PRC] Section 21084.1). Answering this question is a two-part process: first, the determination must be made whether the proposed project involves cultural resources. Second, if cultural resources are present, the proposed project must be analyzed for a potential "substantial adverse change in the significance" of any resources.

According to State CEQA Guidelines, 14 California Code of Regulations (CCR) 15064.5, for the purposes of CEQA, historical resources are:

- A resource listed in, or formally determined eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (CRHR) (PRC Section 5024.1, 14 CCR 4850 et seq.).
- A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historic resources survey meeting the requirements of PRC Section 5024.1(g).
- Any object, building, structure, site, area, place, record, or manuscript that the lead agency determines to be eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historical resource under CEQA) if the resource meets the criteria for the CRHR (as defined in PRC Section 5024.1, 14 CCR 4852).

Resources nominated for the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined above) do not meet NRHP criteria may still be eligible for the CRHR.

According to CEQA, the fact that a resource is not listed in or determined eligible for the CRHR or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be a historical resource (PRC Section 5024.1). Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (State CEQA Guidelines, 14 CCR 15064.5[b]).

State CEQA Guidelines specify that a "substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (State CEQA Guidelines, 14 CCR 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes "those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion" or eligibility for the NRHP, CRHR, or local register.
In addition, pursuant to State CEQA Guidelines, 14 CCR 15126.2, the "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

Archaeological resources under CEQA may be significant either as a historical resource or as a unique archaeological resource. PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs, may be nominated for the CRHR. According to PRC Section 5024.1(c), a resource—either an individual property or a contributing element of a historic district—may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.
- **Criterion 3:** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated for the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity do not meet NRHP criteria may still be eligible for the CRHR. While all sites are evaluated according to all four of the CRHR criteria, the eligibility for archaeological resources is typically considered under Criterion 4. Most

prehistoric archaeological sites are lacking identifiable or important association with specific persons or events of regional or national history (Criteria 1 and 2), or lack the formal and structural attributes necessary to qualify as eligible under Criterion 3.

An archaeological site may be considered significant if it displays one or more of the following attributes: chronologically diagnostic, functionally diagnostic, or exotic artifacts; datable materials; definable activity areas; multiple components; faunal or floral remains; archaeological or architectural features; notable complexity, size, integrity, time span, or depth; or stratified deposits. Determining the period(s) of occupation at a site provides a context for the types of activities undertaken and may well supply a link with other sites and cultural processes in the region. Further, well-defined temporal parameters can help illuminate processes of culture change and continuity in relation to natural environmental factors and interactions with other cultural groups. Finally, chronological controls might provide a link to regionally important research questions and topics of more general theoretical relevance. As a result, the ability to determine the temporal parameters of a site's occupation is critical for a finding of eligibility under Criterion 4 (information potential). A site that cannot be dated is unlikely to possess the quality of significance required for CRHR eligibility or be considered a unique archaeological resource. The content of an archaeological site provides information regarding its cultural affiliations, temporal periods of use, functionality, and other aspects of its occupation history. The range and variability of artifacts present in the site can allow for reconstruction of changes in ethnic affiliation, diet, social structure, economics, technology, industrial change, and other aspects of culture.

CALIFORNIA HISTORICAL LANDMARKS

CHLs are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. The specific standards now in use were first applied in the designation of Landmark No. 770. CHLs numbered 770 and above are automatically listed in the CRHR. To be designated as a CHL, a resource must meet at least one of three criteria, have the approval of the property owner(s), be recommended by the State Historical Resources Commission, and be officially designated by the Director of California State Parks. The three criteria are:

- The first, last, only, or most significant of its type in the state or within a large geographic region (northern, central, or southern California).
- Associated with an individual or group having a profound influence on the history of California.
- A prototype of, or an outstanding example of, a period, style, architectural movement, or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

CALIFORNIA POINTS OF HISTORICAL INTEREST

If a site is primarily of local interest, it may meet the criteria for the California Point of Historical Interest (CPHI) program. CPHIs are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. CPHIs designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historical resource may be designated as both a landmark and a point. If a point is subsequently granted status as a landmark, the point designation will be retired.

TREATMENT OF HUMAN REMAINS

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code Section 7050.5. More specifically, remains suspected to be Native American are treated under the State CEQA Guidelines at 14 CCR 15064.5. PRC Section 5097.98 illustrates the process to be followed if human remains are discovered. If human remains are discovered during excavation activities, the following procedure shall be observed:

- Stop immediately and contact the County Coroner:
  1104 North Mission Road
  Los Angeles, California 90033
  323-343-0512 (8 a.m. to 5 p.m. Monday through Friday) or
  323-343-0714 (after hours, Saturday, Sunday, and holidays)
- If the remains are determined to be of Native American descent, the Coroner has 24 hours to notify the NAHC.
- The NAHC will immediately notify the person it believes to be the most likely descendant (MLD) of the deceased Native American.
- The MLD has 48 hours to make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the human remains and grave goods.

If the owner does not accept the MLD's recommendations, the owner or the MLD may request mediation by the NAHC.

5.4.2.3 County of Los Angeles

COUNTY OF LOS ANGELES 2035 GENERAL PLAN

The County of Los Angeles 2035 General Plan (2035 General Plan) has provisions and guidelines relating to the protection of archaeological and historical resources. These guidelines require that a literature search for valid archaeological surveys and resources be conducted and, if this search indicates a high possibility for a resource to be impacted, that a qualified archaeologist determine the value of possible finds and make recommendations to their preservation or deposition. These guidelines all require that, if a determination to salvage the site has been made, adequate salvage of the site be allowed, prior to grading (County of Los Angeles 2015).

The County's 2035 General Plan establishes the following six policies applicable to the project:

> ***Policy C/NR 14.1*****:** Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.
>
> ***Policy C/NR 14.2*****:** Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.
>
> ***Policy C/NR 14.3*****:** Support the preservation and rehabilitation of historic buildings.
>
> ***Policy C/NR 14.4*****:** Ensure proper notification procedures to Native American tribes in accordance with Senate Bill 18 (2004).
>
> ***Policy C/NR 14.5*****:** Promote public awareness of historic, cultural, and paleontological resources.
>
> ***Policy C/NR 14.6*****:** Ensure that proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

The County of Los Angeles (the County) recognized the potentially adverse impact that the County's 2035 General Plan may have on archaeological resources. This has resulted in deference to historical resources, with the plan's emphasis on rehabilitation that is more likely to preserve historic resources in areas that are being revitalized. However, the plan also acknowledges the negative effects that are possible as structures are replaced or modernized, or as new structures are constructed on vacant lots within historically significant neighborhoods (County of Los Angeles 2015).

5.4.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, the following City of Los Angeles (City) guidance related to archaeological resources are provided for informational purposes.

CITY OF LOS ANGELES GENERAL PLAN CONSERVATION ELEMENT

The City of Los Angeles General Plan (City General Plan), originally adopted in 1974, is a comprehensive long-term document that provides principles, policies, and objectives to guide future development and to meet the existing and future needs of the City. A number of these principles, policies, and objectives serve to mitigate environmental effects. The City's General Plan includes the seven state-mandated elements, including the Conservation Element, which specifically addresses cultural, historical, archaeological, and paleontological resources. Section 3 of the Conservation Element recognizes the City's responsibility for identifying and protecting its archaeological and paleontological resources, and Section 5 recognizes the City's cultural and historical heritage (City of Los Angeles 2001). In these sections, the Conservation Element establishes objectives to protect important archaeological and paleontological resources, as well as its cultural and historical sites and resources for historical, cultural, research, and community educational purposes. It establishes corresponding policies to continue to protect these resources potentially affected by proposed land development, demolition, or property modification activities, including the following:

- **Archaeological and Paleontological Objective:** Protect the city's archaeological and paleontological resources for historical, cultural, research, and/or educational purposes.
- **Archaeological and Paleontological Policy:** Continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition, or property modification activities.
- **Cultural and Historical Objective:** Protect important cultural and historical sites and resources for historical, cultural, research, and community educational purposes.
- **Cultural and Historical Policy:** Continue to protect historic and cultural sites and/or resources potentially affected by proposed land development, demolition, or property modification activities.

SURVEYLA

SurveyLA is a citywide historic resource survey conducted for Los Angeles that is managed and implemented by the City of Los Angeles Office of Historic Resources. Since its launch in 2007, SurveyLA staff, volunteers, and consultant teams have developed multiple-property documentation-driven historic context statements for themes and property types throughout Los Angeles. These contexts define associated themes, property types, eligibility standards, character-defining features, and integrity considerations to be used when evaluating properties. The findings are organized geographically by community planning areas and the results published online at HistoricPlacesLA.org.

The project site is within the Wilshire Community Planning Area (Architectural Resources Group [ARG] 2015a), and La Brea Tar Pits were designated as a historic district in ARG's inventory (ARG 2015b:957–959).

5.4.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to archaeological resources if it would:

a) Cause a substantial adverse change in the significance of an archaeological resource pursuant to State CEQA Guidelines Section 15064.5.

b) Disturb any human remains, including those interred outside of dedicated cemeteries.

5.4.4 Impact Assessment Methodology

When a project will impact an archaeological site, the Lead Agency must first determine whether the site is a historical resource. A substantial adverse change in the significance of a historical resource would occur if the project results in the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. The significance of a historical resource is materially impaired when a project:

- demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and justify its inclusion in, or eligibility for inclusion in, the CRHR;
- demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to PRC Section 5020.1(k) or its identification in a historical resources survey meeting the requirements of PRC Section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and justify its eligibility for inclusion in the CRHR as determined by a Lead Agency for the purposes of CEQA.

Based on background review of the project site, one previously recorded resource overlaps the project site: the La Brea Tar Pits Archaeological Site (LAN-159/H). LAN-159/H contains the material remains of Native American use from at least 10,000 to 3,200 years ago, and historical refuse from as long ago as the 1860s and through the twentieth century. It is recommended that LAN-159/H is eligible for the CRHR under Criterion 4 because it possesses sufficient archaeological data with the potential to contribute important information to history and it retains integrity. The Native American component of the site also appears to meet the definition of a unique archaeological resource (Millington and Dietler 2023). In total, 77 Native American artifacts have been recovered from LAN-159/H, as well as skeletal remains of a female Native American and a domesticated dog. The historical component of LAN-159/H consists of more than 1,000 pieces of refuse comprising a variety of mostly fragmented materials such as glass, metal, wood, and ceramic. Background review and fieldwork efforts are described in Section 5.4.1.2, Existing Cultural Resources, above.

Hancock Park–La Brea was designated as CHL No. 170 in the 1930s, but before a specific set of criteria for landmark status had been established. The CHL listing was incorporated into the CHRIS as P-19-171007 and the site record was updated in the 1980s as part of an evaluation for the NRHP. For the

role played in the history of paleontology, P-19-171007 was determined eligible for the NRHP under Criterion A. Under PRC Section 5024.1(d), resources eligible for the NRHP are automatically included in the CRHR, making P-19-171007 eligible for the CRHR under Criterion 1. Based on the prior determinations, P-19-171007/CHL No. 170 meets the definition of a historical resource under CEQA. Despite the alterations to the physical setting within the resource boundary, the Tar Pits grounds remain the focus of active research and education through the work at the Page Museum. The significance of the site is retained as the location where paleontological discoveries were made that influenced the development of paleontology in North America. The historical significance continues to be conveyed through the outdoor exhibits, curation of the existing collection, and publicly displayed interpretive materials.

5.4.5 Environmental Impact Analysis

a) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to state CEQA Guidelines Section 15064.5?

The project site contains LAN-159/H, which is CRHR-eligible under Criterion 4 because it possesses sufficient archaeological data with the potential to contribute important information to history and it retains integrity. In addition to previously recorded resources within the project area, Phase 1 and Phase 2 investigations at the site determined that there is potential for previously undocumented cultural resources to be located within the project area (Millington and Dietler 2023).

The site also contains CHL No. 170 and P-19-171007, an NRHP/CRHR-eligible site recognized for the historical importance of the fossil discoveries to the practice of paleontology in North America. Substantial aspects of the proposed project are aimed at furthering and enhancing what has been recognized in the CHL listing and NRHP determination. This includes the status of La Brea Tar Pits as the locality for significant Pleistocene fossils that remain preserved, are currently being recovered, curated, analyzed, and presented in professional and public settings. And it includes Hancock Park as the historical location of fossil excavations that had a significant influence on the field of paleontology and our understanding of the Pleistocene Epoch.

CONSTRUCTION

The construction of a new museum and outdoor facilities, renovation of the existing Page Museum and exhibits, and other components of the project would enhance these very aspects of the park, both through its design and by providing additional facilities to conduct these activities. By maintaining open space for recreational uses in the areas adjacent to those dedicated to fossil excavation and analysis, these elements of the site's significance will continue to be conveyed to the public. Therefore, the project would not result in a substantial change in the significance of CHL No. 170 and P-19-171007.

The project would result in renovation and upgrades throughout the Tar Pits complex, including the 13-acre portion of Hancock Park and the Page Museum. At the time of preparation of this report, final engineering, design, and grading plans for the project had not been finalized. Because the project design is at a preliminary stage, the level of detail needed to determine the precise depth and extent of ground disturbance is not known. However, the level of design that has occurred to-date allows for a general characterization of the overall ground disturbance and excavation that would be necessary for the project. For impact assessment purposes, the design team for the project, working with the Los Angeles County Museum of Natural History Foundation and the County, estimates that, at most, the project would require excavations 6 to 10 feet below ground, potentially involving 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill.

Proposed ground-disturbing activities would have the potential to disturb LAN-159/H as well as unknown associated archaeological components of the site that may be present within the proposed area of disturbance. Based on the above analysis, the project's construction impacts could be *significant*.

OPERATION

Operation of the project would not result in any ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, there is no potential to encounter, alter, or disturb archaeological resources. No impact would occur during project operation.

CR-ARCH Impact 1	
During project construction, the project could cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to State CEQA Guidelines Section 15064.5. Construction impacts could be significant. Project operation would not cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur. (CEQA Checklist Appendix G Threshold v. b)	
Mitigation Measures	
CR-ARCH/mm-1.1	*Retain a Qualified Archaeologist.* *a. Prior to initiating any ground-disturbing activities, a Qualified Archaeologist shall be retained. A Qualified Archaeologist is defined as one who meets the Secretary of the Interior's (SOI) Standards for professional archeology and those defined for a Principal Investigator by the Society for California Archaeology (SCA). The qualifications shall be presented as part of a resume for at least one primary point of contact who will act in capacity as the Qualified Archaeologist but also other key staff who may serve in this role. The resume shall demonstrate their SOI and SCA qualifications and shall be subject to approval by the County.* *b. Ground-disturbing activities shall include excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The Qualified Archaeologist shall carry out and ensure proper implementation of the mitigation measures and regulatory compliance related to archaeological resources and, where appropriate, tribal cultural resources during the project. The Qualified Archaeologist shall be responsible for establishing a meeting schedule with Page Museum curators and collections managers during implementation of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination.* *c. No more than 21 days before ground-disturbing activities for the project commence, the Qualified Archaeologist shall submit a letter confirming that they have been retained consistent with the terms of the CR-ARCH/mm-1.1 and attach the professional resumes for all staff who may be acting in the capacity of the Qualified Archaeologist.*

CR-ARCH Impact 1	
CR-ARCH/mm-1.2	*Prepare an Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan).* *a. Prior to commencing ground-disturbing activities, an AR-TCR Management Plan shall be prepared by the Qualified Archaeologist and submitted to the Page Museum curators and the NHMLAC Curator of Anthropology, who shall review and approve the AR-TCR Management Plan on behalf of the County. The AR-TCR Management Plan shall be prepared in conformance with Public Resources Code Section 5024.1, Title 14 California Code of Regulations, Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1.* *b. The AR-TCR Management Plan shall include but not be limited to the following elements:* *i. Historical context statement, research design, the specific types of archaeological sites likely to be encountered.* *ii. Construction worker training program (described in CR-ARCH/mm-1.3).* *iii. Monitoring protocol for ground-disturbing activities that includes a framework for assessing the geoarchaeological setting to determine whether sediments capable of preserving archaeological remains are present in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment and include a protocol for identifying the conditions under which additional or reduced levels of monitoring (e.g., spot-checking) may be appropriate. The duration and timing of the monitoring shall be determined based on the rate of excavation, geoarchaeological assessment, and, if present, the quantity, type, and spatial distribution of archaeological resources identified.* *iv. Limited program of archaeological presence/absence testing within naturally deposited asphaltic or non-asphaltic alluvial sediments before they are mechanically excavated. In particular, the area of the new museum, promenade, and parking lot expansion shall be further investigated. These investigations shall be conducted via a combination of archaeological units, hand tools, and mechanical trenching. The methods used to conduct the limited archaeological testing shall be coordinated with contractors to ensure that sufficient time is afforded to evaluate the significance of any identified resources, and if they are found to be significant, time to develop and implement a treatment plan appropriate to the type of resource. The timing of any such efforts shall be conducted in localized areas so that delays to project earthwork activities are minimized while allowing archaeological materials to be identified in a manner that retains the scientific integrity of the discovery.* *v. An approach to evaluate newly identified site components, if applicable, as contributors to the significance of LAN-159/H as a "historical resource" pursuant to CEQA Guidelines Section 15064.5(a) or a "unique archaeological resource" pursuant to PRC 21083.2(g). If any archaeological resources are identified and are found not to be significant or do not retain integrity, then they shall be recorded to a level sufficient to document the contents and condition.* *vi. Potential treatment plans to be implemented in the event a newly discovered archaeological resource is determined by the Qualified Archaeologist to contribute to the significance of the site as a historical resource based on California Register of Historical Resources criteria or a unique archaeological resource in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. The AR-TCR Management Plan shall require that if the treatment plans outlined therein are found to be infeasible or other alternatives are proposed, the Qualified Archaeologist shall coordinate with the project proponent and the County*

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	to amend the AR-TCR Management Plan with a formal treatment plan that would reduce impacts to the resource(s). The treatment plans stated in the AR-TCR Management Plan or prepared after the discovery of a historical resource, shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment and if it is determined avoidance is not feasible, treatment may include but not be limited to any of the following depending on the type of resource and the significance evaluation: • *Native American archaeological site components. Data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant where significance is determined under CRHR Criterion 4 or as a unique archaeological resources and integrity is retained. Additional treatment measures to mitigate potentially significant impacts to the component as a tribal cultural resource, which is to be carried out in consultation with the Tribal Consultants and after considering the status of the discovery as a tribal cultural resource.* • *Historical archaeological site components. If a historical archaeological component of the site is present and found to retain integrity, data recovery shall be conducted (i.e., excavation, laboratory processing and analysis) to remove the resource(s) and reduce potential impacts to less than significant.* *vii. Discovery and processing protocol for inadvertent discoveries of archaeological resources that are encountered when an Archaeological Monitor is not present.* *viii. A process by which recovered materials will be prepared for curation at the Page Museum or the Research and Collections Department at the Natural History Museum of Los Angeles County ~~at the Los Angeles Exposition Park~~, as directed by Page Museum curators and collections managers, and in consultation with Tribal Consultants. The curation shall ensure their long-term preservation and allow access to interested scholars and shall be done at the expense of the County and/or the Foundation. If the materials are Native American in origin or any item of cultural patrimony, the manner of their handling and long-term curation may require additional consultation with the appropriate Native American community that shall be determined as part of a tribal consultation process to be conducted by the County who shall be responsible for the disposition of these materials.* *ix. The AR-TCR Management Plan shall summarize the requirements for tribal coordination ~~during~~ in the event of an inadvertent discovery of Native American archaeological resources, including the applicable regulatory compliance measures or conditions of approval for the inadvertent discovery of archaeological resources to be carried out in concert.*
CR-ARCH/mm-1.3	*Conduct an archaeological awareness training.* *a. The Qualified Archaeologist or a designee working under their direction shall provide training to on-site project personnel who are responsible for overseeing ground-disturbing activities (i.e., a foreman or site supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The training shall brief the crews on the regulatory compliance requirements and applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of archaeological resources. As an element of the worker training, the Qualified Archaeologist or their designee shall*

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	advise the construction crews on proper procedures to follow if an unanticipated archaeological resource is discovered during construction, including the authority of Archaeological Monitor(s) to temporarily halt or redirect work away from such a discovery. Workers shall be shown examples of the types of archaeological resources that would require notification of the archaeologist, if encountered. The workers shall be provided with contact information for the Qualified Archaeologist and their designee(s) as part of a brief handout summarizing the critical components of the training. Once the ground-disturbing activities have commenced, the need for additional or supplemental worker trainings shall be determined by the Qualified Archaeologist based upon consultation with project personnel. *b. Within five days of completing each training, a list of those in attendance shall be provided by the Qualified Archaeologist to a point of contact designated by the Museum of Natural History.*
CR-ARCH/mm-1.4	*Monitoring for Archaeological Resources.* *a. At least one Archaeological Monitor working under the direction of the Qualified Archaeologist shall be present during ground-disturbing activities to implement the AR-TCR Management Plan. The Archaeological Monitor shall have the authority to temporarily halt or redirect construction activities when an archaeological resource, suspected resource, or archaeologically sensitive sediments are encountered, as determined by the Qualified Archaeologist in consultation with the Page Museum curators. The presence/absence testing protocol shall be implemented within the asphaltic alluvial sediments that have elevated archaeological sensitivity as stipulated in the AR-TCR Management Plan and conducted in concert with Tribal Monitors and applicable tribal cultural measure measures. The Qualified Archaeologist and Archaeological Monitor shall document the results of the presence/absence testing and allow ground-disturbing activities to proceed in the sediments with archaeological sensitivity once the Archaeological and Tribal Monitors have confirmed the absence of resources. The Archaeological Monitor shall continue to monitor the ground-disturbing activities with the depths assessed by the presence/absence testing. Once the Archaeological Monitor identifies sediments or depths of excavation that are not capable of containing or are unlikely to contain archaeological resources, a corresponding reduction of monitoring coverage would be appropriate, and may be recommended by the Qualified Archaeologist. The Archaeological Monitor shall complete a daily written log documenting construction activities and observations, which shall be included in the final report. The number of Archaeological Monitors shall be determined by the County, based on the scale of ground-disturbing activities and a reasonable degree of effort required to implement the mitigation measures.* *b. In the event that potentially significant archaeological resources are exposed during construction, work in the immediate vicinity of the find (within 8 meters [25 feet]) shall stop until the Qualified Archaeologist can evaluate the significance of the find, with input from the tribal monitor if the discovery is affiliated with Native Americans and is also being assessed as tribal cultural resources. Construction activities may continue in other areas in coordination with the Qualified Archaeologist and, if applicable, Tribal Monitors.* *c. At the conclusion of all ground-disturbing activities the Qualified Archaeologist shall prepare a technical report documenting the methods and results of all work completed under the AR-TCR Management Plan, including, if any, treatment of archaeological materials, results of artifact processing, analysis, and research, and evaluation of the resource(s) for the California Register of Historical Resources. The format and content of the report shall follow the California Office of Historic Preservation's Archaeological Resource Management Reports (ARMR): Recommended Contents and Format. Any archaeological resources identified shall be documented on appropriate California Department of Parks and Recreation 523-Series Forms. The report shall be prepared under the supervision of a Qualified*

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	Archaeologist and submitted to curators of the Page Museum for initial review (on behalf of the Museum of Natural History, as the County departmental unit), and final copies shall be submitted to the County. The report shall be completed with 12 months of completion of the monitoring, unless other arrangements are required, as documented in writing and approved by the County, given the nature of the discovery, in which case a revised date can be determined through consultation with the Museum of Natural History. The final draft of the report shall be submitted to the South Central Coastal Information Center and the Tribal Consultants.
Impacts Following Mitigation	
Upon implementation of Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4 to address inadvertent discovery of unknown archaeological resources, construction impacts would be reduced to less than significant. No operational impacts would occur.	

CR-ARCH/mm-1.2b would require preparing an Archaeological Resource-Tribal Cultural Resource Management Plan (AR-TCR Management Plan) that provides a framework and protocol by which additional measures for archaeological and tribal cultural resources would be implemented, as well as a procedure to follow if a resource is determined to satisfy significance criteria. The measure specifies the essential elements required for the AR-TCR Management Plan so that the monitoring of ground-disturbing activities would be conducted in a manner consistent with industry best practices and professional archaeological standards, adjusted to address the specific nature of the archaeological site, which is composed of a patchily distributed components that have varying degrees of sensitivity correlating with different types of sediments. Specifically, CR-ARCH/mm-1.2b includes stipulations requiring a proactive identification process be integrated into the monitoring effort, in addition to the close inspection of ground-disturbing activities while they are occurring.

It is not practical to prepare the AR-TCR Management Plan at this early stage in the project planning effort. Grading plans and construction drawings have not been prepared, and the specific phases of the project implementation have not been determined. Preparing the AR-TCR Management Plan using more advanced project designs and based on an anticipated schedule for the types of construction activities would allow the AR-TCR Management Plan to better account for this information in the document and ensure proper implementation. However, the project plans and design as proposed and the analysis of a known archaeological and tribal cultural resource, supported by substantial evidence, are sufficiently detailed to identify anticipated project impacts and to allow for the specific performance criteria to be identified for the AR-TCR Management Plan, the implementation of which would occur at a later date.

Grading plans and construction drawings have not been prepared and the specific phases of the project implementation have not been determined. Preparing the Archaeological Resource-Tribal Cultural Resource (AR-TCR) Management Plan using more advanced project designs and based on an anticipated schedule for the types of construction activities would allow the AR-TCR Management Plan to better account for this information in the document and ensure proper implementation. However, the project plans and design as proposed and the analysis of a known archaeological and tribal cultural resource, supported by substantial evidence, are sufficiently detailed to allow for the specific performance criteria to be identified for the AR-TCR Management Plan, the implementation of which would occur at a later time.

According to State CEQA Guidelines 15126.4(b)(3), preservation in place (i.e., avoidance) is the preferred manner of treatment of a significant archaeological site. If a previously unrecorded archaeological component of LAN-159/H is identified during ground-disturbing activities for the project and is found to contribute to the significance of the site, it is possible that under some circumstances

preservation in place would not be a feasible form of mitigation under any of the examples listed in State CEQA Guidelines, and alternative treatment options would be required to avoid or reduce potentially significant impacts. If avoidance is not feasible, treatment may include archaeological data recovery (i.e., excavation, laboratory processing, and analysis) to obtain important information and thereby reduce potential impacts to less than significant.

b) Would the project disturb any human remains, including those interred outside of formal cemeteries?

CONSTRUCTION

The project site contains LAN-159/H, which includes but is not limited to the partial skeletal remains of a female Native American dated to approximately 10,000 B.P. As previously described, the project is anticipated to require ground disturbance over the 13-acre site, including approximately 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill with excavations 6 to 10 feet below ground. Because human remains were found in one location, there is a possibility that additional remains may exist elsewhere on the project site. Proposed ground-disturbing activities would have the potential to disturb additional human remains associated with LAN-159/H, if present. Therefore, impacts could be *significant*.

OPERATION

Operation of the project would not result in ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, there is no potential to disturb any human remains, including those interred outside of formal cemeteries. No impact would occur during project operation.

CR-ARCH Impact 2
Construction of the project could disturb previously unidentified human remains if present within the project site. Construction impacts could be significant. Operation of the project would not disturb any human remains, including those interred outside of formal cemeteries. No operational impacts would occur. (CEQA Checklist Appendix G Threshold v. c)
Mitigation Measures
Implementation of Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4 is required.
Impacts Following Mitigation
Based on required compliance with California Health and Safety Code Section 7050.5 and the PRC and implementation of Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4 during project construction, impacts would be reduced to less than significant with mitigation. No operational impacts would occur.

5.4.6 Cumulative Impact Analysis

For the purposes of this EIR analysis, the geographic context for cumulative impacts to archaeological resources is defined as the northwestern Los Angeles Basin—approximately the area west of the Los Angeles River, south of the Santa Monica Mountains, east of the Pacific coastline, and north of the Palos Verde Peninsula. The archaeological record reflects a complex relationship between human behavior, diverse environmental conditions, and the complexities of preservation, all of which have changed over

the course of human history in California. While the present-day street grid and contemporary administrative and cadastral boundaries, such as the limits of incorporated cities and counties, are appropriate spatial units for analyzing the archaeological record after Spanish colonization, they are inadequate when it comes to the Native American archaeological record. By comparison, physiographic regions, like the Los Angeles Basin, characterize areas with similar environmental features: topography, hydrological patterns, distribution of vegetation communities, areas of sediment deposition, and erosion. Because these environmental features have exerted a strong influence on human land-use patterns—where human activities were more or less likely to occur—and by extension, where the physical products of those activities are more or less likely to be preserved as part of the archaeological record, they provide a more useful and meaningful way to assess the whole of the archaeological record.

For the analysis of cumulative impacts, the northwestern Los Angeles Basin provides an area large enough to contain a representative sample of Native American archaeological sites, the traditional Gabrielino territory, and relevant historical and contemporary administrative boundaries, while being small enough to account for the cumulative impacts from projects on a more local scale. Notably, the northwestern Los Angeles Basin contains a complex of sites recorded along Ballona Creek and around the Ballona wetlands, Kuruvungna Village Springs, and an important archaeological site recorded at Union Station. The northwestern Los Angeles Basin covers less than 20 percent of the entire Gabrielino traditional territory, and to a lesser extent the overlapping portions of the Tataviam traditional territory, but the northwestern Los Angeles Basin contains several important settlements and placenames, including Guaspet, Yaanga, and, as mentioned, Kuruvungna. Also, the entire historical boundary of Rancho La Brea and a substantial portion of the incorporated boundary of the City of Los Angeles are contained within the northwestern Los Angeles Basin, both of which are influential in terms of defining the geographic areas specific to historical archaeological resources. For these reasons, the northwestern Los Angeles Basin, a physiographic subregion, provides a reasonable basis on which to consider potential cumulative impacts.

Archaeological resources are nonrenewable, irreplaceable, and inherently important to the public, including Native American descendants, and their destruction prevents further study of past lifeways and history. Projects that could be developed in the northwestern Los Angeles Basin include the development projects listed in Chapter 4, Environmental Setting, as well as additional development projects beyond the geographical limit of the cumulative project listing in Chapter 4. The continued development of projects in the northwestern Los Angeles Basin, particularly those for land development and transportation, would have the potential to result in a cumulative impact associated with the loss of archaeological resources. Given the potential for archaeological resources within the northwestern Los Angeles Basin and the number of construction activities that involve disturbance of archaeologically sensitive areas, cumulative impacts to archaeological resources, including the disturbance of human remains, could occur through physical demolition, destruction, relocation, or alteration of a resource such that the significance of the historical resource would be materially impaired.

Prior to the implementation of the mitigation measures outlined previously in this section, because the project has the potential to contribute to the loss of archaeological resources that could combine with impacts from past, present, and reasonably foreseeable projects, the project's contribution toward cumulative effects on archaeological resources could be *significant* if these mitigation measures were not required to address the potential for direct impacts and the potential for project contributions to cumulative impacts.

As provided in the impacts analysis in Section 5.4.5, a series of mitigation measures have been developed to address the project's potential for impacts to archaeological resources. These mitigation measures have been developed to not only address direct impacts of project implementation, but also to address the project's contribution to cumulative archaeological resource impacts. Implementation of Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4 provide for retention of a qualified

archaeologist, cultural resources sensitivity training, development of a cultural resources monitoring and mitigation plan, archaeological monitoring, and treatment of unanticipated discoveries, which would ensure that significant archaeological impacts, both direct and contributions to cumulative impacts, would be reduced to less than significant with mitigation. Taken together, implementation of these mitigation measures would ensure that the project would have less than significant impacts related to archaeological resources, including the disturbance of human remains, and would address the project's potential for significant contributions to potential cumulative archaeological impacts in the northwestern Los Angeles Basin.

CR-ARCH Impact 3 (Cumulative Impacts)
Prior to the consideration of proposed mitigation measures, construction of the project could result in significant contributions to cumulative impacts related to the disturbance and destruction of archaeological resources pursuant to State CEQA Guidelines Section 15064.5, and human remains. Cumulative impacts could be significant.
Mitigation Measures
Implement Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4. These measures put forward a process that ensures any new archaeological resources or new components of existing historical resources would be identified, inventoried, and evaluated as contributors to the historical significance of the resource, and treated appropriately if found to be a contributing element, which incorporates input from culturally and geographically affiliated California Native American tribes.
Impacts Following Mitigation
With implementation of Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4, the project's contribution to cumulative impacts related to disturbance and destruction of archaeological resources would be reduced to less than significant.

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5.5 CULTURAL RESOURCES – HISTORICAL RESOURCES

This section of the EIR discusses and evaluates the potential impacts of the project on cultural historical resources. Historical resources can include buildings, structures, objects, sites, historic districts, and cultural landscapes. This section, in combination with Section 5.4, Cultural Resources – Archaeological Resources, addresses the potential impacts encompassing cultural resources as described within Section V of the environmental checklist form (Appendix G) of the State CEQA Guidelines. The analysis in this section is based on *Historic Resources Technical Report, La Brea Tar Pits Master Plan, Los Angeles, California* (SWCA 2023; herein called the Historic Resources Technical Report and included as Appendix D to this EIR).

5.5.1 Existing Conditions

5.5.1.1 Historical Context

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits, which includes the George C. Page Museum (Page Museum). In 1960, a portion of the land within Hancock Park was dedicated to the creation, development and maintenance of the LACMA campus.[1] Over several decades, the LACMA portion of the site has been altered and undergone expansion. LACMA's portion of the 23-acre Hancock Park has been almost entirely developed. In contrast, the property known as La Brea Tar Pits is generally a park-like setting.

Since the discovery of fossils and subsequent donation of the 23-acre parcel to the County of Los Angeles (County), Hancock Park has been reserved and preserved for use as an open space and for ongoing excavations, curation, and education for nearly a century. This section provides a summary of the full historic context and construction chronology for the property and surrounding site. The full thematic historic context section, construction chronology, and associated figures and maps are provided in the Historic Resources Technical Report in Appendix D.

RANCHO LA BREA, EARLY SETTLEMENT

Following Mexican Independence, the area around the tar pits was provisionally granted in 1828 as Rancho La Brea to Antonio Jose Rocha, a Portuguese immigrant who was a prominent early settler in the area. The land grant, which covered portions of Mid-Wilshire, Hollywood, and West Hollywood, was given with the condition that the public could continue to extract *brea* (asphaltic) material from the tar pits as needed. In 1849, Major Henry Hancock came to California as part of the California Gold Rush, initially settling in San Francisco before relocating south to Los Angeles. Hancock and his wife Ida acquired the Rancho La Brea lands in the 1850s. They primarily used the ranch for raising livestock, but also excavated asphaltum and shipped material from the tar pits throughout California. Excavations on the property ultimately created the large asphaltum lakes that characterized the property over the following decades.

Following Major Hancock's death in 1883, in the early 1900s, Ida Hancock leased a portion of Rancho La Brea to the Salt Lake Oil Company, which quickly struck oil and spurred a significant boom in well development and oil production. In a short period, the Rancho La Brea lands surrounding the ranch house and tar pits would become a vast oil field, characterized by a landscape of derricks.

[1] Originally part of the Los Angeles Museum of History, Science, and Art, which opened in 1910 in Exposition Park, LACMA was established in 1961 as a separate, art-focused institution.

While fossil excavations would not begin until the early 1900s, the existence of fossils in La Brea Tar Pits had been observed as early as 1875. Early twentieth-century oil exploration, however, brought to light the extent and significance of the site's paleontological resources. In light of the scientific value and importance of the site, the long-term use and character of the large parcel now encompassing Hancock Park diverged significantly from the surrounding, densely developed neighborhood. By the early twentieth century, Rancho La Brea had already been recognized as home to one of the most important collections of late Pleistocene asphaltic fossils in the world.

As word spread of the concentration of fossils at Rancho La Brea and requests to excavate poured in, the Hancock family reduced the number of institutions allowed to dig on the property. Priority was granted (exclusively) to local institutions, primarily the Los Angeles County Museum of History, Science, and Art (the predecessor to the Natural History Museum),[2] which was given a 2-year concession to excavate. During the County dig, the team excavated over 100 pits, of which 30 included noteworthy deposits. From these deposits, the team extracted hundreds of thousands of fossilized prehistoric animal bones, which were catalogued and transported to the museum. At the time, this find was considered the largest collection of Pleistocene fossils in the world, representing thousands of animals.

Although the fossils uncovered by the Los Angeles County Museum of History, Science, and Art dig were too plentiful for a single exhibition, the museum constructed a special exhibition space called "La Brea Hall," where some of the most iconic and complete skeletons were displayed. In addition to the exhibits in La Brea Hall, Hancock Park and La Brea Tar Pits became an extremely popular tourist destination; by 1940, the park attracted an estimated 500 visitors each Sunday (Kegley 1940).

HANCOCK PARK

The project site falls within the larger 23-acre Hancock Park, which has remained intact as a relatively undeveloped open space, public park, and cultural institution in the Mid-Wilshire neighborhood for nearly a century.[3] The complex is characterized by a mixture of recreational space, walkways, hardscaping, mature trees and landscaping, the La Brea Lake Pit, seeps, and excavation pits, and museums/exhibition spaces both on-site and in the surrounding vicinity.

In 1915, in light of the site's scientific importance, G. Allan Hancock (son and heir of Henry and Ida Hancock) and the County of Los Angeles began discussing a potential donation of the tar pits and 32 acres of the adjacent property for a park and museum, which would preserve the space in perpetuity for scientific investigations and public enjoyment and education. Negotiations on this donation unfolded over a number of years, until December 1923, when the terms were finalized. The land was officially transferred to the County in 1924 (*Los Angeles Times* 1923).

Through the pre-World War II period, a number of master planning initiatives brought new facilities, dig pits and associated support structures, landscaping, hardscaping, and circulation corridors to Hancock Park. These were both theoretical, in the form of master planning efforts, and actual, with new construction and upgrades. Following the end of World War II, efforts to bring a unified master plan to Hancock Park were renewed. In 1946, the County commissioned architect and landscape planner Harry Sims Bent to develop a new master plan, which was complete by 1948. Construction of the first phase of the 1948 plan was initiated the following year. Subsequent work took place over the next 3 years,

[2] When referred to as the "Natural History Museum" this descriptor refers to the physical place located at 900 Exposition Boulevard, Los Angeles, California 90007, rather than the County governmental department of the Museum of Natural History, as defined in Chapter 6.92 of the Los Angeles County Code.

[3] Not to be confused with the Los Angeles residential neighborhood of Hancock Park, which is located east of the project site.

including the completion of the Observation Pit museum, a Mid-Century Modern–style pavilion that enclosed Pit 101 and allowed visitors to descend to a viewing platform.

In 1956, the County celebrated the 50-year anniversary of the initial excavations of La Brea Tar Pits with a ceremony at Hancock Park. To mark half a century of scientific exploration, which by 1956 had yielded more than 500,000 fossil bones of prehistoric animals, the celebration included Supervisor John Anson Ford, Dr. Hildegarde Howard, chief curator of science at the Los Angeles County Museum, and Dr. Jean Delacour, Los Angeles County Museum of History, Science, and Art director.

At the same time, though La Brea Tar Pits and the park remained scientifically relevant and remarkably popular with the public, plans for a permanent museum still had not come to fruition. In 1958, the County returned to the question of Hancock Park and its next phases of development. In 1960, the County commissioned renowned Modernist architect William L. Pereira to develop a master plan for Hancock Park, the scope of which would include the development of the new fine arts museum complex, a new paleontological museum, and associated landscape plans and improvements throughout the property (*Hollywood Citizen News* 1961a; *Los Angeles Times* 1960).

The 1961 Pereira plan primarily focused on the construction of the new Los Angeles County Museum of Art (LACMA) facilities. The proposed paleontological museum had no funding allocated for its construction (*Hollywood Citizen News* 1961b, 1961c). By the late 1960s, following the completion and fanfare of LACMA, the plans for a paleontological museum at Hancock Park again went dormant. However, the Natural History Museum began exploring other options for activating areas of the park adjacent to the new LACMA campus and increasing the interpretive component. In 1967, a new development plan was prepared, and the County moved ahead with commissioning 52 new statues for the park, which included the mammoth sculptures within the Lake Pit, which have since become iconic features (*Los Angeles Times* 1968).

In the mid-1960s, renewed interest in the tar pits led to its designation as a National Natural Landmark and to the expansion of scientific excavations on the property (Holliday 1972). In the early 1970s, George C. Page, a successful industrialist and benefactor of the Natural History Museum, donated several million dollars in support of a paleontological museum. The resulting George C. Page Museum (Page Museum) opened to the public in the spring of 1977. Along with the construction of the Page Museum and its distinctive pyramid-like site, the landscape around the tar pits was reconfigured. New pathways and circulation pathways were constructed around the square plan of the building, hugging the west and south berms.

Through the 1980s, La Brea Tar Pits and the Page Museum were one of the principal attractions along Miracle Mile, in the emerging district known as Museum Row. While the destination remained popular with tourists, school groups, and locals alike, Hancock Park was viewed as outdated, and the County began exploring new plans for the park to create a more attractive space for contemporary audiences (Hanna/Olin, Ltd. 1994).

In its current form, Hancock Park reflects master planning initiatives and campaigns from various periods in the park's history. While much of the landscape reflects more recent campaigns (as noted above), the park's character and use as an urban open space protected and reserved for scientific exploration, curation, education, and public use, have remained intact for more than a century. The sparsely developed, 23-acre parcel, still framed with mature trees and landscaping, remains intact, reflecting the original agreement between the Hancock family and the County. Although the landscaping, facilities, and topography have been altered through the years, Hancock Park reflects a development history that is unique in Los Angeles: from the early years of oil exploration and fossil discovery, to the gradual establishment of cultural and curatorial/educational institutions to tell its story from the Pleistocene era, through post-World War II expansion, and recent upgrades and master planning efforts.

5.5.1.2 Evaluation Results

This section provides an overview of previously identified historic resources and of the results of a field survey of properties within the CEQA area of potential effects (APE). For purposes of this study, the CEQA APE encompasses the project site and all directly adjacent or facing parcels. Associated maps and descriptions of properties within the CEQA APE are provided in the Historic Resources Technical Report in Appendix D.

PREVIOUSLY IDENTIFIED HISTORIC RESOURCES

Within the CEQA APE, 10 properties have been previously identified as historical resources pursuant to CEQA (Table 5.5-1). Current California Historical Resource (CHR) status codes are provided for each. All 10 resources were identified through the City of Los Angeles citywide survey undertaking, SurveyLA; corresponding SurveyLA reports are cited throughout this section (see Architectural Resources Group, Inc. 2015a).

Table 5.5-1. Previously Identified Historic Resources within CEQA APE

Address(es) (Assessor's Parcel Number)	Property/Building Name (Inside or Outside Project Footprint)	Built Date	CHR Status Code* (Source)
5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	La Brea Tar Pits Historic District (inside project footprint)	Various	3S (SurveyLA)
5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	George C. Page Museum (inside project footprint)	1977	3S (SurveyLA)
5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	Hancock Park, Observation Pit (inside project footprint)	1952	3S (SurveyLA)
5905 Wilshire Boulevard (5508-016-902)	Pavilion for Japanese Art (outside project footprint)	1982–1988	3S (SurveyLA)
3rd Street (north), Hauser Boulevard (east), 6th Street (south), Fairfax Avenue (west)†	Park La Brea Garden Apartments Historic District (outside project footprint)	1943 and 1951	3S (SurveyLA)
5757 W. Wilshire Boulevard (5508-015-009)	Prudential Square (outside project footprint)	1948	3S (SurveyLA)
5814 W. Wilshire Boulevard (5089-008-031) (5816 & 5818 W. Wilshire Boulevard)	Craft and Folk Art Museum (outside project footprint)	1930	3CS (SurveyLA)
5820 W. Wilshire Boulevard (5089-010-002)	Hancock Park Building (outside project footprint)	1958	3CS (SurveyLA)
5828 W. Wilshire Boulevard (5089-010-001) (710 S. Stanley Avenue, 5826 W. Wilshire Boulevard)	CMAY Gallery (formerly Arthur Murray Dance Studio (outside project footprint)	1941	3S (SurveyLA)
5850 W. Wilshire Boulevard (5089-011-002) (5856 & 5858 W. Wilshire Boulevard)	Office building (outside project footprint)	1951	3CS (SurveyLA)

* 3S = Appears eligible for NRHP as an individual property through survey evaluation. 3CS = Appears eligible for California Register of Historical Resources (CRHR) as an individual property through survey evaluation.

† There are multiple assessor parcel numbers associated with the Park La Brea Garden Apartments Historic District and they are not listed here separately.

EVALUATION OF PROPERTIES WITHIN CEQA APE

Field surveys and research were conducted to field check previous findings and to identify and research of-age, previously unevaluated properties within the CEQA APE. Table 5.5-2 summarizes the results of these efforts and the following sections provide summarized information regarding the findings for properties that qualify as historical resources pursuant to CEQA (i.e., properties designated or eligible for

designation at the federal, state, or local level). Character-defining features for the historical resources within the project footprint are included. The Historic Resources Technical Report (see Appendix D) provides the full evaluations for both eligible and ineligible properties.

Table 5.5-2. Field Survey Results

#	Address(es) (Assessor's Parcel Number)	Property/Building Name (Inside or Outside Project Footprint)	Built Date	Historical Resource? (CHR Status)*
1	5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	La Brea Tar Pits Historic District (inside project footprint)	Various	Yes | 3CS
2	5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	George C. Page Museum (inside project footprint)	1977	Yes | 3S; 3CB
3	5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	Observation Pit (inside project footprint)	1952	Yes | 3S; 3CB
4	5905 Wilshire Boulevard (5508-016-902) Eastern portion of LACMA, same address, separate parcel	Pavilion for Japanese Art (outside project footprint)	1982–1988	Yes | 3S
5	555 S. Ogden Drive (5509-004-013) (1943) 5900 Lindenhurst Avenue (5509-004-010) (1943) 530 Alandele Avenue (5509-004-007) (1943) 501 S. Fuller Avenue (5509-004-006) (1943) 5721 W. 6th Street (5509-004-004) (1943)	Park La Brea Garden Apartment Historic District (outside project footprint) District bounded by 3rd Street (north), Hauser Boulevard (east), 6th Street (south), Fairfax Avenue (west).	1943 and 1951	Yes | 3S
6	600 S. Curson Avenue (5508-015-006)	"Museum Terrace" Apartments (outside project footprint)	1986	No | 6Z (1)
7	640 S. Curson Avenue (5508-015-008)	"One Museum Square" Apartments (outside project footprint)	2021	No | 6Z (1)
8	5757 W. Wilshire Boulevard (5508-015-009)	Prudential Square (outside project footprint)	1948	Yes | 3S
9	5800 W. Wilshire Boulevard (5089-010-005)	Office building (outside project footprint)	1958	No | 6Z (2)
10	5814 W. Wilshire Boulevard (5089-010-003)	Craft and Folk Art Museum (outside project footprint)	1930	Yes | 3CS
11	5820 W. Wilshire Boulevard (5089-010-002)	Hancock Park Building (outside project footprint)	1958	Yes | 3CS
12	5828 W. Wilshire Boulevard (5089-010-001) (710 S. Stanley Avenue, 5826 W. Wilshire Boulevard)	CMAY Gallery (formerly Arthur Murray Dance Studio; outside project footprint)	1947 (LA Co Tax Assessor)	Yes | 3S
13	5850 W. Wilshire Boulevard (5089-011-002) (5856 and 5858 W. Wilshire Boulevard)	Office building (outside project footprint)	1951	Yes | 3CS
14	APN 5089-011-154	Vacant land	N/A	N/A
15	5900 Wilshire Boulevard (5086-021-038) Parcel extends to S. Ogden Drive; includes the following addresses: 5950 W. Wilshire Boulevard; 714–716 and 717–719 S. Genesee Avenue; and 5904–5950 W. Wilshire Boulevard	Mutual Benefit Life Plaza (outside project footprint)	1969–1971	Yes | 3CS
16	5905 Wilshire Boulevard (5508-017-009); western segment of LACMA, same address as eastern segment, different APN	Los Angeles County Museum of Art (outside project footprint)	Various	No (new museum under construction)

* CHR Status Codes:

3S = Appears eligible for NRHP as an individual property through survey evaluation

3CB = Appears eligible for California Register of Historical Resources (CRHR) both individually and as a contributor to a CRHR-eligible district through survey evaluation

3CS = Appears eligible for CRHR as an individual property through survey evaluation

6Z (1) = Less than 50 years old and not of exceptional significance

6Z (2) = More than 50 years old but lacks historical integrity

LA BREA TAR PITS HISTORIC DISTRICT | 5801 WILSHIRE BOULEVARD CHR STATUS CODE: 3CS

Based on research and site visits completed for this study, the La Brea Tar Pits Historic District is eligible for landmark designation at the state, county, and city levels. The district meets Criteria 1/1/1 as a unique, significant collection of resources and related cultural institutions and facilities specifically designed to recover, curate, and display those resources to the public, in an example of cultural/institutional development in Los Angeles extending back nearly a century.

The La Brea Tar Pits Historic District consists of related cultural/paleontological resources, site/landscape features, and institutional facilities reflecting the story of over 100 years of scientific excavation, study, public education, and exhibition of one of the world's most significant concentrations of Pleistocene-age fossils.

Located on Wilshire Boulevard's Miracle Mile, the historic district is bounded by Wilshire Boulevard, Curson Avenue, 6th Street, and the adjacent Los Angeles County Museum of Art complex and Japanese Pavilion. Excluding these two museums, the historic district boundaries correspond to those of Hancock Park. While Hancock Park itself, in terms of its topography, circulation corridors, and landscaping, has changed over time, the extant contributing elements of this cultural landscape are intact and convey the historic district's significance.

In 2014/2015, the Tar Pits site was found eligible as a historic district for the NRHP, California Register of Historical Resources (CRHR), and for local listing through SurveyLA. The property was found to be eligible for the NRHP and CRHR, as well as designation as a Los Angeles Historic-Cultural Monument (HCM) under Criterion A, 1, and A, respectively, with significance under two contexts. The reasons for significance for each were described in the following manner: the district was found to be a historical resource as an "excellent and extremely rare example of an intact archaeological and paleontological district in a densely developed urban area," and for its "association with the development of county-owned cultural institutions along Miracle Mile in Los Angeles" (Architectural Resources Group, Inc. 2015b:958).

Table 5.5-3 provides an overview of the character-defining features in the La Brea Tar Pits Historic District. The Historic Resources Technical Report (see Appendix D) provides more detail on the character-defining features, including a visual overview of each character-defining feature.

Despite alterations to Hancock Park overall, the rarity and significance of the site's paleontological resources and the buildings constructed to facilitate their active study and exhibition reflect a history of institutional and cultural development in Los Angeles (if not the United States) that is unique.

Table 5.5-3. Character-Defining Features and Components, La Brea Tar Pits Historic District

Photograph	Character-Defining / Contributing Feature	Era / Date of Construction
	Lake Pit	Early twentieth century
	Excavation pits	Resources dating to prehistoric era; facilities through present day
	Oil Creek	Topographic feature
	Oversized parcel with significant amount of open space	ca. 1910s through present day; by the 1920s, the site's contrast with surrounding areas, which were being subdivided and developed, had become obvious. This contrast intensified with commercial development on Wilshire Boulevard and became pronounced with the completion of Metropolitan Life's Park La Brea complex.

Photograph	Character-Defining / Contributing Feature	Era / Date of Construction
	Perimeter trees and other mature trees within the park	ca. 1920s through 1977
	Southeast corner entrance from Wilshire Boulevard	ca. 1920s
	Remnant stone walls (Pits 9 and 13); these walls are assumed to date to the 1930s addition of stone walls encircling pit sites throughout the northwestern quadrant of the park	1930s
	Observation Pit	1952

Photograph	Character-Defining / Contributing Feature	Era / Date of Construction
	Statuary depicting prehistoric animals	Various
	G. Allan Hancock memorial, placed in 1963 (east of Japanese Pavilion, north of Lake Pit)	1963
	Page Museum	1977
	Page Museum topography, including berm	1977

Photograph	Character-Defining / Contributing Feature	Era / Date of Construction
	Circulation corridors and pathways (i.e., diagonal entry path, path adjacent to the Lake Pit, and pathways in north-central portion of the park flanked with mature trees)	1920s through 1970s
	Overall spatial relationships between buildings, structures, open space, park/recreational areas, resources, and natural features	Various

PAGE MUSEUM, LA BREA TAR PITS | 5801 WILSHIRE BOULEVARD
CHR STATUS CODE: 3S, 3CB

In 2015, the 1977 Page Museum was identified as eligible for the NRHP and CRHR and for designation as a local HCM as part of SurveyLA. The building was documented as an "excellent example of Late Modern institutional architecture, designed by local architecture firm Thornton and Fagan" (Architectural Resources Group 2015c:164). The building is noted for having exceptional architectural significance and was determined eligible for the NRHP under Criterion C and using Criteria Consideration G ("Properties that Have Achieved Significance within the Past 50 Years"). The survey also found the Page Museum eligible for the CRHR and as a local HCM under Criterion 3/3, respectively. The building has not changed significantly since it was documented and evaluated as part of the 2015 survey. In addition, the property appears eligible under County Criterion 3.

The primary character-defining features of the Page Museum include (but are not necessarily limited to):

- "Burial mound" berm/ pyramidal massing of the building and site
- Expansive adjacent lawn on the west
- Prominent fiberglass frieze with bas relief Pleistocene scenes and pronounced overhangs
- Structural space frame that supports the frieze and seems to float above podium level
- High degree of indoor-outdoor integration
- Open-air configuration at the podium level, with fiberglass frieze opening onto the central atrium
- Open, central atrium space with landscaping
- Symmetrical design composition, of the building and its site

- Sloped berms with turf plantings integrated into the exterior wall of the museum's ground floor
- Descending entrance on south, flanked by stairways leading to upper podium at the second floor
- Laboratory space open to public view (interior)

OBSERVATION PIT, LA BREA TAR PITS | 5801 WILSHIRE BOULEVARD CHR STATUS CODE: 3S, 3CB

In 2015, the Observation Pit was documented in SurveyLA as an "excellent example of Mid-Century Modern institutional architecture, designed by notable local architect Harry Sims Bent" (Architectural Resources Group, Inc. 2015c:163). The 1952 building was determined eligible for the NRHP and CRHR, and for local HCM designation under Criterion C/3/3, respectively. The building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for the Observation Pit. In addition, the property appears eligible under County Criterion 3.

Pavilion for Japanese Art, LACMA | 5905 Wilshire Boulevard | CHR Status Code: 3S

In 2015, the Pavilion for Japanese Art, built in 1988, was identified as a historical resource eligible for the NRHP and CRHR and for designation as a local HCM as part of SurveyLA. The building was found eligible as an "[e]xcellent example of an Organic style institutional building, designed by notable architect Bruce Goff and completed by notable architect Bart Prince" (Architectural Resources Group, Inc. 2015c:164). The building has not changed significantly since it was evaluated in 2015; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for the Pavilion for Japanese Art. In addition, the property appears eligible under County Criterion 3. The building is therefore considered to be a historical resource for purposes of CEQA.

Park La Brea Garden Apartment Historic District | CHR Status Code: 3S

In 2015, as part of SurveyLA, Park La Brea Garden Apartment Historic District was identified as a historical resource eligible for the NRHP, CRHR, and as a local Historic Preservation Overlay Zone (HPOZ) under Criteria C/3/3 as "an excellent example of a 1940s–1950s garden apartment complex in the area, unique in Los Angeles for its inclusion of high-rise as well as low-rise multi-family residential buildings" (Architectural Resources Group, Inc. 2015b:986). The buildings within the CEQA APE have not changed significantly since they were documented as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HPOZ eligibility for the Park La Brea Garden Apartment Historic District. Both the district as a whole and each contributing building within the CEQA APE are considered to be historical resources for purposes of CEQA.

Prudential Square | 5757 W. Wilshire Boulevard | CHR Status Code: 3S

In 2015, SurveyLA identified this historical resource as eligible for the NRHP and CRHR and for designation as a local HCM. The 1948 office complex known as Prudential Square was designed by Wurdeman and Becket. Listed in Los Angeles County Tax Assessor data as 5757 W. Wilshire Boulevard, the Prudential Square complex spans the addresses of 5711–5779 West Wilshire Boulevard. This building complex has not changed significantly since it was evaluated as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for Prudential Square. The building is therefore considered to be a historical resource for purposes of CEQA.

Craft and Folk Art Museum | 5814 W. Wilshire Boulevard | CHR Status Code: 3CS

In 2015, Survey LA identified the Craft and Folk Art Museum, built in 1930, as a historical resource eligible for the CRHR and as an HCM. Listed in Los Angeles County Tax Assessor data as 5814 W. Wilshire Boulevard, the Craft and Folk Art Museum spans the addresses of 5814–5818 West Wilshire Boulevard. This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for the Craft and Folk Art Museum. The property is therefore considered to be a historical resource for purposes of CEQA.

Hancock Park Building | 5820 W. Wilshire Boulevard | CHR Status Code: 3CS

In 2015, SurveyLA identified the Hancock Park office building as a historical resource eligible for the CRHR and for designation as a local HCM. This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for the Hancock Park Building. The property is therefore considered to be a historical resource for purposes of CEQA.

CMAY Gallery (formerly Arthur Murray Dance Studio) | 5828 W. Wilshire Boulevard | CHR Status Code: 3S

In 2015, SurveyLA identified 5828 W. Wilshire Boulevard as a historical resource eligible for the NRHP and CRHR and as an HCM. The property also occupies the addresses of 710 South Stanley Avenue and 5826 West Wilshire Boulevard. This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for the CMAY Gallery. The property is therefore considered to be a historical resource for purposes of CEQA.

5850 W. Wilshire Boulevard | CHR Status Code: 3CS

In 2015, SurveyLA identified the building at 5850 W. Wilshire Boulevard as a historical resource eligible for the CRHR and as an HCM. This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for 5850 W. Wilshire Boulevard. The property is therefore considered to be a historical resource for purposes of CEQA.

Mutual Benefit Life Plaza | 5900 Wilshire Boulevard | CHR Status Code: 3CS

Designed in 1969–1971 by master architects William Pereira and Gin D. Wong, the Mutual Benefit Life Plaza was found eligible for the CRHR and as an HCM in 2015 by SurveyLA under the context of Architecture and Engineering, 1850–1980, subcontext of L.A. Modernism, 1919–1980, theme of Post-War Modernism, 1946–1976, Corporate International, 1946–1976. The property was found to meet CRHR Criterion 3 and local Criterion 3 as an "[e]xcellent example of a Corporate International-style commercial building on Wilshire's Miracle Mile, designed by notable local architects William Pereira and Gin D. Wong" (Architectural Resources Group, Inc. 2015c:230). The property was found ineligible for the NRHP due to alterations. This building has not changed significantly since it was evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for Mutual Benefit Life Plaza. The property is therefore considered to be a historical resource for purposes of CEQA.

5.5.2 Regulatory Setting

The following section describes the regulations that are most relevant to the historical resources that may be affected by the project. Additional regulations that are relevant, but less directly so, are described in related sections of this EIR, including Section 5.4, Cultural Resources – Archaeological Resources, and Section 5.14, Tribal Cultural Resources.

5.5.2.1 Federal

NATIONAL HISTORIC PRESERVATION ACT OF 1966

Enacted in 1966 and amended in 2000, the National Historic Preservation Act (NHPA) instituted a multifaceted program, administered by the U.S. Secretary of the Interior, to encourage sound preservation policies of the nation's cultural resources at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places, established the position of State Historic Preservation Officer and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the goals of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation.

NATIONAL REGISTER OF HISTORIC PLACES

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (36 Code of Federal Regulations [CFR] 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion B: It is associated with the lives of persons who are significant in our past;
- Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; and/or
- Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting these criteria, a property must retain historic integrity, which is defined in National Register Bulletin 15 as the "ability of a property to convey its significance" (National Park Service [NPS] 1990:44). In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity.

To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1. Location – the place where the historic property was constructed or the place where the historic event occurred

2. Design – the combination of elements that create the form, plan, space, structure, and style of a property
3. Setting – the physical environment of a historic property
4. Materials – the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property
5. Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory
6. Feeling – a property's expression of the aesthetic or historic sense of a particular period of time
7. Association – the direct link between an important historic event or person and a historic property.

For the purposes of this study's indirect impact analysis, the aspects of setting and feeling are of particular relevant for this discussion; areas of particular relevance are highlighted below. The National Park Service defines the quality of setting in the following way:

> Setting is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the character of the place in which the property played its historical role. It involves how, not just where, the property is situated and its relationship to surrounding features and open space.
>
> Setting often reflects the basic physical conditions under which a property was built and the functions it was intended to serve. In addition, the way in which a property is positioned in its environment can reflect the designer's concept of nature and aesthetic preferences.
>
> The physical features that constitute the setting of a historic property can be either natural or manmade, including such elements as: Topographic features (a gorge or the crest of a hill); vegetation; simple manmade features (paths or fences); and relationships between buildings and other features or open space.
>
> These features are their relationships should be examined not only within the exact boundaries of the property, but also between the property and its surroundings. This is particularly important for districts. (NPS 1990:45)

The National Park Service defines the quality of feeling in the following way:

> Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character. (NPS 1990:45)

NATIONAL NATURAL LANDMARKS PROGRAM

Authorized by the Historic Sites, Buildings and Antiquities Act, the National Natural Landmarks program is administrated by the National Park Service for resources located on federal, state, or local lands. As codified in 36 CFR 62, the National Natural Landmarks program seeks to encourage the identification, study, designation, recognition, and preservation of nationally significant ecological and geological resources that reflect the nation's natural heritage (including paleontological/fossil-based resources).

5.5.2.2 State

The policies of the NHPA are implemented at the state level by the California Office of Historic Preservation, a division of the California Department of Parks and Recreation. The Office of Historic Preservation is also tasked with carrying out the duties described in the California Public Resources Code (PRC) and maintaining the California Historical Resources Information System (CHRIS) and CRHR. The state-level regulatory framework also includes CEQA, which requires the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical resources.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Created in 1992 and implemented in 1998, the CRHR is, according to PRC Sections 21083.2 and 21084.1, "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs, may be nominated for inclusion in the CRHR.

According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

Criterion 2: It is associated with the lives of persons important in our past;

Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values;

Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires a Lead Agency to analyze whether historical resources may be adversely impacted by a project. Under CEQA, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Evaluating such potential effects is a two-part process: first, the determination must be made as to whether the project involves historical resources. Second, if historical resources are present, the project must be analyzed for a potential substantial adverse change in the significance of the resource.

According to State CEQA Guidelines Section 15064.5, for the purposes of CEQA, a historical resource is:

1. A resource listed in, or formally determined eligible for listing in, the California Register of Historical Resources (PRC 5024.1, Title 14 CCR, Section 4850 et seq);

2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC; or
3. Any building, structure, object, site, or district that the lead agency determines eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historical resource under CEQA) if the resource meets the criteria for listing on the California Register (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

According to State CEQA Guidelines Section 15064.5 and PRC Section 5024.1, the fact that a resource is not listed or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude the Lead Agency from determining that the resource may be a historical resource. According to State CEQA Guidelines Section 15064.5(b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment.

Substantial Adverse Change to Historical Resources

State CEQA Guidelines Section 15064.5 specifies that "substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired." Material impairment occurs when a project alters in an adverse manner or demolishes "those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion" or eligibility for inclusion in the NRHP, CRHR, or local register. In addition, pursuant to State CEQA Guidelines Section 15126.2, the "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

State CEQA Guidelines Section 15064(d) further defines direct and indirect impacts in the following manner:

1. A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project.
2. An indirect physical change in the environment is a physical change in the environment, which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment.
3. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

Secretary of the Interior's Standards for the Treatment of Historic Properties

In accordance with State CEQA Guidelines and Title 14, Division 6, Chapter 3 of the California Code of Regulations (CCR) Section 15126.4(b)(1), a project that has been determined to conform with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (*Secretary's Standards*) is generally considered a project that will not cause a significant adverse impact to historical resources. The *Secretary's Standards* and associated Guidelines are not prescriptive but are "intended to promote responsible preservation practices" (Weeks and Grimmer 2001:3). The standards offer recommendations for maintaining, repairing, and replacing historic features, as well as for designing additions.

As developed by the National Park Service, the *Secretary's Standards* consist of four related treatment approaches: preservation, rehabilitation, restoration, and reconstruction. It is anticipated that rehabilitation would be the appropriate approach for the project. Rehabilitation, which is the most flexible treatment approach of the four, is defined as the process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

The 10 *Secretary's Standards for Rehabilitation* are:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

In 2017, the National Park Service issued an update to the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Grimmer 2017). The updated document includes additional, project-specific detail on how to comply with and implement the *Secretary's Standards*.

Table 5.5-4 summarizes the recommendations for historic building sites that are of particular relevance to the project. Table 5.5-5 summarizes the recommendations for significant settings of historic districts and neighborhoods.

Table 5.5-4. *Standards for Rehabilitation*, Recommended Treatments for Historic Building Sites

Recommended	Not Recommended
Identifying, retaining, and preserving features of the building site that are important in defining its overall historic character. Site features may include 1) walls, fences, or steps; circulation systems, such as walks, paths or roads; 2) vegetation, such as trees, shrubs, grass, orchards, hedges, windbreaks, or gardens; 3) landforms, such as hills, terracing, or berms; 4) furnishings and fixtures, such as light posts or benches; 5) decorative elements, such as sculpture, statuary, or monuments; 6) water features, including fountains, streams, pools, lakes, or irrigation ditches; and 7) subsurface archaeological resources, other cultural or religious features, or burial grounds which are also important to the site.	Removing or substantially changing buildings and their features or site features which are important in defining the overall historic character of the property so that, as a result, the character is diminished.
Retaining the historic relationship between buildings and the landscape	Removing or relocating buildings or landscape features, thereby destroying the historic relationship between buildings and the landscape. Removing or relocating buildings on a site or in a complex of related historic structures (such as a mill complex or farm), thereby diminishing the historic character of the site or complex. Moving buildings onto the site, thereby creating an inaccurate historic appearance. Changing the grade level of the site if it diminishes its historic character. For example, lowering the grade adjacent to a building to maximize use of a basement, which would change the historic appearance of the building and its relation to the site.
Protecting and maintaining buildings and site features by providing proper drainage to ensure that water does not erode foundation walls, drain toward the building, or damage or erode the landscape	Failing to ensure that site drainage is adequate so that buildings and site features are damaged or destroyed; or, alternatively, changing the site grading so that water does not drain properly
Minimizing disturbance of the terrain around buildings or elsewhere on the site, thereby reducing the possibility of destroying or damaging important landscape features, archaeological resources, other cultural or religious features, or burial grounds	Using heavy machinery or equipment in areas where it may disturb or damage important landscape features, archaeological resources, other cultural or religious features, or burial grounds
Protecting buildings and landscape features when working on the site	Failing to protect building and landscape features during work on the site or failing to repair damaged or deteriorated site features
Designing new onsite features…when required by a new use, so that they are as unobtrusive as possible, retain the historic relationship between the building or buildings and the landscape, and are compatible with the historic character of the property Designing new exterior additions to historic buildings or adjacent new construction that are compatible with the historic character of the site and preserve the historic relationship between the building or buildings and the landscape	Introducing new construction on the building site which is visually incompatible in terms of size, scale, design, material, or color, which destroys historic relationships on the site

Table 5.5-5. *Standards for Rehabilitation*, Recommended Treatments for Setting (Districts)

Recommended	Not Recommended
Identifying, retaining, and preserving building and landscape features that are important in defining the overall historic character of the setting. Such features can include 1) circulation systems, such as roads and streets; 2) furnishing and fixtures, such as light posts or benches; 3) vegetation, gardens, and yards; 4) adjacent open space, such as fields, parks, commons, or woodlands; and 5) important views or visual relationships.	Removing or substantially changing those building and landscape features in the setting which are important in defining the historic character so that, as a result, the character is diminished.
Retaining the historic relationship between buildings and landscape features in the setting. For example, preserving the relationship between a town common or urban plaza and the adjacent houses, municipal buildings, roads, and landscape and streetscape features.	Altering the relationship between the buildings and landscape features in the setting by widening existing streets, changing landscape materials, or locating new streets or parking areas where they may negatively impact the historic character of the setting. Removing or relocating buildings or landscape features, thereby destroying the historic relationship between buildings and the landscape in the setting.
Protecting buildings and landscape features when undertaking work in the setting	Failure to protect buildings and landscape features during work in the setting
Evaluating the overall condition of materials and features to determine whether more than protection and maintenance, such as repairs to materials and features in the setting, will be necessary	Failing to undertake adequate measures to ensure the protection of materials and features in the setting.
Repairing features in the setting by reinforcing the historic materials. Repairs may include the replacement in kind or with a compatible substitute material of those extensively deteriorated or missing parts of setting features when there are surviving prototypes, such as fencing, paving materials, trees, and hedgerows. Repairs should be physically and visually compatible.	Failing to repair and reinforce damaged or deteriorated historic materials and features in the setting. Removing material that could be repaired or using improper repair techniques. Replacing an entire feature of the building or landscape in the setting when repair of materials and limited replacement of deteriorated or missing components are feasible
Designing new exterior additions to historic buildings or adjacent new construction that are compatible with the historic character of the setting that preserve the historic relationship between the buildings and the landscape.	Introducing new construction into historic districts which is visually incompatible or that destroys historic relationships within the setting, or which damages or destroys important landscape features
Removing non-significant buildings, additions, or landscape features which detract from the historic character of the setting	Removing a historic building, a building feature, or landscape feature which is important in defining the historic character of the setting.

5.5.2.3 County of Los Angeles

HISTORIC PRESERVATION ORDINANCE

In September 2015, the County Board of Supervisors adopted a Historic Preservation Ordinance (HPO) and Mills Act Program for all unincorporated territories of the county. As codified in Chapter 22.124, the HPO established the County Register of Landmarks and Historic Districts, along with the following designation criteria in unincorporated communities of the county:

A. A structure, site, object, tree, landscape, or natural land feature may be designated as a landmark if it is 50 years of age or older and satisfies one or more of the following criteria:

   1. It is associated with events that have made a significant contribution to the broad patterns of the history of the nation, State, County, or community in which it is located;

   2. It is associated with the lives of persons who are significant in the history of the nation, State, County, or community in which it is located;

3. It embodies the distinctive characteristics of a type, architectural style, period, or method of construction, or represents the work of an architect, designer, engineer, or builder whose work is of significance to the nation, State, County, or community in which it is located; or possesses artistic values of significance to the nation, State, County, or community in which it is located;
4. It has yielded, or may be likely to yield, significant and important information regarding the prehistory or history of the nation, State, County, or community in which it is located;
5. It is listed, or has been formally determined eligible by the United States National Park Service for listing, in the National Register of Historic Places, or is listed, or has been formally determined eligible by the State Historical Resources Commission for listing, on the California Register of Historical Resources;
6. If it is a tree, it is one of the largest or oldest trees of the species located in the County; or
7. If it is a tree, landscape, or other natural land feature, it has historical significance due to an association with an historic event, person, site, street, or structure, or because it is a defining or significant outstanding feature of a neighborhood.

B. Property less than 50 years of age may be designated as a landmark if it meets one or more of the criteria set forth in subsection A of this Section, and exhibits exceptional importance.

C. The interior space of a property, or other space held open to the general public, including but not limited to a lobby, may be designated as a landmark or included in the landmark designation of a property if the space qualifies for designation as a landmark under subsections A or B of this Section.

D. Historic districts. A geographic area, including a noncontiguous grouping of related properties, may be designated as an historic district if all of the following requirements are met:

1. More than 50 percent of owners in the proposed district consent to the designation;
2. The proposed district satisfies one or more of the criteria set forth in subsections A.1 through A.5, inclusive, of this Section; and
3. The proposed district exhibits either a concentration of historic, scenic, or sites containing common character-defining features, which contribute to each other and are unified aesthetically by plan, physical development, or architectural quality; or significant geographical patterns, associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of parks or community planning.

According to HPO Section 22.124.080, landmarks and historic districts may be nominated for designation through resolution by the Board of Supervisors or the Landmarks Commission.

5.5.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is not subject to City of Los Angeles (City) regulatory controls. Nonetheless, City regulatory and planning documents that are most relevant to the project as they relate to historic resources are provided herein for informational purposes.

LOS ANGELES HISTORIC-CULTURAL MONUMENTS

Local landmarks in the city are known as Historic-Cultural Monuments and are managed under direction from the City of Los Angeles Planning Department, Office of Historic Resources. In accordance with

Section 22.171.7, an HCM "is any site (including significant trees or other plant life located thereon), building, or structure of particular historical or cultural significance to the City of Los Angeles" that meets at least one of the following criteria:

1. Is identified with important events of national, state, or local history, or exemplifies significant contributions to the broad cultural, economic or social history of the nation, state, city or community;
2. Is associated with the lives of historic personages important to national, state, city, or local history; or
3. Embodies the distinctive characteristics of a style, type, period, or method of construction; or represents a notable work of a master designer, builder, or architect whose individual genius influenced his or her age.

In Los Angeles, the Cultural Heritage Commission may recommend approval or disapproval of applications for designation; this recommendation is made to the City Council, which may adopt a designation by majority vote.

5.5.3 Thresholds of Significance

The following threshold of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to cultural historical resources if it would:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.

5.5.4 Impact Assessment Methodology

The following section presents an overview of the methodology used in this report. To consider potential direct and indirect impacts to historical resources, the CEQA APE consists of parcels within and directly adjacent to the project footprint.

To characterize all properties within the CEQA APE, SWCA conducted primary- and secondary-source research in a wide variety of collections. A phase of literature review of previous studies was completed, and data gaps were identified to guide research efforts. Research focused on a variety of materials relating to the history and development of the project site and its role in the history of institutional/cultural development in Los Angeles. Materials consulted included historical maps, photographs, and newspapers; aerial and ground-based photographs; publications and journal articles; and other materials. Sources included a wide variety of archives and collections. For the purposes of this investigation, the results of Los Angeles's citywide historical resources survey undertaking, SurveyLA, for the Wilshire Community Plan Area were used for all properties falling within the CEQA APE, unless a preponderance of evidence suggested that alternative conclusions were more appropriate.

To accurately assess the project and its conceptual components, SWCA met with the County of Los Angeles Museum of Natural History Foundation and the Design Team to review project drawings, architectural plans and conceptual sketches, and site design concepts. Field surveys took place in February 2022 and July 2022. Properties within the CEQA APE were inspected and photographed. Digital photography and field notes allowed for a thorough depiction of the subject properties and their existing conditions.

Subject properties were assigned the appropriate CHR status code. The principal elements of the project were studied for potential direct and indirect impacts to historical resources pursuant to CEQA.

5.5.5 Environmental Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a Historical Resource Pursuant to Section 15064.5 of the State CEQA Guidelines?

Under the State CEQA Guidelines 15064.5, a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Substantial adverse change in the significance of a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. The significance of a historical resource is materially impaired when a project demolishes or materially alters those physical characteristics that convey the significance of the resource and justify its inclusion (or eligibility for inclusion) in the NRHP, CRHR, or local register. In general, a project that follows the *Secretary's Standards* (Weeks and Grimmer 2001) and associated Guidelines shall be considered as mitigated to below the level of significance.

CONSTRUCTION

This section addresses the potential for the project to result in significant adverse impacts to identified historical resources as a result of project construction. Impacts are discussed in terms of changes to character-defining and contributing features of historic resources that could result during project construction.

13-acre La Brea Project Site

This section addresses the potential direct significant adverse impacts to identified historical resources within the 13-acre project site. The Historic Resources Technical Report (see Appendix D) identified three historical resources within the project footprint: La Brea Tar Pits Historic District, the Page Museum, and Hancock Park Observation Pit.

Table 5.5-6 summarizes the primary character-defining features of the district, along with those conceptual project components most relevant in terms of potential impacts, and the aspects of integrity most likely to be impacted by project implementation.

La Brea Tar Pits Historic District

The La Brea Tar Pits Historic District consists of numerous related contributors and character-defining features embodying the district's significance. This includes archaeological and paleontological resources (considered in separate reports); related buildings and structures; landscaping and hardscaping features; and site-plan configuration and spatial relationships characterizing the property. Taken together, these elements reflect a shared story of nearly 100 years of purposeful preservation of the Hancock Park land and its resources, scientific excavation and curation, and design and construction of facilities for public education and exhibits.

In addition, master planning efforts for Hancock Park, which included a long-term plan for an on-site museum, stopped and started over the years. As a result, the district and its components display an eclectic character, developed in phases.

The project envisions a comprehensive, unified master plan/design for La Brea Tar Pits, which has been a long-term goal for Hancock Park. The proposed master plan is intended to strengthen and encourage continued scientific research at the site; enhance the visitor's experience through a continuous, thematic circulation route, the addition of more shade structures, and expanded, enhanced facilities; and an aesthetic upgrade for facilities, landscaping and hardscaping, and the park. Overall, the master plan would more explicitly integrate and brand Hancock Park and La Brea Tar Pits for pedestrians approaching or passing on Wilshire Boulevard and on 6th Street, with proposed new gateways, signage, and fencing.

As a reimagining of the Tar Pits complex, the project introduces a series of new features, buildings, structures, circulation corridors, and other elements that would fill-in and divide the components of the historic district, shifting the setting and feeling of the historic district and removing some of its character-defining features. The project remains conceptual in nature; however, as presently envisioned, the project elements that would impact contributing components and character-defining features of the historic district are described below.

Page Museum Renovations, New Public Promenade, and New Museum Building

The renovations to the Page Museum, the development of the new public promenade and the new museum building would have the most immediate, direct impact to the historic district (as well as the Page Museum and its character-defining features and site, discussed specifically below). These changes focus on the principal built-environment resource and a focal point of the historic district, the Page Museum. Among the primary character-defining features of the Page Museum are its orthogonal site, which includes not just the museum but the raised berm surrounding and defining it on each side; the expansive lawn adjacent to the west, which contributes to the visual primacy and prominence of the Page Museum; and the relative absence of numerous other built-environment features around it.

The project would eliminate the berms on the west and north elevations. Furthermore, a sizable portion of the northwest corner of the museum would be demolished and replaced to accommodate a connection point to the new museum building and the covered, curved arcade and promenade. Berms along the west and north would be built-up to create a curved public promenade; the new museum building would also be constructed behind the Page Museum. The new site design and construction would envelop and extend the Page Museum and its site along the west and north elevations.

In this way, the primacy of the Page Museum within the existing site design would be diminished; at present, the museum is a stand-alone focal point of the Tar Pits complex. As envisioned, the project would incorporate the Page Museum into a connected three-part complex, with a pathway replacing the character-defining berms on the west and north. The new museum building would also compete with the Page Museum to the point of making it appear to be a supplemental annex to the larger new facility.

Wilshire Gateway Entry Plaza and Lake Pit

The project would replace the diagonal pathway leading into the park in the southeast corner (a character-defining feature) with a curved pathway and entry plaza. A pedestrian bridge and pathway would lead over the Lake Pit, which would replace the main entrance/walkway to the park and visually divide the Lake Pit. The visibility of the lake and statues from Wilshire Boulevard, in particular westbound, would potentially be diminished, thus affecting the visual role La Brea Tar Pits play in the surrounding environment. In addition, because the design process is ongoing, physical impacts to the lake itself from the bridge's structural elements could occur. When considered in tandem with other master plan elements affecting character-defining features, this project component would impact the aspects of "setting" and "feeling" of the historic district and would contribute to the overall loss of integrity.

Enhanced Central Green

The project element of the enhanced central green would affect the lawn west of the Page Museum, which is considered a character-defining feature of the historic district. The lawn would be retained, but the size would be reduced. At present, the lawn provides an open space and unimpeded view to the Page Museum. In the project, the lawn would be enveloped in the new, curved pedestrian path. When considered in tandem with other master plan elements affecting character-defining features, this project component would impact the aspects of "setting" and "feeling" of the historic district and would contribute to the overall loss of integrity.

Revamped Pit 91

The proposed redesign of Pit 91 would not affect identified character-defining features or contributing elements of the La Brea Tar Pits Historic District such that, on its own, it would cause or contribute to a significant adverse impact to the La Brea Tar Pits Historic District. This project element would retain the contributing feature (tar pits) and replace temporary construction and buildings with a permanent exhibition area. The extended chain fencing would be removed. The project would construct viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage. The project would remove and replace noncontributing temporary storage and research buildings adjacent to Project 23.

New Pedestrian Path

The new pedestrian path would create a unified circulation corridor throughout the park and would shift the main entrance/approach. Affected character-defining features include the diagonal entrance/walkway at the corner of Wilshire Boulevard and Curson Avenue (as noted above), historic trees along the north; and the overall configuration of park features connected by meandering paths. Contributing pathways include the southeast entry diagonal path, the path along the north side of the Lake Pit, and the tree-shaded paths west of the parking area. When considered in tandem with other master plan elements affecting character-defining features, this project component would impact the aspects of "setting" and "feeling" of the historic district and would contribute to the overall loss of integrity.

6th Street Entry Gateway and Support Building

The 6th Street Entry Gateway and Support Building would not affect identified character-defining features or contributing elements of the La Brea Tar Pits Historic District such that a distinct, direct or indirect impact to the La Brea Tar Pits Historic District would be expected.

Conclusion, Impacts to the La Brea Tar Pits Historic District

Implementation of the project would result in a comprehensive redesign of Hancock Park, which would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a CRHR- and locally eligible historic district. The loss of eligibility of the resource represents material impairment and an impact to the environment. Each one of the project elements on its own would not affect the district's eligibility to the extent that it would be materially impaired (except for alterations to the Page Museum, addressed above and below in Table 5.5-6). In conclusion, for the eligible La Brea Tar Pits Historic District, full build-out of the project, with the variety of design updates, upgrades, and new construction planned for the site, would be a *significant impact* to the district.

Table 5.5-6. Potential Impacts on Character-Defining Features, La Brea Tar Pits Historic District

Primary Character-Defining Feature	Is Feature Retained?	Relevant and/or Adjacent Conceptual Project Component/s	Aspects of Integrity Potentially Impacted by Project Element Implementation	*Secretary's Standards for Rehabilitation* in Potential Noncompliance with Conceptual Project Element
Oversized, sparsely developed parcel, with large swaths of open park space	Yes	▪ **New Museum Building** and **New Public Promenade** would reduce open park space with additional construction ▪ The site's oversized parcel and some open space/recreational areas would be retained though diminished	Setting; Feeling	Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Lake Pit	Yes	▪ **Wilshire Gateway Entry Plaza and Lake Pit** and **New Pedestrian Path** would change the configuration of the corner entrance to the park ▪ The Lake Pit, which is one of the key contributing resources to the historic district, would be preserved ▪ A pathway and bridge would lead over the Lake Pit	Setting	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 4: Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
Mature trees framing Hancock Park, with concentrations along the north and east	Partially	▪ **Landscaping plan** would remove a number of the historic trees appearing to date to the 1920s establishment of Hancock Park	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 4: Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
Page Museum and its site, with pyramidal massing, square plan, and sharply raised berms; visual prominence of Page Museum (see Table 5.5-7 for potential impacts to individually eligible Page Museum)	Partially	▪ **Page Museum Renovations, New Museum Building, and New Public Promenade** would change these character-defining features ▪ West and north berms would be removed/built up to accommodate promenade ▪ Pyramidal massing would be mostly replaced ▪ Open-air roof, podium, and central atrium would be covered ▪ Visual primacy of the Page Museum would be diminished	Design; Materials; Workmanship; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 3: Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired
Observation Pit	Yes	▪ Circulation corridors and landscaping adjacent to the Observation Pit have been altered over time ▪ The closest project element, a portion of the **New Pedestrian Path,** would resemble the land use patterns, hardscaping, and circulation corridors already adjacent to this historic resource	Some changes to adjacent Setting (but minimal given level of recent alteration in landscaping in the northwest quadrant of Hancock Park)	Complies with *Secretary's Standards*
Corner entrance with diagonal entry path at Wilshire Boulevard	Partially	▪ **Wilshire Gateway Entry Plaza and Lake Pit** would shift the corner entrance to a new entry point farther west on Wilshire Boulevard ▪ This project element would remove the character-defining diagonal entry and pathway	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 3: Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired

Primary Character-Defining Feature	Is Feature Retained?	Relevant and/or Adjacent Conceptual Project Component/s	Aspects of Integrity Potentially Impacted by Project Element Implementation	*Secretary's Standards for Rehabilitation* in Potential Noncompliance with Conceptual Project Element
Circulation corridors/pathways, including east-west pathways leading from parking lot and north-south pathway northwest from Central Green	Partially	▪ **Enhanced Central Green, New Museum Building, New Pedestrian Path** would alter/replace some of the character of character-defining circulation corridors and pathways of the historic district ▪ Pathways and circulation corridors dating to the period of significance, which reflect the district's development over time, would be replaced with a unified system and series of designed pathways and landscaping; new construction would interrupt or remove these extant features	Setting; Feeling	Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Remnants of 1930s stone walls in northwestern portion of site	Unknown; it is possible that implementation of the Master Plan could remove this feature.	▪ Landscaping plan and/or facilities upgrades to tar pits and seep sites could impact this feature and other extant remnants of stone walls	Design; Materials; Setting; Feeling	Unknown at this time because the project is conceptual in nature and the Master Plan does not provide specific information on whether the remnants of 1930s stone walls would be retained or removed. The potential exists for impacts to adjacent historical resources through construction staging, construction activities, and implementation of project landscaping. Construction staging activities should be carefully designed to plan for and avoid any adjacent historical resources (including but not limited to details regarding off-site staging, parking, equipment and material storage, movement, and use).
Significant paleontological resources on the site, including various dig and studies sites	Yes	▪ **Revamped Pit 91** would remove temporary facilities that are not considered character-defining ▪ The significant resources would be preserved ▪ Temporary facilities would be replaced and upgraded	None; the improved facilities would enhance visibility of these significant paleontological resources	While the conceptual project complies with the *Secretary's Standards*, the potential exists for impacts to adjacent historical resources through construction staging and construction activities. Construction staging activities should be carefully designed to plan for and avoid any adjacent historical resources (including but not limited to details regarding off-site staging, parking, equipment and material storage, movement, and use).

Page Museum, La Brea Tar Pits

As previously noted, the Page Museum is a historical resource pursuant to CEQA (eligible for the NRHP, CRHR, and as a local HCM). Related to this resource, the design plans for the project currently contain elements that do not comply with the *Secretary's Standards*. Not all projects that depart from the *Secretary's Standards* cause significant adverse impacts; however, the remodel of the Page Museum, in addition to including seismic and systems upgrades necessary for the building's long-term viability, also includes major alterations to key character-defining features. Table 5.5-7 provides an overview of the affected character-defining features for each conceptual project component, as applicable and to the extent that project-level detail is available.

These alterations include:

a) Elimination of the sharply raised berms on the west and north elevations of the museum site

b) Eliminating the indoor-outdoor integration provided by the open roof, podium, and central atrium, by adding a roof structure and photovoltaic panels and enclosing the open space at the podium with fenestration

c) Adding windows beneath the Pleistocene-era frieze, which will diminish the museum's high degree of indoor-outdoor integration and the visual prominence of the frieze as one of the key character-defining features of the museum

d) Shifting the principal entrance to the new museum building; the principal, descending entrance ramp to the Page Museum would be retained physically but converted in use to serve as an outdoor classroom space; the main entrance to the museum would shift to the annex to the west

e) Demolition of a portion of the museum's northwest corner

f) A site redesign in which the Page Museum, which is presently a prominent, stand-alone feature, would be incorporated as one component of an integrated, connected three-part complex, including built-up berms on the west and north, a public promenade, and new museum building; new construction does not include visual, physical distinctions and separations between the old and the new

g) Construction of the new museum building, which, though on par with or slightly higher than the Page Museum, would visually compete with the Page Museum

Taken together, these planned alterations to the Page Museum would compromise its historic integrity to the point that the historical resource would no longer convey the reasons for its significance. Therefore, the project would cause an impact to the environment through material impairment of a historical resource, the Page Museum, which would be *significant*.

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Table 5.5-7. Potential Impacts to Character-Defining Features, Page Museum Renovations

Primary Character-Defining Feature	Is Feature Retained?	Conceptual Project Plans	Aspects of Integrity Potentially Impacted by Project Element	*Secretary's Standards for Rehabilitation* in Potential Noncompliance with Conceptual Project Element
Oversized one-story mass/height	Yes	▪ The height of the building would be retained ▪ Seismic upgrades would be achieved through addition of shear-wall supports that would be concealed from view	N/A	Could comply with *Secretary's Standards* (if seismic upgrades are, as described, hidden and any significant historic fabric that is disturbed by the construction is repaired and re-installed or replaced in-kind).
Prominent fiberglass frieze with bas relief Pleistocene scenes and pronounced roof overhangs	Partially	▪ The roof frieze would be retained ▪ Windows would be installed beneath the frieze, sealing the open space presently characterizing the podium	Design; Workmanship, Materials; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Fishbowl-like laboratory space in museum interior	Yes	▪ The fishbowl-like laboratory would be retained	While conceptual in nature, this project element would not be expected to result in significant adverse impacts if all project components are designed to comply with the *Secretary's Standards*	Could comply with *Secretary's Standards* (if character-defining features of the laboratory space are retained and/or replaced in-kind).
Burial mound-like site with sharply raised berms with turf plantings on each side, pyramidal massing, and a square plan	Partially	▪ Berms on the west and north would be removed and built up to accommodate New Public Promenade ▪ Site's pyramidal massing would be replaced ▪ Topography and character of west and north berms would be changed to accommodate promenade connecting Page Museum with new building, via curved arcade	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Symmetrical design composition, building and site	Partially	▪ Symmetrical design composition of the Page Museum itself would be largely retained ▪ Symmetrical design composition of the site would not be retained ▪ Page Museum site would be changed and incorporated into/extended by the curved New Public Promenade and new museum building	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Descending entrance progression on south elevation into the center of the building, flanked by mirror stairways leading to the upper podium at the second-floor	Partially	▪ The Page Museum's primary entrance would shift to serve as an outdoor classroom ▪ The entrance would remain operational ▪ New ADA-accessible ramps would flank the outdoor classroom space ▪ A cantilevered shade structure is proposed for the Page Museum entrance, which is presently open-air	Design; Materials; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Primary Character-Defining Feature	Is Feature Retained?	Conceptual Project Plans	Aspects of Integrity Potentially Impacted by Project Element	*Secretary's Standards for Rehabilitation* in Potential Noncompliance with Conceptual Project Element
Indoor-outdoor integration; open-air roof; open configuration at the podium level overlooking atrium	No	▪ Indoor-outdoor integration of the Page Museum itself would be severely diminished ▪ Open-air configuration of the roof and podium would be covered/sealed ▪ Open-air roof would be covered, with proposed materials to include photovoltaic panels ▪ Windows would be installed at the podium level, closing the open-air design	Design; Materials; Workmanship; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Open central atrium with landscaping	No	▪ The open, central atrium with landscaping would be removed and replaced	Design; Materials; Workmanship; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Visual primacy as principal built-environment feature of historic district	No	▪ New construction on-site, including the new museum building and New Public Promenade along with changes to the Enhanced Central Green would diminish the Page Museum's visual primacy at the La Brea Tar Pits Historic District	Design; Setting; Feeling	Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Observation Pit

The project does not include changes to the Observation Pit. In addition, the site and surroundings have already been updated and altered over time, and the closest project element, a portion of the new pedestrian path, would resemble the land use patterns, hardscaping, and circulation corridors already adjacent to this historical resource. Therefore, impacts to the Observation Pit would be *less than significant*.

Properties Adjacent to the Project Site

The following sections address the potential for the project to impact the historic integrity and compatibility of the adjacent historic resources. While potential direct impacts would not result to these properties, it is important to consider whether the project would cause significant indirect impacts to these resources as a result of the introduction of project elements in the proximity of these resources.

Pavilion for Japanese Art

The surrounding land uses, which currently consist of landscaping, pathways, and the elements of the Tar Pits complex, would be retained, albeit with a new design configuration. In terms of new construction, the new museum building planned for the park's northwestern quadrant would be located at a significant distance from the Pavilion for Japanese Art; the scale/mass and design of the new museum building, though largely conceptual at present, would not be expected to overwhelm or otherwise significantly impact the setting and feeling of the Pavilion for Japanese Art to the point that it would no longer convey the reasons for its significance. The closest project element to the Pavilion for Japanese Art would be the new pedestrian path; at present, this area of the park already includes various walkways and landscaping. In addition, the Pavilion for Japanese Art is closest to/oriented toward the new LACMA facility, which represents a more significantly altered change in setting than the master plan for La Brea Tar Pits. In summary, the master plan elements adjacent to the resource would be compatible in terms of use, character, mass/scale, and design, and indirect impacts to the Pavilion for Japanese Art from project implementation would be *less than significant*.

Park La Brea Garden Apartment Historic District

This large historic district forms the northern border of the CEQA APE for this project analysis. The contributors to the district are located across a wide expanse of West 6th Street and screened by the mature trees and landscaping of Hancock Park. Master plan elements facing the Park La Brea Garden Apartment Historic District would be compatible in terms of land use, character, mass/scale, and design. In addition, the new museum building, which would be across 6th Street, is sited at enough of a distance and exhibiting a modest mass/scale that it would not be expected to result in material impairment to the historic resource such that it would no longer convey the reasons for its significance. In summary, impacts to the Park La Brea Garden Apartment Historic District would be *less than significant*.

Prudential Square (5757 W. Wilshire Boulevard)

This 1948 office complex, designed by Wurdeman and Becket, occupies the CEQA APE's southeast corner. Surrounding land uses would be retained, as La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to Prudential Square would be the Wilshire Gateway Entry Plaza & Lake Pit. This element would renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to

create a new welcome pavilion and shaded entry plaza. These changes to the corner entrance to the park retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this facing historic resource. In summary, impacts to the Prudential Square from project implementation would be *less than significant*.

Craft and Folk Art Museum (5814 W. Wilshire Boulevard)

Constructed in 1930, the Craft and Folk Art Museum is an American Colonial Revival/French Revival style building located south of the project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping, and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to the Craft and Folk Art Museum would be the Wilshire Gateway Entry Plaza and Lake Pit. This project element would renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the new pedestrian path would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource. In summary, impacts to the Craft and Folk Art Museum from project implementation would be *less than significant*.

Hancock Park Building (5820 W. Wilshire Boulevard)

Located south of the project site across Wilshire Boulevard, the Hancock Park Building was designed in 1958 in the International/Mid-Century Modern style by architects Jack H. MacDonald and Cejay Parsons. The building is located south of the project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping, and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to the Hancock Park Building would be the Wilshire Gateway Entry Plaza and Lake Pit. This project element would renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the new pedestrian path would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource.
In summary, impacts to the Hancock Park Building from project implementation would be *less than significant*.

CMAY Gallery (formerly Arthur Murray Dance Studio) (5828 W. Wilshire Boulevard)

Located south of the project site across Wilshire Boulevard, CMAY Gallery (formerly the Arthur Murray Dance Studio) was designed in 1947 by notable local architect Stiles O. Clements in the Late Moderne style. The building is located south of the project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as La Brea Tar Pits would remain a public park with hardscaping and pathways, landscaping, and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to the CMAY Gallery would be the Wilshire Gateway Entry Plaza and Lake Pit. This project element would renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy

would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the new pedestrian path would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource.
In summary, impacts to the CMAY Gallery from project implementation would be *less than significant*.

Office Building (5850 W. Wilshire Boulevard)

Located south of the project site across Wilshire Boulevard, 5850 West Wilshire Boulevard was designed in 1951 in the International Style by well-known local architect Stiles O. Clements. The building is located south of the project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping, and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to 5850 West Wilshire Boulevard would be the Wilshire Gateway Entry Plaza and Lake Pit. This project element would renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the new pedestrian path would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource. In summary, impacts to 5850 West Wilshire Boulevard from project implementation would be *less than significant*.

Mutual Benefit Life Plaza (5900 Wilshire Boulevard)

Located southwest from the project site across Wilshire Boulevard, the Mutual Benefit Life Plaza was designed in 1969–1971 by notable local architects William Pereira and Gin D. Wong. The building complex is located southwest of the project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping, and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. Although not directly adjacent, the closest project element to 5850 West Wilshire Boulevard would be the Wilshire Gateway Entry Plaza and Lake Pit. In addition, from this vantage point southwest of the project site, the new pedestrian path would add a curved walkway over the Lake Pit that would be partially visible from across Wilshire Boulevard to the southwest. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource. In summary, impacts to the Mutual Benefit Life Plaza from project implementation would be *less than significant*.

In summary, no significant adverse indirect impacts of adjacent historical resources would occur with implementation of the project. This finding, as described above, is based on the overall compatibility of master plan elements in terms of land use, general character, mass/scale, and design and that indirect effect would not result in material impairment of adjacent historical resources. The potential for impacts to adjacent historical resources would be *less than significant*.

Conclusion, Construction Impacts

Construction of the project would result in a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the Page Museum. The proposed alterations to the Page Museum would compromise its historic integrity to the point that the historical resource would no longer convey the reasons for its significance. In addition, project implementation

would result in a comprehensive redesign of Hancock Park, which would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a CRHR- and locally eligible historic district. The loss of eligibility of the resource represents material impairment and an impact to the environment. Therefore, the project would result in a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 and impacts would be *potentially significant*.

OPERATION

After construction of the project, no alterations to the project site or features within the La Brea Tar Pits Historic District would be associated with the Master Plan. Thus, the Master Plan would not result in any operational effects which would compromise the historic integrity of the site, the Page Museum, or the project surroundings. Therefore, *no impact* to historical resources would occur during project operation.

CR-HIST Impact 1	
As a result of project construction, the project would cause a substantial adverse change in the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum. This impact would be significant. *Project operation would not cause a substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur.* *(CEQA Checklist Appendix G Threshold V. a)*	
Mitigation Measures	
CR-HIST/mm-1.1	*Impacts to the La Brea Tar Pits Historic District and Page Museum resulting from project implementation shall be reduced through the ongoing input to the Design Team from a qualified Historic Architect, as the project design progresses. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in designing, developing, and reviewing architectural plans for conformance with the Secretary's Standards.* *The Historic Architect shall work with the Design Team to identify options for new construction, upgrades, stabilization, repairs, and rehabilitation activities that will facilitate compliance with the Secretary's Standards. This historic preservation input to the Design Team shall begin in the earliest phases of schematic design phase possible and extend throughout the development of 50% Construction Drawings.* *For new construction, the Historic Architect shall work with the Design Team to identify options and opportunities for: (1) ensuring compatibility of scale and character for new construction, site and landscape features, and circulation corridors, (2) ensuring that new construction, in materials, finishes, design, scale, and appearance, is compatible but differentiated from historic contributors and character-defining features; and (3) ensuring that new construction is designed and sited in such a way that it reinforces and strengthens, as much as feasible, character-defining site plan features, landscaping, and circulation corridors.* *For modernization and upgrade projects, the Historic Architect shall work with the Design Team to identify project options that facilitate compliance with the Secretary's Standards.* *The Historic Architect shall review proposed materials, finishes, window treatments/configuration, and other details to ensure compliance with the Secretary's Standards. The Historic Architect shall provide specifications for architectural features or materials requiring restoration or removal, maintaining and protecting relevant features in place, or on-site storage. Specifications shall include detailed drawings or instructions where historic features may be impacted.*

CR-HIST Impact 1	
	The Historic Architect shall document the input provided to the Design Team in Memoranda for the Record at the Schematic and 50% Construction Documents phases. A Draft Memorandum for the Record shall be provided to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment. *The Historic Architect shall participate in pre-construction and construction monitoring activities, as appropriate, to facilitate conformance with the Secretary's Standards and/or lessening of material impairment to historical resources.*
CR-HIST/mm-1.2	*An Inventory and Treatment Plan shall be prepared by a qualified historic preservation professional and implemented for the La Brea Tar Pits Historic District. Once complete, the Draft Inventory and Treatment Plan shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. The Inventory and Treatment Plan shall be finalized prior to the commencement of construction activities.* *Specific requirements for the Inventory and Treatment Plan are provided below:* • *A qualified historic preservation professional shall be retained to prepare the Inventory and Treatment Plan. The historic preservation professional shall satisfy the Secretary of the Interior's Professional Qualifications Standards for History and/or Architectural History as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in CEQA review of historic resources and reviewing architectural plans for conformance with the Secretary's Standards. A landscape architect or landscape specialist with a minimum of five (5) demonstrated years of experience working with historic landscapes shall contribute to preparation of the Inventory and Treatment Plan to identify historic landscaping and trees that fall within the period of significance for the historic district (up to 1977).* • *The Inventory and Treatment Plan shall adhere to best professional practices promulgated by the National Park Service and State Office of Historic Preservation.* • *The Inventory and Treatment Plan shall supplement the historic resources survey completed and documented in the Historic Resources Technical Report for the La Brea Tar Pits Master Plan by documenting the character-defining features and existing conditions of those "contributing" (i.e., historically significant) components of the historical resource. The inventory shall include site plan features, commemorative plaques and statues, artwork and sculptures, and other extant contributors to the historic district.* • *The study shall include recommendations for annual maintenance activities, treatment and repair priorities, and maximum retention of remaining district contributors. All recommendations shall be designed to maximize retention of remaining contributors to the historic district and minimize the loss of character-defining features.* *The Final Inventory and Treatment Plan shall be used for the ongoing stewardship of the property following construction.*

CR-HIST Impact 1	
CR-HIST/mm-1.3	*~~A Historic American Buildings Survey (HABS)-like Documentation Package~~ A historic documentation package shall be prepared to document the contributing features of the La Brea Tar Pits Historic District and Page Museum prior to the authorization of demolition or construction activities. The documentation package shall emulate and include elements of the Historic American Building Survey (HABS) and/or the Historic American Landscape Survey (HALS). The HABS/HALS-like Documentation Package shall adhere to best professional practices promulgated by the National Park Service and shall be provided to interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for review and comment. Documentation shall be in accordance with the applicable standards described in the Secretary of the Interior's Standards for Architectural and Engineering Documentation.* *Prior to the commencement of construction activities, a historian or architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History shall be retained to prepare HABS/HALS-like documentation for the La Brea Tar Pits Historic District and Page Museum.* *Required contents for the HABS/HALS-like package include the following:* • *Photographs: Photographic documentation will focus on the Page Museum and, within the historic district, those contributing elements (built, landscape, hardscape, paleontological, and natural features) slated for demolition, alterations, or adjacent new construction. Photographs shall include detail shots of contributing features and components slated for demolition, with overview and context photographs for the adjacent setting. Photographs shall be taken using a professional-quality single lens reflex (SLR) digital camera with a minimum resolution of 10 megapixels. Digital photographs will be provided in electronic format.* • *Descriptive and Historic Narrative: The historian or architectural historian will prepare descriptive and historic narrative of the historical resources/features slated for demolition. Physical descriptions will detail each contributing component, with accompanying photographs, and information on how the resource fits within the broader historic district during its period of significance. The historic narrative shall draw upon previously prepared studies, including the Historical Resources Technical Report prepared for the La Brea Tar Pits Master Plan, as well as the La Brea Tar Pits Inventory and Treatment Plan prepared under Mitigation Measure CR-HIST/mm-1.2. The narrative shall also include a methodology section specifying the name of researcher, date of research, and sources/archives visited, as well as a bibliography. Within the written history, statements shall be footnoted as to their sources, where appropriate.* *Upon finalization of the HABS/HALS-like Documentation Package, a hard copy and digital copy shall be prepared and offered to the Seaver Center for Western History Research at the Natural History Museum of Los Angeles County ~~Seaver Center for Western History Research~~, University of Southern California Special Collections, and the Los Angeles Public Library.*
CR-HIST/mm-1.4	*A Retrospective Exhibit and Interpretive Program shall be prepared and implemented. The Retrospective Exhibit and Interpretive Project shall be prepared by a qualified historic preservation professional who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History. The exhibit materials shall be drawn from previous studies including but not limited to the Inventory and Treatment Plan described in Mitigation Measure CR-HIST/mm-1.2 and the HABS/HALS-like documentation package described in Mitigation Measure CR- HIST/mm-1.3, as well as other supplemental research materials as needed.* *The retrospective exhibit and interpretive program shall focus on the history of the site, the people involved in the early ownership, development, and scientific discoveries and excavations, and the events leading to its donation to the County of Los Angeles, as well as on the site's development through the end of the period of significance for the La Brea Tar Pits Historic District, 1977.*

CR-HIST Impact 1	
	The retrospective exhibit and interpretive program may include but not be limited to exhibit materials and interpretive panels, both exterior (e.g., as a series of panels in the park), interior (e.g., as a permanent exhibit in the Page Museum or new museum building), and online (on the museum website). The exhibit and interpretive program shall be designed for maximum public accessibility. *The plan for the interpretive and commemorative program shall be detailed in an Interpretive Program Plan Memorandum to be prepared with the guidance of a qualified historic preservation professional. The retrospective exhibit and interpretive program shall be completed within three (3) years of commencement of initial construction activities. The Draft Interpretive Program Plan Memorandum shall be reviewed by interested parties such as the Los Angeles Conservancy and County of Los Angeles Historic Preservation Commission for comment.*
CR-HIST/mm-1.5	*A pre-construction protection plan for historical resources shall be prepared prior to any major alteration or construction activities that may potentially damage historic resources or contributing features of the La Brea Tar Pits Historic District or Page Museum. A qualified Historic Architect shall be retained to develop a Preservation Protection Plan that identifies potential risks to historical resources within or adjacent to the immediate project footprint. The Historic Architect shall satisfy the Secretary of the Interior's Professional Qualifications Standards for Historic Architecture as defined by the National Park Service and in accordance with 36 CFR 61 and possess a minimum of ten (10) years of project-level experience in reviewing architectural plans for conformance with the Secretary's Standards.* *The Preservation Protection Plan may include, but not be limited to, the following components:* • *Inclusion/mapping of the historical resource/contributing feature on any architectural drawings, site plans, and/or construction documents.* • *Site walk with Design Team and construction team representative to review staging areas for construction and construction sequence and activities, to identify areas of concern and to provide input for proactive avoidance of unforeseen impacts.* • *Procedures and timing for the placement and removal of temporary protection features, such as fencing and other barriers, around the historical resource/contributing feature.* • *Monitoring of the installation and removal of temporary protection features by the Historic Architect, or designee.* • *Post-construction survey to document the condition of the historic resource after project completion.* • *Preparation of a technical memorandum documenting the pre-construction and post-construction conditions of the historic resource and compliance with protective measures outlined in the Preservation Protection Plan.* *The Preservation Protection Plan shall be submitted in draft form to interested parties including the Los Angeles Conservancy and the Los Angeles County Historic Preservation Commission for review and comment.*
Impacts Following Mitigation	
Upon implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 to address the substantial adverse change in the significance of a historical resource, construction impacts would remain significant and unavoidable. No operational impacts would occur.	

5.5.6 Cumulative Impact Analysis

Cumulative impacts to historical resources may occur if the project and related projects cumulatively affect historical resources in the immediate vicinity, contribute to changes within the same historic district, or involve resources that are examples of the same property type or significant within the same context as the one within the project site. Although impacts to historical resources, if any, tend to be site specific, a significant cumulative impact associated with the project and related projects would occur if the combined impact of the project and related projects would materially and adversely alter those physical characteristics that convey the historic significance of a historical resource and that justify its listing, or eligibility for listing, as a historical resource.

Chapter 4, Environmental Setting, provides a list past, present, or reasonably foreseeable future development projects that are anticipated to occur in the vicinity of the project site. These projects include a mix of residential, commercial, and mixed-use developments. The cumulative geographic scope considered for historical resources is the same CEQA APE used in the analysis above, defined as parcels within and directly adjacent to the project footprint. Two projects included in the cumulative development scenario identified in Chapter 4 are within the CEQA APE, including the following:

- **LACMA Renovation**: Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction. Construction activities are estimated to be completed at the end of 2024.
- **Wilshire Curson Project**: Located approximately 0.03 miles southeast of the project site at 5700 -5780 Wilshire Boulevard; 712-752 South Curson Avenue; 5721-5773 West 8th Street; and 715-761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of new buildings. The project is currently under environmental review and anticipated construction timeframes are not available as of the publication date for this EIR.

As discussed in CR-HIST Impact 1, the project was evaluated for its potential to result in direct impacts to the historical resources within the project site as well as indirect impacts to adjacent properties with historic resources. While the project would not result in impacts to adjacent properties with historic resources, the project would directly result in significant and unavoidable impacts to the La Brea Tar Pits Historic District and the Page Museum, rendering both resources no longer eligible for significance. When considered in combination with the impacts of these projects in the cumulative scenario, the project would contribute incrementally to significant impacts on historical resources. Further, the project's contribution to these cumulative impacts would be considerable and significant.

Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would avoid, minimize, rectify, reduce, or compensate for the significance of the impacts to the degree feasible. However, they would not mitigate impacts below the level of significance. Therefore, no feasible mitigation exists that would reduce the project's contribution to less than cumulative considerable.

CR-HIST Impact 2 (Cumulative)
Construction of the project would result in substantial adverse changes to the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines, which would be considerable impacts contributing to cumulative historical resources impacts. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum. These direct construction impacts would also be significant. No operational impacts to historical resources would occur; therefore, contributions to cumulative impact would similarly not occur during the project's operational period.
Mitigation Measures
Implement Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5.
Impacts Following Mitigation
With implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5, the project's construction impacts to historical resource impacts would remain significant and unavoidable. As well, the project's contribution to cumulative impacts related to historical resources would remain significant and unavoidable. No operational impacts to historical resources would occur.

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5.6 GEOLOGY AND SOILS

This section describes the geologic and seismic setting of the project site, including risks associated with existing environmental conditions, including fault rupture, ground shaking, soil liquefaction, soil expansion, and/or landslides. The project's potential impacts regarding these topics are based on analysis provided in the *Geology and Soil Discipline Report, La Brea Tar Pits Museum Master Plan Project* (Geology and Soil Discipline Report), prepared by Shannon and Wilson, dated January 27, 2023 (Appendix E).

This section also evaluates the potential for the project to impact paleontological resources or unique geologic features. Information related to the existing conditions and analysis for paleontological resources is based on the *Paleontological Resources Technical Report, La Brea Tar Pits Master Plan, Los Angeles, California* (Paleontological Resources Technical Report), prepared by SWCA Environmental Consultants (SWCA), dated January 25, 2023 (Appendix F).

5.6.1 Existing Conditions

5.6.1.1 Regional Faulting and Seismicity

FAULTING

There are numerous faults in Southern California including active, potentially active, and inactive faults. Based on criteria established by the California Geological Survey (CGS), active faults are those that have shown evidence of surface displacement within the past 11,000 years (i.e., Holocene-age). Potentially active faults are those that have shown evidence of surface displacement within the last 1.6 million years (i.e., Quaternary-age). Inactive faults are those that have not shown evidence of surface displacement within the last 1.6 million years. The Alquist-Priolo Earthquake Fault Zoning Act defines "active" and "potentially active" faults using the same aging criteria as those used by the CGS, as described above. However, according to the Alquist-Priolo Earthquake Fault Zoning Act, only those faults which have direct evidence of movement within the last 11,000 years are required to be zoned. The CGS considers fault movement within this period to be a characteristic of faults that have a relatively high potential for ground rupture in the future.

The Los Angeles Basin and the Southern California region are located within a complex zone of faults, fault systems, folds, and other geologic features. Since the project site is located within a seismically active area, it is expected to experience the effects of future earthquakes on active faults. Figures included in the Geology and Soil Discipline Report (see Appendix E) illustrate active and potentially active faults mapped in the vicinity of the project site. There are no known active or potentially active faults mapped within the project site or immediately adjacent to the project site. In addition, the project site is not located within an Alquist-Priolo Earthquake Fault Zone. The closest active faults to the project site include the following: Elysian Park Fault - Lower Thrust located approximately 1.7 miles southeast; Newport-Inglewood-Rose Canyon Fault Zone located approximately 1.7 miles southwest; Santa Monica Fault located approximately 2.4 miles west; and the Hollywood Fault located approximately 2.6 miles north. The closest potentially active faults to the project site include the Overland Avenue Fault located approximately 4.2 miles southwest of the project site and the Charnock Fault located approximately 6 miles from the project site. Refer to Appendix E for a detailed discussion of these nearby active faults.

SEISMICITY

Several earthquakes of moderate to large magnitude (greater than 5.0) have occurred in Southern California area within the last 90 years. Table 5.6-1 provides a list of some of these earthquakes

(with magnitudes greater than 5.7) within approximately 150 miles of the project site. As shown, recent historic earthquakes in the greater Los Angeles region include the 1933 Long Beach Earthquake (Moment Magnitude Scale [Mw] 6.4), the 1971 San Fernando Earthquake (Mw 6.5), the 1987 Whittier Narrows Earthquake (Mw 5.9), the 1991 Sierra Madre Earthquake (Mw 5.8), and the 1994 Northridge Earthquake (Mw 6.7).

Table 5.6-1. Major Historic Earthquakes in Southern California

Earthquake	Date of Earthquake	Moment Magnitude Scale (M_w)	Distance to Epicenter (miles)	Direction to Epicenter
Long Beach	March 10, 1933	6.4	38	SE
Kern County	July 21, 1952	7.5	75	N-NW
Borrego Mountain	April 9, 1968	6.5	143	SE
San Fernando	February 9, 1971	6.5	24	N
Whittier Narrows	October 1, 1987	5.9	16	E
Superstition Hills	November 24, 1987	6.6	162	SE
Sierra Madre	June 28, 1991	5.8	24	NE
Joshua Tree	April 22, 1992	6.1	117	E
Big Bear	June 28, 1992	6.4	88	E
Landers	June 28, 1992	7.3	110	E
Northridge	January 17, 1994	6.7	15	NW
Hector Mine	October 16, 1999	7.1	125	NE
Ridgecrest Sequence	July 4–5, 2019	6.4, 7.1	123, 125	NE

Source: Shannon and Wilson (2023). Information provided by the Southern California Earthquake Data Center (SCEDC). Distances to epicenter values were determined based on the latitude and longitude values presented by SCEDC.

5.6.1.2 Regional Geology

The project site is located in the coastal Los Angeles Basin at the northern edge of the Peninsular Ranges Geomorphic Province and adjacent to the southern edge of the Transverse Ranges Geomorphic Province. The basin includes the low-lying area between the San Gabriel Mountains and the Pacific Ocean shoreline. Nearby hills and mountain ranges bordering the basin include the prominent Santa Monica Mountains to the north, the Hollywood Hills to the northeast, the Elysian and Repetto Hills to the east, the Peninsular Ranges to the southeast, and the Baldwin Hills to the south. Further discussion of regional geology can be found in the Paleontological Resources Technical Report (see Appendix F).

5.6.1.3 Project Site Geology

The project site occupies the westerly extent of the La Brea Plain. The La Brea Plain is a broad, slightly elevated, and dissected surface underlain by coalescing Quaternary age (recent to 2.6 million years ago) alluvial fan and floodplain deposits. These alluvial sediments were deposited on the underlying Tertiary-age (2.6 to 66 million years ago) shallow marine sedimentary bedrock formations. Faulting and folding of the bedrock over millions of years has formed structural traps for petroleum deposits. Several oil and gas fields were developed within this portion of the Los Angeles Basin, including the Salt Lake and South Salt Lake fields.

At the project site, crude oil and gas leaking from the petroleum deposits of the Salt Lake Field have migrated toward the ground surface through fractures and faults in the bedrock, permeating into the overlying alluvium. Upon reaching shallower depths, the lighter petroleum components are altered by evaporation and biologic processes resulting in a more viscous remnant tar (or asphalt) deposit.

LOCAL GEOLOGY AND GEOLOGIC UNITS

Regional geologic maps indicate the project site is underlain by alluvial deposits, as shown in figures included in the Geology and Soil Discipline Report (see Appendix E). Specifically, the geologic map depicts the project site being underlain by slightly elevated and dissected, older alluvium and alluvial fan sediments (mapped as Qae). Geotechnical explorations near the project site indicate much of the alluvial deposits are covered by a layer of artificial fill, extending to depths of approximately 1 to 8 feet below ground surface. The fill is of variable composition, consisting of silty clay, sandy clay, clayey silt, and silty sand.

The project site is underlain by units described as late-Pleistocene to Holocene (recent to about 11,000 years old) in age. The Pleistocene-age (about 11,000 to 1.8 million years) alluvial deposits consist of stiff to very stiff clays with some dense silt and silty sand layers. These relatively fine-grained materials overlie thicker deposits of dense to very dense sand. The fine-grained alluvial deposits belong to the Lakewood Formation, while the deeper sand beds correspond to the San Pedro Formation.
The youngest surficial deposits observed in this area are Holocene sediments of modern alluvial fans, stream channels (e.g., Los Angeles and San Gabriel Rivers), and their floodplains. These debris-flow, sheetflood, and fluvial deposits consist of boulder, cobble, and pebble gravel lenses and sheets, interbedded with sand, silt, and clay derived from the surrounding highlands.

As noted previously, natural hydrocarbons are present in the alluvium due to the upward migration of crude oil leaking from oil deposits within the underlying bedrock. The crude oil has been altered near the ground surface to viscous tar, and the more permeable sand deposits are permeated with tar.

The Lakewood and San Pedro Formations are directly underlain by Tertiary-age sedimentary bedrock of the Fernando Formation. The bedrock consists primarily of well stratified, locally folded, interbedded claystone, siltstone, and sandstone.

GROUNDWATER

The project site is located within the Central Groundwater Basin of the Los Angeles Coastal Plain.
The principal freshwater-bearing sediments of the Central Basin include the Holocene-age alluvial deposits, and the Pleistocene-age Lakewood and San Pedro Formations at depth. According to the Seismic Hazard Zone Report for the Hollywood 7.5-minute quadrangle, the project site lies within the 10-foot water level contour of the historically high groundwater levels. This indicates that the historical high groundwater depth is at or shallower than 10 feet below ground surface. Previous subsurface explorations conducted at the project site encountered groundwater levels at depths less than 10 feet below ground surface. Groundwater depth is anticipated to fluctuate in response to rainfall, seasonal variations, and other factors, and is anticipated to vary throughout the site.

TAR SANDS AND SEEPS

Tar sands and seeps are present at various locations within and around the project site. These tar seeps occur randomly and are likely the result of methane and hydrogen sulfide gas pressure at depth mobilizing groundwater and tar to the surface. Based on previous subsurface explorations at and in the immediate vicinity of the project site, tar sands were encountered at depths varying from approximately 6 feet to 30 feet below ground surface, correlating to elevations ranging from 137 feet to 180 feet above mean sea

level. Soils excavated within the top 10 feet and above the groundwater level at the project site are not anticipated to contain significant natural oil or tar. Soils from excavations that extend below the groundwater level could contain natural oil and/or tar.

OIL FIELD AND ADJACENT OIL WELLS

The project site is located within the limits of the Salt Lake Oil Field. According to maps prepared by the State of California Department of Conservation, Geologic Energy Management Division (CalGEM), there are several oil and gas wells located within the vicinity of the project site (within a 1-mile radius), the nearest including the Mars Oil Co. Masselin 1 to the south and three Chevron Salt Lake oil wells to the north and east of the project site. According to CalGEM records, these wells are plugged and abandoned. The CalGEM maps, dating back to the 1900s, do not show abandoned or active oil wells within the footprint of the project site and the likelihood of encountering an abandoned oil well is low (CalGEM 2023; Shannon and Wilson 2023).

METHANE AND HYDROGEN SULFIDE GAS

The project site is located within an area delineated by the City of Los Angeles as a Methane Zone or a zone of known shallow methane and hydrogen sulfide gas accumulation with high potential for seepage of methane gas. Crude oil and methane gas leak out from the petroleum deposits and migrate through fractures and faults located within the bedrock until encountering the alluvial soils, where they permeate into the alluvium and continues to travel upward to the ground surface. Many of the light petroleum components are lost to evaporation and biogenic processes, resulting in viscous tar seeping out of the ground surface. Impacts related to methane and hydrogen sulfide gas are discussed in Section 5.8, Hazards and Hazardous Materials, and the project-specific Methane Study is included as Appendix G.

5.6.1.4 Paleontological Resources

Paleontological resources are the evidence of once-living organisms preserved in the rock record. They include both the fossilized remains of ancient plants and animals and the traces thereof (e.g., trackways, imprints, burrows, etc.). In general, fossils are considered to be older than recorded human history or greater than 5,000 years old and are typically preserved in sedimentary rocks. Although rare, fossils can also be preserved in volcanic rocks and low-grade metamorphic rocks under certain conditions.

Paleontological potential is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological potential is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey or study. A geologic unit known to contain significant fossils is considered sensitive to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit would either disturb or destroy fossil remains, directly or indirectly.

The project site is considered the most recognized paleontological locality in the world due to its unique geologic conditions linked to the origin and development of petroleum reservoirs within the Los Angeles Basin. As discussed in detail in the Paleontological Resources Technical Report (see Appendix F), the paleoecological and paleoenvironmental conditions as well as the unique geologic setting during the late Pleistocene and Holocene within Rancho La Brea[1] have contributed to the high level of fossil

[1] The project site is located within the former Rancho La Brea, a 4,439-acre Mexican land grant given to Antonio Jose Rocha and Nemisio Dominguez in 1828. Rancho La Brea consisted of approximately 4,500 acres of land in current-day Wilshire Miracle Mile, Hollywood, and parts of West Hollywood.

preservation at the project site, which has historically yielded millions of significant fossils (SWCA 2023). A detailed history of the paleontology of the project site as well as in depth records of previous excavations at the project site are provided in the Paleontological Resources Technical Report (see Appendix F). The following discussion focuses on the most recent excavations and paleontological discoveries in the vicinity of the project site and provides an overview of more recent local geological mapping and geotechnical investigations within the project site and its immediate vicinity.

PALEONTOLOGICAL RESOURCES IDENTIFIED WITHIN THE PROJECT SITE AND VICINITY

Recent Excavations

Several recent construction projects within or immediately adjacent to the project site have yielded numerous significant paleontological resources from the same deposits as those that could potentially be encountered during implementation of the project. Figure 5.6-1 illustrates the fossil collection localities within the greater area of Hancock Park, including the project site. As indicated in the Paleontological Resources Technical Report (see Appendix F), recent projects from within or immediately adjacent to Hancock Park include the Los Angeles County Museum of Art (LACMA) Transportation Project, the Academy Museum of Motion Pictures Project, the New LACMA Building for the Permanent Collection Project, and the One Museum Square Project. From the LACMA Transportation Project, numerous paleontological resources were discovered during monitoring of ground disturbances. In fact, 16 deposits of asphalt (or asphalt-rich sediments) containing abundant fossilized remains were extracted in 23 “landscaping/tree box” crates, as well as several isolated macrofossils (for example, one isolate yielded a nearly complete adult Columbian mammoth nicknamed “Zed”) and 327 buckets of matrix containing microfossils (SWCA 2023).

The crated deposits—referred to as “Project 23” by the George C. Page Museum (Page Museum)—are still being processed on the grounds of Hancock Park, with estimates of the number of fossils contained within ranging from 1 million to 3 million (ArchaeoPaleo Resource Management, Inc. 2014). Similar discoveries have been made during ground-disturbing activities at the Academy Museum of Motion Pictures and the New LACMA Building projects, each of which uncovered numerous significant fossil discoveries that were crated in a similar fashion, with each crate possibly containing hundreds to thousands of fossils remaining to be processed. Table 5.6-2 provides a sample of completed local paleontological resources discovered during monitoring for development projects in the vicinity of the project site.

Table 5.6-2. Sample of Completed Local Paleontological Resources Monitoring Projects

Project Name	Year	Distance/Direction from Proposed Project	Monitoring Results
The Grove at Farmers Market	2001	1,000 meters (0.62 mile) north	Pleistocene gopher and plants; blue-green sandy silt
Farmers Market Renovation (also known as The Grove at Farmers Market Phases 2 and 3)	2001–2004	1,000 meters (0.62 mile) north	Pleistocene macrofauna, such as mammoth, horse, and indeterminant mammal; microfauna and flora; streambed soils, some asphalt deposit stringers
Park La Brea Community Center	2004	650 meters (0.40 mile) northeast	No fossils, caliche soils

Project Name	Year	Distance/Direction from Proposed Project	Monitoring Results
Palazzo West/Palazzo at Park La Brea	1999–2003	700 meters (0.43 mile) north	Pleistocene macrofauna, such as horse, mammoth, bison, sloth; other vertebrates, such as frog, bird, rabbit, snake, skunk, various rodents; microfauna, such as clam, gastropod; plants; streambed sandstone, siltstone, claystone, some asphaltic deposit stringers
Palazzo East/Palazzo at Park La Brea	1999–2003	1,100 meters (0.68 mile) northeast	Pleistocene macrofauna, such as horse, sloth, camel, bison, and proboscidean/elephant; microfauna, such as ostracod; plants; fluvial alluvium composed of sandstone, siltstone, and claystone
The Villas at Park La Brea	1999–2003	1,100 meters (0.68 mile) east-northeast	No fossils observed; silty clay, caliche
Median Improvements, Wilshire Boulevard from Fairfax Avenue to La Brea Avenue	1996	80 meters (263 feet) south	No fossils observed; deposits too young to contain fossils
Hancock Park Renovation	1989–2003	*Adjacent, east and north	Pleistocene macrofauna, such as mammoths; microfauna and flora; streambed soils and asphaltic deposits
Hancock Park Replacement Pipeline Discharge System	2012	245 meters (0.15 mile) east	Indeterminant mammal, large bird, small bird, microfossils; asphaltic deposits
Luxe@375 (apartment construction with subterranean parking)	2012	2,200 meters (1.37 miles) northwest	Pleistocene indeterminant bony fish, toad, frog, pond turtle, rattlesnake, indeterminant reptile, indeterminant bird, various rodents, camel, horse, rabbit, mastodon, ground sloth, bivalve, gastropod, plant (i.e., charcoal)
LACMA Transformation Project	2006–2008	Adjacent, west	"Project 23". During construction, 16 asphaltic deposits, recovered in 23 trapezoidal/prismatic "tree boxes" holding 383 cubic meters of material contain an array of Pleistocene fossils, including terrestrial macrofauna, such as bison, dire wolf, mammoth, sloth, lynx, saber-toothed cat, horse, bird, turtle; microfossils; and plants resulting in thousands of fossil specimens. Additionally, individual or isolated specimens were jacketed or collected, including a Columbian mammoth.
Academy Museum of Motion Pictures	2019–2020	Adjacent, west	Numerous macrofauna, including saber-toothed cat, dire wolf, bison, ground sloth; and microfauna; plants; fluvial deposits with some asphaltic deposits
New LACMA Building Project	2016–2017	Adjacent, west and southwest	Gastropods and bivalves from depths of 41 to 65 feet below ground surface; fine-grained sand and silty clay, saturated with asphalt
One Museum Square Project	2018–2019	Adjacent, east	Approximately 20,000 fossil specimens of birds and small mammals

Sources: AECOM (2016a, 2017); ArchaeoPaleo Resource Management, Inc. (2014); Environmental Science Associates (2020)
* "Adjacent" refers to projects that are within Hancock Park or along its boundary but not within the La Brea Tar Pits Master Plan area.

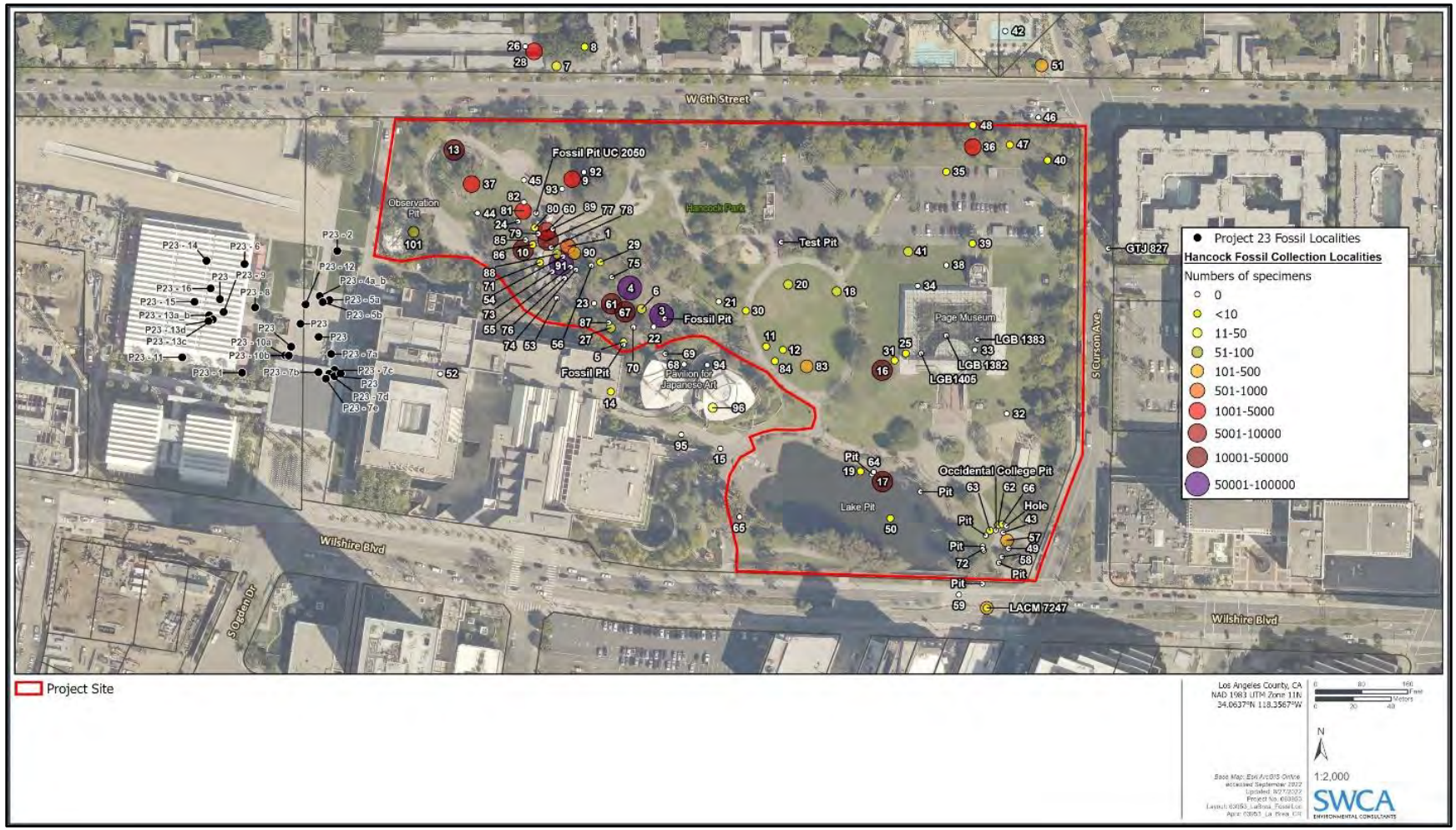

Figure 5.6-1. Fossil collection localities within Hancock Park.

Museum Records Search

Table 5.6-3 summarizes the results from a museum records search that was requested and conducted in early 2022. The search was led by the Research and Collections Department at Natural History Museum of Los Angeles County (Natural History Museum) and was completed on February 5, 2022. The records search highlights several known fossil localities within the project site and its vicinity. See the Paleontological Resources Technical Report (Appendix F) for additional information regarding the records search.

Table 5.6-3. Museum of Natural History Fossil Localities within and near the Project Site

Locality Number	Approximate Distance from the Project Site	Formation	Taxa	Approximate Depth Below the Ground Surface
LACM VP 7298	Within Hancock Park	Variably asphaltic silts and silty clays	Approximately 10,000 botanical, invertebrate, and vertebrate specimens	Unrecorded (approximately 25 feet below ground surface based on elevation of Hancock Park)
LACM VP 6909	Within Hancock Park	Asphaltic sands	Vertebrate, invertebrate, and plant fossils	0–20 feet
Project 23 (16 separate fossil deposits)	Within Hancock Park	Pleistocene fluvial deposits and asphaltic sands	Over 1 million fossil specimens including one nearly complete mammoth	Starting at 10 feet
LACM VP 7297	0.01 mile (53 feet/ 16 meters)	Asphaltic sand grading to asphaltic clay	Approximately 250,000 botanical, invertebrate, and vertebrate specimens	Unrecorded (approximately 2 to 10 feet below ground surface based on elevation of Hancock Park)
LACM VP 7247	0.02 mile (106 feet/ 32 meters)	Asphalt impregnated silt with lenses of asphaltic sand	Dire wolf (*Canis dirus*); horse (*Equus*)	2 feet
LACM VP 4204	0.07 mile (370 feet/ 113 meters)	Pleistocene asphaltic older alluvium	Antelope (*Antilocapra*)	Unrecorded
LACM VP 6345	0.10 mile (528 feet/ 161 meters)	Asphaltic sands	Bird (Aves); horse (*Equus* cf. *E. occidentalis*)	Unrecorded
LACM VP 5481	0.13 mile (686 feet/ 209 meters)	Asphalt-impregnated Palos Verdes Sand	Mammoth (*Mammuthus*); tapir (*Tapirus*); horse (*Equus*); camelid (*Camelops*, cf. *Hemiauchenia*); bison (*Bison*)	27–28 feet
LACM VP 1724	0.20 mile (1,056 feet/ 322 meters)	Pleistocene asphaltic sands	Pond turtle (*Clemmys marmorata*); bird (Aves); racoon (Procyonidae); saber-toothed cat (*Smilodon fatalis*); dire wolf (*Canis dirus*), coyote (*Canis latrans*), pronghorn antelope (*Capromeryx minor*); bison (*Bison*)	8 feet

Source: Natural History Museum (2022)

Fossil localities within the project site include fossil locality LACM VP 7298 that produced approximately 10,000 plant, invertebrate, and vertebrate specimens. Additional vertebrate, invertebrate, and plant fossils have been discovered at locality LACM VP 6909 at the surface down to 20 feet below

ground surface (bgs) within the project site. Numerous other fossil localities, including Project 23 described above, have been discovered and curated from within the project site.

Outside of the project site, the closest fossil locality is LACM VP 7297, which is located 16 meters (53 feet) southwest of the project site and has yielded approximately 250,000 vertebrate, invertebrate, and botanical specimens from asphaltic sand and clay. Fossil locality LACM VP 7247 was recorded 32 meters (106 feet) away from the project site and yielded an extinct dire wolf and horse from a depth of approximately 2 feet bgs. The presence of Pleistocene fossil taxa at 2 feet bgs suggests that fossils could be present just below the surface throughout most of Hancock Park. Additionally, an antelope fossil was discovered 113 meters (370 feet) from the project site within Pleistocene asphaltic older alluvium at locality LACM VP 4204. Other fossil localities approximately 322 meters (0.2 mile) or less from the project site, such as LACM VP 6345, LACM VP 5481, and LACM VP 1724, have yielded Pleistocene taxa "typical" of asphaltic alluvial sand deposits within La Brea Tar Pits, including fossil turtle, bird, racoon, saber-toothed cat, dire wolf, coyote, mammoth, horse, tapir, camel, antelope, and bison.

Although not included in the Natural History Museum's records search results, fossil locality LACM VP 8090, recorded during construction of the One Museum Square Project located approximately 100 meters (330 feet) away from the Page Museum on the east side of Curson Avenue, yielded approximately 20,000 small mammal and bird fossils that are currently being processed at the Page Museum (personal communication, Dr. Regan Dunn [2022]).

GEOLOGIC MAPPING AND GEOTECHNICAL INVESTIGATIONS

The geologic setting is another key to understanding the potential for important paleontological resources at the project site (see Sections 5.6.1.2 and 5.6.1.3 for broad-scale geological setting). Local geologic mapping and previous geotechnical investigations of Hancock Park and the surrounding area provide the geological framework that informs the paleontological setting of the project site, although the fossil deposits follow asphalt pits and are not confined to one particular geologic unit. Geologic mapping by Dibblee and Ehrenspeck (1991) and Yerkes and Graham (1997) indicate that the surface of the project site is mapped as late Pleistocene older alluvium (Qao) (for the purposes of the paleontological resources assessment, SWCA uses Yerkes and Graham [1997]; however, this geologic unit is also referred to as the Lakewood Formation by some geologists, as noted in the Geology and Soil Discipline Report [see Appendix E]). Previous geotechnical investigations of the site summarized in the Geology and Soil Discipline Report (see Appendix E) indicate that the surface of the project site is capped by a thin layer of artificial fill that overlies the "native" older alluvium. The presence of artificial fill and/or previously disturbed sediments is evident along the 15-foot-high soil slopes surrounding the base of the Page Museum but extends across the site in the subsurface. Additionally, regional and local subsurface geological data suggest that the early Pleistocene San Pedro Sand and the early Pleistocene to Pliocene Fernando Formation are also present at depth within Hancock Park, despite not being exposed at the surface in the immediately vicinity. Therefore, artificial fill, older alluvium, San Pedro Sand, and Fernando Formation are considered in this analysis and are described in geochronological order (youngest to oldest) below. Table 5.6-4 summarizes the paleontological potential of the geologic units that are underlying the project site, and each is discussed in detail in the following subsections.

Table 5.6-4. Geologic Units and Paleontological Potential Underlying the Project Site

Geologic Unit Name	Age	Paleontological Potential
Artificial fill and reworked sediments	Late Pleistocene and Holocene	High
Older alluvium (Qao) (i.e., Lakewood Formation)	Late Pleistocene	High
San Pedro Sand	Early Pleistocene	High

Geologic Unit Name	Age	Paleontological Potential
Fernando Formation	Early Pleistocene to Pliocene	High

Unmapped Recent Artificial Fill and Reworked Sediments

Based on previous site development, unmapped recent artificial fill and reworked (i.e., previously disturbed) sediments are present at the surface of the project site from 1- to 3-foot depth or 1- to 8-foot depth, likely partially replacing the uppermost "native" sediments of older alluvium (AECOM 2017; Shannon and Wilson 2023). The presence of artificial fill and reworked sediments across the entirety of the site to varying depths was confirmed during the archaeological testing conducted by SWCA within Hancock Park (Millington and Dietler 2023).

The artificial fill material consists of silty clay, sandy clay, clayey silt, and silty sand (Shannon and Wilson 2023). In general, fill sediments typically consist of reworked and recompacted sediments originating from within a project site during its construction, or they consist of imported sediments delivered from other regions that are delivered and recompacted at a project site. Artificial fill or previously disturbed sediments may contain fossils, but any such fossil from these deposits has been removed from its original stratigraphic, taphonomic, or paleoenvironmental context (provenance), making it scientifically invalid in most instances. Here, artificial fill sediments, at least in part, consist of reworked and compacted sediments originating from Hancock Park, which explains the presence of some fossil fragments recovered from the sediment stratum capping the project site.

It is also important to note that early paleontological investigations prioritized salvage or collection of large fossil specimens or extinct fauna, with little regard for the small-sized fossil fragments or smaller taxa (e.g., rodents, plants, insects, etc.). Asphalt or asphalt-rich sediments containing small fossils may have been discarded or ignored by early investigators and later reworked as fill at the site. Although considered scientifically less valuable or scientifically nonsignificant in *most* circumstances (Society of Vertebrate Paleontology [SVP] 2010), fossils from artificial fill and reworked sediments originating from within Hancock Park may still provide scientifically important information due to level of fossil preservation that allows radiocarbon dating of specimens from the site to help elucidate the changing environment during the late Pleistocene and Holocene of Southern California. Therefore, recent artificial fill and reworked sediments originating from Hancock Park have a high potential to produce significant paleontological resources and are immediately underlain by "native" geologic units that also have a high potential for scientifically significant fossils.

Older Alluvium (Qao)

Yerkes and Graham (1997) map late Pleistocene older alluvium (Qao) (also referred to as the Lakewood Formation) at the surface of the project site; however, the uppermost strata of older alluvium likely have been partially replaced by artificial fill/reworked sediments to 1- to 3-foot depth or 1- to 8-foot depth within Hancock Park. Older alluvium consists of slightly to moderately consolidated to moderately to well consolidated (stiff to very stiff) clays with some dense silt and silty sand deposits (Campbell et al. 2014; Dibblee and Ehrenspeck 1991; Shannon and Wilson 2023; Yerkes and Graham 1997). These deposits have subsequently been uplifted and variably dissected at the surface (Campbell et al. 2014; Dibblee and Ehrenspeck 1991; Yerkes and Graham 1997). The thickness of older alluvium varies across the Los Angeles Basin (Woodring et al. 1946; Yerkes et al. 1965). For example, deposits of sands, clay, gravel, and angular rubble are approximately 40 to 190 feet thick (only a subset of that thickness is classified as older alluvium) within the Salt Lake Oil Field immediately north of and adjacent to Hancock Park (Stock and Harris 2007); however, most asphalt or asphalt-saturated alluvial sediments that have yielded Rancholabrean fossils are from 13 to 20 feet bgs (Shannon and Wilson 2023), but possibly range from near the surface to approximately 40 feet bgs (AECOM 2016b).

Since the onset of geologic investigations into the petroleum reservoirs within the Los Angeles Basin, geologists have reviewed the structural deformation of the Pleistocene strata overlying the Miocene and Pliocene marine rocks containing petroleum. Given the northwest-southeast trend of fossiliferous sites within Hancock Park, the asphalt springs may originate from a subsurface fault along West 6th Street (Stock and Harris 2007). Early Pleistocene strata are deeply eroded and sloped, suggesting the same tectonic forces that caused considerable folding and faulting of the deeper Miocene and Pliocene marine rocks within the subsurface of the Los Angeles Basin were still active during the early Pleistocene, as evidenced by similar deformed marine and nonmarine deposits from the early Pleistocene. Horizontal beds of late Pleistocene older alluvium unconformably overlie the deformed beds of early Pleistocene (i.e., San Pedro Sand) and older strata (Stock and Harris 2007). The stratigraphic succession and orientation of the Pleistocene sediments may be relevant for understanding the paleoenvironmental and tectonic changes that occurred between the early and late Pleistocene that resulted in the development of asphalt pools at the surface, trapping or miring organisms, and the subsequent burial of organic remains by alluvial or fluvial processes (i.e., alluvial fans and stream channels of the Los Angeles and San Gabriel Rivers) at the surface during the late Pleistocene and early Holocene. Despite the near horizontal stratigraphy of older alluvium, geotechnical investigations indicate that asphalt is present within the older alluvium, seeping to the surface via fissures, fractures, and chimneys crosscutting the stratigraphy and concentrating in sandy layers (AECOM 2016b; Shannon and Wilson 2023).

In general, equivocal non-asphaltic older alluvial deposits within Southern California have yielded similar taxa from sporadic fossil localities; however, the level of fossil preservation of both micro-fossils and macro-fossils is far less at these localities (Jefferson 1991a, 1991b; McDonald and Jefferson 2008; Miller 1971; Reynolds and Reynolds 1991; Springer et al. 2009), demonstrating the unique state of preservation at the project site. Therefore, late Pleistocene older alluvium has a high potential for producing significant paleontological resources.

San Pedro Sand

Although the early Pleistocene San Pedro Sand is not mapped at the surface within the project site, it is noted in geotechnical investigations as underlying the late Pleistocene older alluvium at depth ranges of approximately 17 to 50 feet bgs within Hancock Park (AECOM 2016b). However, other geotechnical investigations summarized by Shannon and Wilson (2023) indicate that the San Pedro Sand may extend to depths of 65 to 94 feet bgs, indicating variation in the thickness of the older alluvium and San Pedro Sand overlying “bedrock” Fernando Formation (see below). Previous and recent geotechnical investigations indicate that some asphalt is present within the matrix of the San Pedro Sand to varying degrees (AECOM 2016b; Shannon and Wilson 2023).

During early investigations, Pleistocene-aged marine deposits in the San Pedro area were broken up into two distinct horizons, the Upper and Lower San Pedro Series, distinguished by a prominent unconformity (Arnold and Arnold 1902). The Lower San Pedro Series consists largely of gray sandstone, and Arnold and Arnold (1902) noted that these sands were deposited in a nearshore environment. The Lower San Pedro Series has been the main focus of research and is currently referred to as the San Pedro Sand (Woodring et al. 1946). The Upper San Pedro Series, consisting of a bed of lime-hardened gravel overlain by a thick layer of fine-grained sand (Arnold and Arnold 1902), is now known as the “Palos Verdes Sand” in the Palos Verdes/San Pedro geographic areas (Woodring et al. 1946), and throughout the Los Angeles Basin, it may be equivalated to late Pleistocene older alluvium, as discussed above.

The abundance of fossil specimens known from the San Pedro Sand is one of the major reasons for the importance of this unit. Fossils recovered from the San Pedro Sand include: foraminifera, bryozoans, bivalves, gastropods, scaphopods, polyplacophorans, crabs, sea urchins, sharks, rays, bony fish, turtle, cormorants, ducks, sea eagles, quail, gulls, geese, whales, bison, camels, horses, saber-toothed cats, ground sloths, elephants, and rodents (Fitch 1967; Howard 1948; Jordan and Hannibal 1923; Miller 1930;

Oldroyd 1924; Woodring et al. 1946). Therefore, early Pleistocene San Pedro Sand has a high potential for producing significant paleontological resources, even without the subsequent asphalt deposits.

Fernando Formation

Although not mapped at the surface within the project site or its immediate vicinity, early Pleistocene to Pliocene Fernando Formation is mapped at the surface near downtown Los Angeles (Campbell et al. 2014; Dibblee and Ehrenspeck 1991) and is present at depth throughout the Los Angeles Basin. Previous geotechnical investigations summarized by AECOM (2016b) and Shannon and Wilson (2023) indicate that the Fernando Formation is present in the subsurface at depths as shallow as 65 feet bgs and may extend to depths of 120 feet bgs. The Fernando Formation consists of light olive brown and light yellowish brown to dark yellowish brown, clayey siltstone, fine- to medium-grained sandstone, and pebbly conglomerate of marine origin, which is massive, highly weathered, and oxidized and becoming darker in color, more massive, unoxidized, and more lithified with depth (Campbell et al. 2014; Dibblee and Ehrenspeck 1991; Lamar 1970; Shannon and Wilson 2023). The Fernando Formation has yielded marine and nonmarine fossils and is generally regarded as having the potential to yield fossils. It is also a significant petroleum reservoir for the Los Angeles Basin, with petroleum seeping through fractures to the surface. Fossil localities from surface exposures from this unit have yielded foraminifera, sponges, corals, brachiopods, bryozoans, scaphopods, gastropods, bivalves, cephalopods, fiddler crabs, sea urchins, sharks, bony fish, birds, unidentifiable mammals, and plants (Clarke et al. 1980; Groves 1992; Huddleston and Takeuchi 2006; Morris 1976; Paleobiology Database 2022; Schoellhamer et al. 1981; University of California Museum of Paleontology 2022; Woodring 1938). Therefore, the early Pleistocene and Pliocene Fernando Formation has a high potential to yield significant paleontological resources.

5.6.2 Regulatory Setting

5.6.2.1 Federal

There are no specific federal regulations addressing geology and soils issues relevant to the project.

5.6.2.2 State

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Geologic Hazard Zones Act was passed by the State of California in 1972 to address the hazard and damage caused by surface fault rupture during an earthquake. The Act was renamed the Alquist-Priolo Earthquake Fault Zoning Act, effective January 1, 1994 (Alquist-Priolo Act). The Alquist-Priolo Act has since been revised 12 times; most recently a version became available in 2018 (CGS 2018). The Alquist-Priolo Act requires the State Geologist to establish “earthquake fault zones” along known active faults (faults that have moved in the last ~11,000 years) in the state. The intent of the act is to ensure public safety by prohibiting the siting of most structures for human occupancy across traces of active faults that constitute a potential hazard to structures from surface faulting or fault creep. This Act groups faults into categories of active, potentially active, and inactive. Historic- and Holocene-age faults are considered active, Late Quaternary- and Quaternary-age faults are considered potentially active, and pre-Quaternary-age faults are considered inactive. Cities and counties with earthquake fault zones are required to regulate development projects within these zones. As previously noted, the project site is not within a Alquist-Priolo Earthquake Fault Zone.

SEISMIC HAZARDS MAPPING ACT

The Seismic Hazards Mapping Act of 1990 (Public Resources Code [PRC] Chapter 7.8, Sections 2690–2699.6) directs the CGS to delineate seismic hazard zones. The purpose of the act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, Counties, and state agencies are directed to use seismic hazard zone maps developed by the CGS in their land use planning and permitting processes. The act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones. Pursuant to the Seismic Hazards Mapping Act, a site-specific geotechnical investigation (see Appendix E) was prepared for the project.

CALIFORNIA BUILDING CODE

The State of California adopted the 2019 California Building Code (CBC), Volumes 1 and 2, which went into effect on January 1, 2020. Based in part on the 2018 International Building Code (IBC), the 2019 CBC makes up Part 2 of Title 24 of the California Code of Regulations. In Chapter 16 of Volume 2, the code contains provisions for structural design, including soil lateral loads (Section 1610) and earthquake loads (Section 1613). Provisions for soils and foundations include the following: Geotechnical explorations (Section 1803); Excavation, grading and fill (Section 1804); and Foundations (Sections 1808-1810). Appendix J of the CBC applies to grading.

PUBLIC RESOURCES CODE SECTION 5097.5

Requirements for paleontological resource management are included in PRC Division 5, Chapter 1.7, Section 5097.5, which states,

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

These statutes prohibit the removal, without permission, of any paleontological site or feature from land under the jurisdiction of the State or any City, County, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC Section 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others. PRC Section 5097.5 also establishes the removal of paleontological resources as a misdemeanor and requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, and district) land.

5.6.2.3 County of Los Angeles

COUNTY OF LOS ANGELES 2035 GENERAL PLAN SAFETY AND CONSERVATION AND NATURAL RESOURCES ELEMENTS

The County of Los Angeles General Plan Safety Element guides the long-term management of geotechnical issues and geotechnical hazards, including seismic hazards, hillside hazards such as mud and debris flows, landslides, hillside erosion, and human-induced slope instability. The following Safety Element goals and policies may be applicable to the proposed project.

Goal S 1. An effective regulatory system that prevents or minimize personal injury, loss of life and property damage due to seismic and geotechnical hazards.

> ***Policy S 1.1.*** Discourage development in Seismic Hazard and Alquist-Priolo Earthquake Fault Zones.
>
> ***Policy S 1.2.*** Prohibit the construction of most structures for human occupancy adjacent to active faults until a comprehensive fault study that addresses the potential for fault rupture has been completed.
>
> ***Policy S 1.3.*** Require developments to mitigate geotechnical hazards, such as soil instability and landsliding, in Hillside Management Areas through sitting and development standards.
>
> ***Policy S 1.4.*** Support the retrofitting of unreinforced masonry structures to help reduce the risk of structural and human loss due to seismic hazards.

The Conservation and Natural Resources Element of the *Los Angeles County General Plan 2035* (General Plan) (County of Los Angeles 2015) recognizes paleontological resources in Section VIII: Historic, Cultural, and Paleontological Resources, and aims to promote public awareness of their value and foster their public enjoyment. Therefore, the General Plan contains one goal (C/NR 14) aimed at the protection of historic, cultural, and paleontological resources, with the following four policies pertinent to paleontological resources:

Goal C/NR14. Protect historic, cultural, and paleontological resources.

> ***Policy C/NR 14.1.*** Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.
>
> ***Policy C/NR 14.2.*** Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.
>
> ***Policy C/NR 14.5.*** Promote public awareness of historic, cultural, and paleontological resources.
>
> ***Policy C/NR 14.6.*** Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

COUNTY OF LOS ANGELES BUILDING CODE

The County adopted portions of the 2019 CBC and 2018 IBC together with a series of County amendments as the 2020 County of Los Angeles Building Code (CLABC), Volumes 1 and 2. The 2020 amendments were published on January 1, 2020. Together, the provisions in Volumes 1 and 2 of the CLABC address issues related to the following: site grading; cut and fill slope design; soil expansion; geotechnical studies before and during construction; slope stability; allowable bearing pressures and settlement below footings; effects of adjacent slopes on foundations; retaining and basement walls; and shoring of adjacent properties. Appendix J of the CLABC addresses grading and excavation requirements.

The County of Los Angeles (County) Department of Public Works Building and Safety (Building and Safety) is responsible for implementing the provisions of the CLABC and grading standards. Building and Safety has jurisdiction over projects to be approved by the County where grading is required, to ensure project design follows County regulations, to ensure the safety of the workers during construction, and to ensure the safety of the public once construction is complete.

As outlined in the Geology and Soil Discipline Report, the following sections of the CLABC would be required for the project.

The project would be designed and constructed in accordance with the 2020 CLABC, which calls for consideration of seismic loading factors. Required earthquake loading considerations are outlined in Section 1613. Per Section 1613, every structure or portion of a structure shall be designed to resist the effects of earthquake motions in accordance with the CLABC and the American Society of Civil Engineers (ASCE) 7, which provides standards for design loads and associated criteria, as applicable.

Per Section 1803 of the CLABC, a project-specific geotechnical investigation and geologic hazard report (i.e., geotechnical design report) is required to be prepared to address final design of the project, incorporating recommendations to mitigate the hazards identified herein. The report would be required to meet 2020 CLABC requirements and the most current guidelines developed by the County of Los Angeles Department of Public Works Geotechnical and Materials Engineering Division. Specifically, the report would be required to:

- Confirm seismic ground-motion parameters
- Further develop the soil profile at the site
- Confirm groundwater conditions at the site are as anticipated
- Evaluate soil strength and adequacy of load-bearing soils
- Evaluate total and differential settlement potential
- Recommend structural fill material properties and testing
- Provide recommendations and design criteria for deep foundation systems
- Provide special design and construction criteria for shallow foundations and flatwork founded on expansive soils.

Earthwork activities, such as excavation, grading, and fill placement, would be required to follow the 2020 CLABC standards outlined in Section 1804 and Appendix J, or more current standards if they are adopted prior to the final geotechnical design. The final geotechnical design would provide design and construction requirements for earthwork activities.

5.6.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles (City). Nonetheless, City regulatory and planning documents that are most relevant to the project as they relate to geology and soils are provided herein for informational purposes.

CITY OF LOS ANGELES GENERAL PLAN SAFETY AND CONSERVATION ELEMENTS

The City's General Plan Safety Element addresses public safety risks due to natural disasters, including seismic events and geologic conditions and sets forth guidance for emergency response during such disasters. The Safety Element also provides maps of designated areas within Los Angeles that are considered susceptible to earthquake-induced hazards, such as fault rupture and liquefaction.

The City's General Plan Conservation Element identifies paleontological resources in Section 3: "Archaeological and Paleontological," which includes an objective and policy (see below) for the protection of paleontological resources.

Objective. protect the city's archaeological and paleontological resources for historical, cultural, research and/or educational purposes.

> ***Policy.*** continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities.

CITY OF LOS ANGELES BUILDING CODE

Earthwork activities, including grading, are governed by the Los Angeles Building Code, which is contained in the City of Los Angeles Municipal Code (LAMC), Chapter IX, Article 1. Specifically, Section 91.7006.7 includes requirements regarding import and export of material; Section 91.7010 includes regulations, pertaining to excavations; Section 91.7011 includes requirements for fill materials; Section 91.7013 includes regulations pertaining to erosion control and drainage devices; Section 91.1803 includes specific requirements addressing seismic design, grading, foundation design, geologic investigations and reports, soil and rock testing, and groundwater. The Los Angeles Building Code incorporates the California Building Code, with City amendments. The City Department of Building and Safety is responsible for implementing the provisions of the Los Angeles Building Code.

5.6.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to geology and soils if it would:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
   - i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of as known fault. Refer to Division of Mines and Geology Special Publication 42.
   - ii. Strong seismic ground shaking.
   - iii. Seismic-related ground failure, including liquefaction.
   - iv. Landslides.

b) Result in substantial soil erosion or the loss of topsoil.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

5.6.4 Impact Assessment Methodology

The evaluation of potential project impacts related to geology and soils is based on analysis provided in the Geology and Soil Discipline Report prepared for the project (Shannon and Wilson 2023 [see

Appendix E]). The Geology and Soil Discipline Report describes the geologic conditions of the project site based on a general site reconnaissance, extensive review of previous subsurface explorations and laboratory testing performed in the project site vicinity and provides a geotechnical analysis of these data to determine potential impacts that could occur as a result of project implementation. The geology and soils impact analysis includes consideration of potential seismic or geotechnical hazards discussed within the Safety Element of the County General Plan.

The evaluation of potential project impacts related to paleontological resources is based on the Paleontological Resources Technical Report (see Appendix F). The Paleontological Resources Technical Report uses methodology in conformance with industry standards as developed by the Society of Vertebrate Paleontology (SVP) to assess potential impacts as a result of project implementation. This analysis included a review of existing data pertinent to paleontological resources within Hancock Park, including a review of asphalt pit and fossil locality data from multiple sources including published scientific literature; online fossil locality database results; previous paleontological resources assessments; museum records search results from the Natural History Museum; regional and local geologic maps; and subsurface geotechnical/borehole data. Upon evaluation of the existing data, the potential for direct and indirect impacts to significant paleontological resources due to project implementation was determined based on the paleontological sensitivity of the project site and surrounding vicinity, and anticipated depths of grading as it relates to the potential for uncovering paleontological resources.

5.6.5 Environmental Impact Analysis

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- ***i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.***
- ***ii. Strong seismic ground shaking?***
- ***iii. Seismic-related ground failure, including liquefaction?***
- ***iv. Landslides?***

The project site is located within the seismically active Southern California area and is expected to experience the effects of future earthquakes on active faults. Potential project impacts related to seismic hazards including surface fault rupture, strong seismic ground motion, seismically induced settlement due to liquefaction, and landslides are discussed below.

Given that seismic activity and associated hazards could occur during both construction and operation of the project, the impact analyses below are intended to be inclusive of both construction and operation impacts unless otherwise noted.

SURFACE FAULT RUPTURE

Based on the “Earthquake Zones of Required Investigation” map for the Hollywood quadrangle, the project site does not lie within an Alquist-Priolo Earthquake Fault Zone. The nearest Alquist-Priolo Earthquake Fault Zones are the Newport-Inglewood-Rose Canyon Fault Zone, located approximately 1.6 miles southwest of the site, and the Hollywood Fault Zone, located approximately 2.2 miles north-northwest of the site.

The trace of the Sixth Street Fault is projected through the southern to southwestern portion of the project site. The Sixth Street Fault is a near-vertical fault, with north side movement up relative to the south side. The near-surface location of the fault is not well defined, nor is the fault listed as active or potentially active by the CGS. Therefore, it is not included in the Alquist-Priolo Earthquake Fault Zone maps.

Given that the project site is not located within a designated Alquist-Priolo Earthquake Fault Zone and the project would adhere to the CLABC, impacts related to surface fault rupture during project construction and operation would be *less than significant*.

SEISMIC GROUND SHAKING

The project site is located within the seismically active region of Southern California and could potentially be subject to strong seismic ground shaking if a moderate to strong earthquake were to occur on a local or regional fault. The intensity of earthquake motion and seismic hazards that may impact the project site depends on the characteristics of the generating fault, distance to the earthquake fault, earthquake magnitude, earthquake duration, and site-specific geologic conditions. Likely sources for strong ground motion are known active faults or potentially active faults. Ground motions may be amplified or attenuated at the site depending on the level of ground shaking in the underlying bedrock, underlying soil type, depth to bedrock, and other factors. While the project does not include mining operations, exceptionally deep excavations, or boring of large areas creating unstable seismic conditions, the project site is located within a seismically active region. As such, potentially significant impacts related to seismic ground shaking at the project site are anticipated and are considered to be part of the baseline environmental conditions at the project site but are not unique to the project or the project site.

The project would be designed and constructed in accordance with the 2020 CLABC, which calls for consideration of seismic loading factors. Specifically, Section 1613 provides discussion toward earthquake loads and toward development of seismic ground motion design values. Per Section 1613, structures "shall be designed and constructed to resist the effects of earthquake motions in accordance with Chapters 11, 12, 13, 15, 17 and 18 of ASCE 7, as applicable. The seismic design category for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7." ASCE 7 refers to "Minimum Design Loads and Associated Criteria for Buildings and Other Structures", prepared by the American Society of Civil Engineers and the Structural Engineering Institute. Adherence to the code will address the potential hazards associated with strong seismic ground shaking. In addition, the Geology and Soil Discipline Report provides recommended ground motion design parameters in accordance with the 2019 CBC for the project. Further, the recommendations of the Geology and Soil Discipline Report (Appendix E) would be incorporated into the project design. Therefore, impacts related to seismic ground shaking during project construction and operation would be *less than significant*.

LIQUEFACTION

Soil liquefaction is a phenomenon in which pore pressure in loose, saturated, granular soil increases during ground shaking to a level near the initial effective stress, resulting in a reduction of shear strength of the soil (i.e., quicksand-like conditions). The loss in shear strength may generate ground settlement, lateral spreading (ground movement on gentle slopes), bearing-capacity failure, and/or landslides. Liquefaction potential is greatest where loose granular soil (sand and non-plastic silt) is present below groundwater and is more likely to affect structures when it occurs at depths shallower than 50 feet. Liquefaction potential decreases as the fines (clay and silt content of soil) increases, and the liquefaction potential increases as ground shaking increases.

The seismic hazard zone map for the Hollywood quadrangle includes liquefaction hazard zones for the quadrangle. The site is not mapped within a liquefaction hazard zone. The geologic materials underlying the project site generally consist of stiff cohesive (fine-grained) soil underlain by dense to very dense tar

sand. Based on the stiff and dense nature of the on-site subsurface materials, the potential for liquefaction is considered to be low. Therefore, impacts related to liquefaction during project construction and operation are *less than significant*.

LANDSLIDES

Hazards associated with slope stability include landslides and mudflows. The project site and surrounding area are relatively level. Therefore, the potential for the site or the area surrounding the site to experience slope stability hazards, including landslides and mudflows, is negligible. Therefore, *no impact* would occur during project construction and operation related to landslides.

GEO Impact 1
The project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving surface fault rupture, seismic ground shaking, or seismic-related ground failure including liquefaction. Impacts associated with these issues would be less than significant during project construction and operation. The project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides during either project construction or operation. No impact would occur during project construction and operation related to landslides. (CEQA Checklist Appendix G Threshold VII. a)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts associated with surface fault rupture, seismic ground shaking, and seismic-related ground failure including liquefaction would be less than significant during project construction and operation. No impact would occur during project construction and operation related to landslides.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Erosion is the process in which soil or earth material is worn away and removed from its original location by natural forces such as moving water or wind. Erosion or the loss of topsoil can potentially lead to unstable soil conditions, especially for hillside development or development containing or adjacent to slopes.

CONSTRUCTION

Grading, excavation, and other earth-moving activities would result in disrupting the ground surface and could potentially result in erosion and loss of topsoil during construction. Grading and earthwork would be required to be implemented in accordance with the 2020 CLABC (specifically Section 1804 and Appendix J, or more current standards if they are adopted prior to the final geotechnical design), which includes guidelines for site grading to promote positive drainage flow. For grading performed in the "rainy season" (defined by the CLABC as the months of October to April), provisions will need to be made to control erosions. A Stormwater Pollution Prevention Plan would be required to be prepared prior to the start of construction in accordance with County regulations and would be required to be implemented during construction. No further measures beyond the implementation of existing regulations are required to address these potential impacts. Therefore, construction impacts related to soil erosion or loss of topsoil would be *less than significant*.

OPERATION

Based on the project site conditions, site topography, and the proposed improvements, the project is not anticipated to result in significant impacts associated with erosion, sedimentation, or loss of topsoil during project operation. Operation impacts related to soil erosion or loss of topsoil would be *less than significant*.

GEO Impact 2
Through compliance with existing regulations, the project would not result in substantial soil erosion or the loss of topsoil during project construction or operation. Impacts would be less than significant during project construction and operation. (CEQA Checklist Appendix G Threshold VII. b)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

As previously discussed, geologic instability at the project site resulting from project activities as they relate to landslides, liquefaction, and lateral spreading is not anticipated due to both the relatively minimal change in elevation throughout and adjacent to the project site, as well as the stiff and dense nature of the on-site subsurface materials. *No impact* would occur during either project construction or operation related to landslides, liquefaction, and lateral spreading.

However, implementation of the project would occur on soils susceptible to subsidence and/or compressible and collapsible soils. These issues are discussed further below.

SUBSIDENCE

Subsidence of the ground surface within the project site could be caused by the removal of groundwater and/or petroleum from subsurface sources. As previously discussed, the project site is located in the southern part of the Salt Lake Oil Field and is subject to naturally occurring tar (petroleum) seeps. Based on research conducted in support of the Geology and Soil Discipline Report, there is no existing documentation indicating subsidence has occurred due to removal of petroleum at the project site. Similarly, no evidence of subsidence from groundwater pumping at the project site has been documented. Therefore, potentially damaging subsidence from extraction of groundwater and/or petroleum during construction or operation of the structures is unlikely. However, due to the possibility of tar seeps occurring throughout the project site, impacts related to subsidence during project construction and operation could be *significant*.

COMPRESSIBLE AND COLLAPSIBLE SOILS

Compressible soils are soils which undergo consolidation when subject to a new load, such as a structure load or fill placement. Collapsible soils are soils which significantly decrease in volume when they are

wetted and experience an increase in moisture content, regardless of whether a new load is placed on them. Compressible or collapsible soils can lead to excessive settlement distress for structural improvements.

Artificial fill that was not engineered and the near-surface alluvial deposits may be weak and compressible and/or collapsible, particularly with the addition of water. The existing artificial fill present within the project site may not be suitable to support foundations, slabs on grade, paving, or new compacted fills. Furthermore, the surficial alluvial deposits may not be suitable for supporting building loads. Using the existing artificial fill or upper alluvial soils for load support during project construction could result in potential significant impact for the proposed structures once built, as it could lead to structural distress due to total or differential settlement during operation of the project. Impacts related to compressible and collapsible soils during project construction and operation could be *significant*.

GEO Impact 3	
The project could cause geologic instability at the project site related to subsidence as well as compressible and collapsible soils during project construction and operation. Impacts during construction and operation could be significant. (CEQA Checklist Appendix G Threshold VII. c)	
Mitigation Measures	
GEO/mm-3.1	*To prevent subsidence of the ground surface within the project site, temporary dewatering shall be required during construction for excavations which extend below the existing groundwater level (i.e., greater than 10 feet below ground surface), anticipated for deepest excavations associated with the proposed Page Museum one-story addition, as excavations will be required for construction of the proposed mat foundation and associated new utility placement. Dewatering activities shall be conducted as follows:* *a. Dewatering shall be performed prior to excavation. Temporary dewatering shall be performed during the construction stage, prior to beginning any excavation which will extend beneath the groundwater. The Construction Contractor shall decide the proper timeline which will permit a dry environment for the excavation work and prevent water seepage into the excavation.* *b. The design of a temporary dewatering system shall be performed by an experienced, qualified dewatering contractor. Prior to proceeding with the actual design of the dewatering system, a test installation shall be constructed to verify the design's effectiveness.* *c. The dewatering system shall be designed to lower the site groundwater sufficiently to permit a dry environment and to prevent water seepage from the temporary perimeter cut slopes. The design shall balance the soil conditions with well spacing and well depth. Recommendations for well design provided in the project's Geology and Soil Discipline Report shall be incorporated into the final design of the dewatering system, including:* • *Installation of relatively closely spaced wells around the excavation perimeter, referred to as well points* • *Wells shall include perforated casing with annular space filled with suitable filter material* • *Well points shall extend past the depth of proposed excavation* • *Elements of current dewatering system within the Lake Pit shall be incorporated, including collection piping, sump pumps, a sand-oil separator device, and a micro-filter device. In addition, separator and filter devices shall be considered for temporary dewatering pumps to help maintain the system's efficiency and increase the amount of time prior to the pumps being plugged up with tar.*

GEO Impact 3	
	d. Groundwater shall be pumped from the tar sands and is anticipated to contain a relatively high percentage of tar. The tar shall be removed, and the groundwater treated in accordance with all applicable regulatory requirements prior to disposal.
GEO/mm-3.2	*To ensure proper design and stability of structures to be constructed on existing artificial fill or upper alluvial soils, the excavation and replacement of existing compressible materials within the areas of the proposed improvements shall be required. Excavation and replacement shall consist of complete removal of artificial fill and/or compressible surficial alluvial soil beneath the areas of the proposed improvements and replacement with compacted structural fill, with an anticipated artificial fill depth ranging between 1 and 8 feet below ground surface based on review of existing explorations performed within or adjacent to the project site. This value will be confirmed after completion of subsurface explorations during the final geotechnical design to further characterize the subsurface conditions underlying the improvement areas (i.e., compressibility of the soft layers and the depth to firm material). Due to the anticipated soil contamination, on-site soils are not anticipated to be suitable for reuse as fill material and shall be exported for proper remediation and disposal in accordance with all applicable regulatory requirements. The final engineering design of the structures included in the project shall be reviewed and approved by the Los Angeles County Department of Public Works, Building and Safety Division.*
Impacts Following Mitigation	
With implementation of Mitigation Measures GEO/mm-3.1 and GEO/mm-3.2, impacts would be less than significant.	

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Expansive soil occurs when clay particles of certain mineralogy interact with water, causing a volume change. Clay soil may swell with increasing moisture content and contract when dried. This phenomenon generally decreases in magnitude with increasing confining pressure at depth. These volume changes may damage spread footings, grade beams, floor slabs, pavement, and other shallow improvements.

As stated in the Geology and Soil Discipline Report, the upper clay soils within the existing artificial fill and alluvium are subject to expansion and shrinkage resulting from changes in the moisture content. Review of existing data available for the project site confirmed the presence of moderately to highly expansive soil on-site, posing a potential significant impact to lightly loaded foundation elements and flatwork (e.g., sidewalks, driveways). Therefore, impacts related to expansive soils during project construction and operation could be *significant*.

GEO Impact 4
The project site is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating a potentially significant risk to life and/or property during project construction and operation. Impacts could be significant. (CEQA Checklist Appendix G Threshold VII. d)

GEO Impact 4	
Mitigation Measures	
GEO/mm-4.1	*To address impacts related to expansive soils within the project site, additional expansion testing shall be required as part of the final geotechnical design for the project. Based on the outcome of the additional expansion testing, one or more of the following options shall be implemented to address expansive soils:* *a. Over-excavation: Over-excavation and replacement of the expansive material with a soil having low or non-expansive potential, with the upper 2 feet of expansive soil (where encountered at the site) being removed and replaced with non-expansive fill.* *OR* *b. Soil Treatment: Chemical treatment, such as lime treatment. This generally involves mixing a certain percentage of the chemical into the subgrade soil, compacting the mixed soil-chemical material, and then allowing the material curing time prior to continuing construction. The percentage of the chemical addition and the associated engineering properties of the improved soil will need to be determined through geotechnical laboratory testing. If chosen, the final geotechnical design shall provide design and construction recommendations related for this option.* *OR* *c. Structural Design: The structural design option would involve increasing the bearing pressure on the soil and/or extending the foundation or flatwork depth. However, while increasing the bearing pressure reduces the potential impact from expansive soil, it does increase the potential impact associated with excessive settlement. If this option is elected, settlement evaluation shall be performed as part of the final geotechnical design and based on the proposed loading conditions. Loading conditions shall be limited to a maximum differential of 1 inch over a 20-foot span within the structure.* *The final design solution will be determined by the project engineer consistent with the above measures. The final engineering design of the structures included in the project shall be reviewed and approved by the Los Angeles County Department of Public Works, Building and Safety Division.*
Impacts Following Mitigation	
With implementation of Mitigation Measure GEO/mm-4.1, impacts related to expansive soils during project construction and operation would be less than significant.	

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project site is served by existing sewage infrastructure. The project's wastewater demand would be accommodated via connections to the existing wastewater infrastructure system, and the project would not require the use of septic tanks or alternative wastewater disposal systems during project construction or operation. Therefore, the project would not result in impacts related to the ability of soils to support septic tanks or alternative wastewater disposal systems. *No impact* would occur during project construction or operation.

GEO Impact 5
The project would not include the use of septic tanks or alternative wastewater disposal systems during either project construction or operation. No impact would occur. (CEQA Checklist Appendix G Threshold VII. e)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. No impacts would occur related to septic tanks or alternative wastewater disposal systems as none of these systems would be used for the project.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The analysis provided in the Paleontological Resources Technical Report (see Appendix F) indicates the project site has historically yielded millions of significant fossils and the entirety of Hancock Park, including the project site, contains a veneer of artificial fill overlying older alluvium that is subsequently underlain by the San Pedro Sand and Fernando Formation at greater depths, each having high paleontological sensitivity and high potential for producing significant paleontological resources (SWCA 2023). Specifically, recent artificial fill and reworked sediments originating from within the project site have a high potential to produce significant paleontological resources. Additionally, asphalt deposits seeping from the underlying geologic units to the surface through the artificial fill may contain fossils, albeit to lesser degrees than the underlying older alluvium. The thickness of fill and disturbed sediments likely varies across the site but may extend as deep as 8 feet bgs in some areas, or as shallow as 3 feet bgs in others. Generally, older alluvium, San Pedro Sand, and Fernando Formation have high paleontological potential throughout their extents within the Los Angeles Basin, and within the project site. Artificial fill or previously disturbed sediments also have a high paleontological potential. Regardless of the site's stratigraphy, asphalt pools, seeps, and chimneys have yielded a substantial proportion of the fossils recovered from Hancock Park, particularly in the uppermost 40 feet of sediments.

CONSTRUCTION

Given the high paleontological sensitivity of the project site, paleontological resources may be impacted by construction or implementation of the project regardless of depth of grading and/or excavation activities, since all ground-disturbing activities associated with the construction of the project have the potential to impact asphalt seeps containing aggregates of fossils. Any fossils encountered during ground-disturbing activities could be at risk for damage or destruction from such activities depending on the nature of the fossil encountered. Therefore, impacts related to paleontological resources during project construction could be *significant*.

OPERATION

Operation of the project would not result in any ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, project operation would not directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature. *No impact* would occur during project operation.

GEO Impact 6	
Given the high paleontological sensitivity of the project site, ground-disturbing activities associated with project construction could damage paleontological resources that may be present below the surface. Construction impacts could be significant. Operation of the project would not directly or indirectly destroy a unique paleontological resource, site, or unique geologic feature. No operational impacts would occur. (CEQA Checklist Appendix G Threshold VII. f)	
Mitigation Measures	
GEO/mm-6.1	***Retain a Qualified Professional Paleontologist (Project Paleontologist):*** *Prior to the start of construction and/or ground-disturbing activities, the Los Angeles County Museum of Natural History Foundation, at the direction of the County, shall retain a Qualified Professional Paleontologist (Project Paleontologist) who meets or exceeds the professional standards defined by the SVP (2010), and who has specific experience overseeing mitigation projects in Pleistocene deposits of the Los Angeles Basin. The SVP (2010:10) defines a qualified professional paleontologist as: "a practicing scientist who is recognized in the paleontological community as a professional and can demonstrate familiarity and proficiency with paleontology in a stratigraphic context." The Project Paleontologist shall have a graduate degree in paleontology or geology, and/or a publication record in peer reviewed journals; have demonstrated competence in field techniques, preparation, identification, curation, and reporting; have at least 2 full years of professional experience as assistant to a qualified professional paleontologist with administration and project management experience (supported by a list of projects and referral contacts); have proficiency in recognizing fossils in the field and in determining their significance; have expertise in local geology, stratigraphy, and biostratigraphy; and have experience collecting vertebrate fossils in the field (SVP 2010). The Project Paleontologist and Page Museum curators and collections managers shall meet weekly during scheduled ground-disturbing activities associated with the construction of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination. The Project Paleontologist shall oversee all regulatory compliance measures, shall oversee mitigation protocols related to paleontological resources, and shall be a point of contact for the Page Museum curators and County officials. A professional resume or curriculum vitae of the Project Paleontologist shall be submitted to the County for approval prior to the start of ground-disturbing activities.*
GEO/mm-6.2	***Prepare a Paleontological Resources Management Plan:*** *After finalization of the engineering, design, and grading plans for the project and prior to the start of preconstruction ground-disturbing activities, a Paleontological Resources Management Plan (PRMP) shall be prepared by the Project Paleontologist and submitted to the Page Museum curators, who shall review and approve the final PRMP on behalf of the County ~~and Natural History Museum~~. The PRMP shall define the processes and procedures for paleontological monitoring and fossil excavation based on the nature of ground-disturbing activities required for project. The PRMP shall:* *a. Incorporate the results of the Paleontological Resources Technical Report (SWCA 2023), the final geotechnical investigation, and the final engineering/grading plans for the project.* *b. Require all construction personnel to attend a Worker Environmental Awareness Program (WEAP) training to be presented by the Project Paleontologist, or their designee.* *c. Define the processes and procedures for coordinating and communicating with responsible parties and stakeholders (including but not limited to the contractors, consultants, County officials, and the Page Museum curators and collections managers), when construction activities would be halted due to discovery and subsequent salvage efforts during ground-disturbing activities, and when regularly scheduled meetings between the Project Paleontologist and the Page Museum curators and collections managers would be required.*

GEO Impact 6	
	d. Outline a procedure whereby mechanical excavation is conducted to remove any non-fossil-bearing sediments or soils subject to environmental soil remediation, such that adequate time is afforded to identify fossil localities and to conduct scientific salvage operations to a feasible extent (see Millington and Dietler 2023); the timing of scientific fossil salvage operations during initial grading should be given special considerations in the PRMP such that delays to earthwork activities are minimized while allowing paleontological material to be salvaged at an acceptable level that retains the scientific integrity of the discoveries. *e. Require full-time paleontological monitoring by qualified paleontological monitors who meet the standards of the SVP (2010) and shall be supervised by the Project Paleontologist; qualified paleontological monitors shall have the authority to temporarily halt construction activities to record and salvage fossil discoveries as they are unearthed to allow for potentially significant fossils to be collected with their scientific integrity intact to the extent feasible and practical.* *f. Discuss unanticipated fossil discovery and communication protocols if paleontological resources are discovered by non-paleontology staff working on the project in instances where paleontological monitors are documenting or recording paleontological resources discovered elsewhere within the project site.* *g. Discuss feasible monitoring procedures for each of the different ground-disturbing activities, including but not limited to active observation or inspection of sediments during active ground disturbances, whether they be trenching, grading, excavating, drilling, or some other activity that disturbs sediments; inspection of sedimentary spoils spiles or cuttings, as well as backfill originating from Hancock Park that may contain asphaltum or fossil material; and/or matrix screening of spoils for small or microfossils as needed.* *h. Define fossil salvaging procedures, including but not limited to outlining the treebox method for asphaltum bearing large accumulations of fossils, salvaging of isolated fossils, matrix screening in the field for microfossils, and chain-of-custody procedures for transferring the fossil discoveries to the Page Museum curators or collection managers as they are exhumed from the project site. Because of the unique conditions of La Brea Tar Pits and the chemical considerations of working with asphaltum fossil deposits, any paleontological resource discoveries shall remain on-site with the Page Museum. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities.* *i. Require the Project Paleontologist to prepare a report of the findings of the monitoring efforts within 90 days after construction is completed.*
GEO/mm-6.3	***Conduct Worker Training.*** *The Project Paleontologist shall develop and present a WEAP training to educate the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of an unanticipated fossil discovery. This training program shall be given to the crew before ground-disturbing work commences and shall include handouts to be given to new workers as needed.*
GEO/mm-6.4	***Monitor for Paleontological Resources:*** *Full-time monitoring shall be required during all ground-disturbing activities (including artificial fill or previously disturbed sediments), regardless of depth. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations, including but not limited to the paleontological screening of tar sands prior to disposal or treatment. Procedures and protocols for paleontological monitoring and fossil salvage shall be outlined in the PRMP. Monitoring shall:* *a. Be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist, who shall coordinate with the Page Museum curators and collections managers and County officials. The Project Paleontologist may periodically inspect construction activities to recommend adjusting the level of monitoring in response to subsurface conditions; however, modifications, such as increasing, reducing, or ceasing of paleontological*

GEO Impact 6	
	monitoring, or any changes of the implementation of the PRMP, should be approved by Page Museum curators and the County ~~Natural History Museum~~. *b. Include inspection of exposed sedimentary units during active excavations, grading, tar sand removal, and any other ground-disturbing activity that has the potential to impact sediments capable of preserving significant fossils. The Page Museum curators (or their representatives) and the paleontological monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, shall the fossils be determined significant or likely significant, professionally and efficiently recover the fossil specimens and collect associated data while minimizing delays. Data collection procedures may require the support of construction contractors to carefully and efficiently collect field data and extract the fossils to allow construction to continue.* *c. Require grading and earthwork contractors to follow the guidance of Page Museum staff or the Project Paleontologist regarding the collection and/or extraction of paleontological resources. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be directly retained by the Page Museum for later analysis, laboratory preparation, and eventual curation if deemed significant or important by the Page Museum curators or collection managers.*
GEO/mm-6.5	***Prepare a Paleontological Resources Monitoring Report:*** *Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing the implementation of the PRMP, including paleontological monitoring and fossil salvaging, shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Page Museum and the Research and Collections Department at the Natural History Museum of Los Angeles County within 90 days after construction is completed. If the project is developed in phases, the final report is only necessary at the completion of the last phase to be constructed. At the discretion of the County, if there are unanticipated gaps in the phases of construction or other reasons why the County would prefer phased final reports, multiple final reports could be prepared.*
Impacts Following Mitigation	
With implementation of Mitigation Measures GEO/mm-6.1 through GEO/mm-6.5, construction impacts would be less than significant. No operational impacts would occur.	

5.6.6 Cumulative Impact Analysis

Due to the site-specific nature of geological conditions (i.e., soils, geological features, subsurface features, seismic features, etc.), geological impacts are typically assessed on a project-by-project basis, rather than on a cumulative basis. Nonetheless, cumulative growth in the surrounding area as discussed in Chapter 4, Environmental Setting, and other future development projects would be subject to established guidelines and regulations pertaining to building design and seismic safety, including those set forth in the CBC and the City of Los Angeles Building Code, which applies to the properties adjacent to and surrounding the project site, as well as site-specific geotechnical evaluations that would identify potential effects related to the underlying geologic and soil conditions for a particular related project site.

With the adherence to the applicable regulations of 2020 CLABC (and future updates to the building code, when they occur) as discussed above and any site-specific recommendations set forth in a site-specific final geotechnical design evaluation, and the requirement that projects in the surrounding city of Los Angeles adhere to the City of Los Angeles Building Code, the project and related projects would not

result in significant impacts related to geological and soil conditions. As such, the project's contribution to geotechnical or soils-related hazards would not be cumulatively considerable.

However, in specific consideration of paleontological resources, future and nearby development projects with the potential for substantial excavation would be subject to environmental review, but each of these development projects in the area could result in incremental impacts to paleontological resources that, when viewed together, could be considered cumulatively considerable.

As addressed in the direct impact analysis, the project has the potential to disturb geological units that are conducive to retaining paleontological resources. If not mitigated, the potential for the loss, alteration, and destruction of the paleontological resources at the project site would be considered significant contributions to cumulative paleontological resource impacts. Therefore, the project could result in *significant* contributions to cumulative paleontological impacts.

Because of the potential for significant impacts on paleontological resources resulting from the project, Mitigation Measures GEO/mm-6.1 through GEO/mm 6.5 are required. These measures include retention of a qualified paleontologist, paleontological resources sensitivity training, paleontological resources monitoring, and treatment and curation of discoveries, if encountered. Implementation of these measures would reduce the potential for adverse effects on fossil resources individually and cumulatively, and would preserve and maximize the potential of these resources to contribute to the body of scientific knowledge.

GEO Impact 7 (Cumulative)
The project would not result in significant contributions to cumulatively considerable impacts related to geotechnical or soils-related hazards; however, the project could result in significant contributions to cumulatively considerable impacts related to paleontological resources.
Mitigation Measures
Implement Mitigation Measures GEO/mm-6.1 through GEO/mm-6.5.
Impacts Following Mitigation
With implementation of Mitigation Measures GEO/mm-6.1 through GEO/mm-6.5, the project's contribution to cumulative impacts related to paleontological resources would be reduced to less than significant. No other geotechnical, geologic, or soil-related contributions to cumulative impacts would occur.

5.7 GREENHOUSE GAS EMISSIONS

This section of the EIR describes the affected environment and regulatory setting for greenhouse gases (GHGs) and global climate change. It also describes the GHG and global climate change impacts that would result from implementation of the project along with mitigation measures that would reduce these impacts. This section is based on the following document (Appendix C): *Air Quality and Greenhouse Gas Technical Report for the La Brea Tar Pits Master Plan* (SWCA 2022).

5.7.1 Existing Conditions

Global climate change refers to the changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs. GHGs are released by the combustion of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

Regarding the adverse effects of global warming, as reported by the Southern California Association of Governments (SCAG): "Global warming poses a serious threat to the economic well-being, public health and natural environment in Southern California and beyond. The potential adverse impacts of global warming include, among others, a reduction in the quantity and quality of water supply, a rise in sea levels, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases" (SCAG 2007:116). Over the past few decades, energy intensity of the national and state economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the States in carbon dioxide (CO_2) emissions from fossil fuel consumption per unit of gross state product. However, in terms of total CO_2 emissions, "California is second only to Texas in the nation and is the 16th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state's population and economic activities, is a major contributor to the global warming problem" (SCAG 2007:117).

5.7.1.1 Overview of Greenhouse Gases

GHGs include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Carbon dioxide is the most abundant GHG. Other GHGs are less abundant but have higher global warming potential than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. The primary GHGs attributed to global climate change are described below.

CARBON DIOXIDE (CO_2)

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants, volcanic outgassing, decomposition of organic matter, and evaporation from the oceans. Anthropogenic sources of CO_2 include the combustion of fossil

fuels and wood, waste incineration, mineral production, and deforestation. Anthropogenic sources of CO_2 amount to over 30 billion tons per year, globally (Friedlingstein et al. 2022). Natural sources release substantially larger amounts of CO_2. Nevertheless, natural removal processes, such as photosynthesis by land and ocean-dwelling plant species, cannot keep pace with this extra input of human-made CO_2, and, consequently, the gas is building up in the atmosphere.

METHANE (CH_4)

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California.

NITROUS OXIDE (N_2O)

Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion produce N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California.

HYDROFLUOROCARBONS, PERFLUOROCARBONS, SULFUR HEXAFLUORIDE

Hydrofluorocarbons (HFCs) are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protocol, an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion. Perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no primary aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

The magnitude of the impact on global warming differs among the GHGs. The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential (GWP). GWP is one type of simplified index based upon radiative properties used to estimate the potential future impacts of emissions of different gases upon the climate system, expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalents (CO_2e). GWP is based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. HFCs, PFCs, and SF_6 have a greater GWP than CO_2. In other words, these other GHGs have a greater contribution to global warming than CO_2 on a per-mass basis. However, CO_2 has the greatest impact on global warming because of the relatively large quantities of CO_2 emitted into the atmosphere. A summary of the atmospheric lifetime and GWP of selected gases is presented in Table 5.7-1. As shown in Table 5.7-1, GWPs range from 1 to 23,500. The IPCC has released three assessment reports (AR4, AR5, and AR6) with updated GWPs; however, the California Air Resources Board (CARB) reports the statewide GHG inventory using the AR4 GWPs, which is consistent with

international reporting standards. By applying the GWP ratios, project-related equivalent mass of CO_2 (denoted as CO_2e emissions) can be shown in metric tons per year.

Table 5.7-1. Global Warming Potentials

Greenhouse Gas	GWP Values for 100-year Time Horizon		
	AR4*	AR5	AR6
Carbon dioxide (CO_2)	1	1	1
Methane (CH_4)	25	28	Fossil origin – 29.8 Non-fossil origin – 27.2
Nitrous oxide (N_2O)	298	265	273
Select hydrofluorocarbons (HFCs)	124–14,800	4–12,400	–
Sulfur hexafluoride (SF_6)	22,800	23,500	–

Sources: IPCC (2007, 2013, 2022).

* For consistency with the U.S. Environmental Protection Agency and its inventory of greenhouse gas reporting (2022), we have represented values from AR4 of the IPCC report in this report.

5.7.1.2 Greenhouse Gas Emissions Inventories

UNITED STATES GHG EMISSIONS

Per the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2020* (EPA 2022), total U.S. GHG emissions have decreased by 6.6% from 1990 to 2020; 2005 emissions were 15.8% above 1990 levels. The largest source of GHG emissions from human activities in the United States is from burning of fossil fuels for electricity, heat, and transportation. The latest national GHG emissions are for calendar year 2020, in which total gross U.S. GHG emissions were reported at 5,981.4 million metric tons carbon dioxide equivalent (MMT CO_2e). Emissions decreased from 2019 to 2020 by 543.4 MMT CO_2e and net emissions (including sinks) were 5,222.4 MMT CO_2e.

STATEWIDE GHG EMISSIONS

According to California's 2000–2019 GHG emissions inventory, California emitted 409.3 MMT CO_2e in 2019 (CARB 2021). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions in 2019 are presented in Table 5.7-2. Total GHG emissions in 2019 were approximately 22.9 MMT CO_2e less than 2016 emissions. Based on data presented, the 2016 statewide GHG inventory fell below 1990 levels, consistent with Assembly Bill (AB) 32 (CARB 2018). The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 metric tons CO_2e ($MTCO_2e$) (CARB 2022a).

Table 5.7-2. California Greenhouse Gas Inventory

Parameter	Unit*	Year				
		2015	2016	2017	2018	2019
Transportation	MMT CO_2e	166.2	169.8	171.2	169.6	166.1
	Percentage	38.5%	40.4%	41.2%	40.7%	40.6%
Electric power	MMT CO_2e	84.8	68.6	62.1	63.1	58.8
	Percentage	19.6%	16.3%	14.9%	15.2%	14.4%
Industrial	MMT CO_2e	90.3	89	88.8	89.2	88.2
	Percentage	20.9%	21.2%	21.4%	21.4%	21.5%
Commercial and residential	MMT CO_2e	38.8	40.6	41.3	41.4	43.8
	Percentage	9.0%	9.7%	9.9%	9.9%	10.7%
Agriculture	MMT CO_2e	33.5	33.3	32.5	32.7	31.8
	Percentage	7.8%	7.9%	7.8%	7.9%	7.8%
High global warming potential (GWP)	MMT CO_2e	18.6	19.2	20	20.4	20.6
	Percentage	4.3%	4.6%	4.8%	4.9%	5.0%
Total Net Emissions	MMT CO_2e	**432.2**	**420.5**	**415.9**	**416.4**	**409.3**

Source: California GHG Inventory for 2000–2019 (CARB 2021)

* MMT CO_2e = million metric tons carbon dioxide equivalent

COUNTY OF LOS ANGELES EMISSIONS

In 2015, emissions generated by community activities occurring in the county amounted to 5.5 MMT CO_2e. The transportation and stationary energy sectors were the largest contributors to the inventory. The transportation sector accounts for approximately 2.8 MMT CO_2e (51%) of total GHG emissions, while the stationary energy sector accounts for approximately 1.9 MMT CO_2e (35%) of total GHG emissions. The transportation sector includes emissions from on-road passenger vehicles, trucks, and railways. The stationary energy sector includes emissions from residential, commercial, and institutional uses; industrial buildings; and stationary equipment. The remaining emissions sources include waste and wastewater (8%), refrigerants and other industrial products (5%), and other land-related activities including forestry and agriculture (1%).

To capture the latest emissions profile and emissions trends in Los Angeles County since 2015, the County prepared an updated inventory for the year 2018, given the availability in that year of the most recent complete data set of emissions-generating activity. Both the 2015 and the updated 2018 inventory are discussed in detail in the *Revised Draft 2045 Los Angeles County Climate Action Plan* (County of Los Angeles 2023a). The 2018 inventory relies on the same protocol and data sources that were used in the 2015 GHG emissions inventory. In 2018, communitywide emissions totaled 5.2 MMT CO_2e.
The transportation sector was the greatest contributor, accounting for 52% of emissions and 2.7 MMT CO_2e. The stationary energy sector was the second greatest contributor at 33% and 1.7 MMT CO_2e. Total GHG emissions decreased approximately 7% between 2015 and 2018. The stationary energy sector saw the greatest decrease (11%), followed by the industrial processes and product use sector (6%) and the transportation sector (5%). Emissions from stationary energy decreased primarily because of the increasing level of renewable energy supplied by Southern California Edison into the electricity grid and because certain power-generating facilities decreased their fossil fuel combustion in the intervening years. Emissions from transportation decreased primarily because of vehicle turnover to more fuel-efficient vehicles.

5.7.2 Regulatory Setting

5.7.2.1 Federal

The Supreme Court of the United States (SCOTUS) ruled in Massachusetts v. Environmental Protection Agency, 127 S.Ct. 1438 (2007), that CO_2 and other GHGs are pollutants under the federal Clean Air Act (CAA), which the EPA must regulate if it determines they pose an endangerment to public health or welfare. SCOTUS did not mandate that the EPA enact regulations to reduce GHG emissions. Instead, SCOTUS found that the EPA could avoid taking action if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change.

On April 17, 2009, the EPA issued a proposed finding that GHGs contribute to air pollution that may endanger public health or welfare. On April 24, 2009, the proposed rule was published in the *Federal Register* under Docket ID No. EPA-HQ-OAR-2009~0171. The EPA stated that high atmospheric levels of GHGs "are the unambiguous result of human emissions and are very likely the cause of the observed increase in average temperatures and other climatic changes." The EPA further found that "atmospheric concentrations of GHGs endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The findings were signed by the EPA Administrator on December 7, 2009. The final findings were published in the *Federal Register* on December 15, 2009. The final rule was effective on January 14, 2010. While these findings alone do not impose any requirements on industry or other entities, this action is a prerequisite to regulatory actions by the EPA, including, but not limited to, GHG emissions standards for light-duty vehicles.

On July 20, 2011, the EPA published its final rule deferring GHG permitting requirements for CO_2 emissions from biomass-fired and other biogenic sources until July 21, 2014. Environmental groups challenged the deferral. In September 2011, EPA released the *Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources*, which analyses accounting methodologies and suggests implementation strategies to address biogenic CO_2 emitted from stationary sources.

On April 4, 2012, the EPA published a proposed rule to establish, for the first time, a new source performance standard for GHG emissions. Under the proposed rule, new fossil fuel–fired generating units larger than 25 megawatts are required to limit emissions to 1,000 pounds of CO_2 per megawatt-hour on an average annual basis, subject to certain exceptions.

On April 17, 2022, the EPA issued emission rules for oil production and natural gas production and processing operations, which are required by the CAA under Title 40 of the Code of Federal Regulations (CFR) Parts 60 and 63. The final rules include the first federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently are not regulated at the federal level.

5.7.2.2 State

ENERGY INDEPENDENCE AND SECURITY ACT

The Energy Independence and Security Act of 2007 facilitates the reduction of national GHG emissions by requiring the following:

- increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;

- prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- requiring approximately 25% greater efficiency for lightbulbs by phasing out incandescent lightbulbs between 2012 and 2014; requiring approximately 200% greater efficiency with lightbulbs, or similar energy savings, by 2020; and
- while superseded by the EPA and National Highway Traffic Safety Administration, 1) establishing miles-per-gallon targets for cars and light trucks, and 2) directing the National Highway Traffic Safety Administration to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of the Energy Independence and Security Act address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

EXECUTIVE ORDER S-3-05, EXECUTIVE ORDER B-30-15, AND EXECUTIVE ORDER B-55-18

In 2005, the governor issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets, as well as a process to ensure the targets are met. The order directed the Secretary of the California Environmental Protection Agency (CalEPA) to report every 2 years on the State's progress toward meeting the governor's GHG emission reduction targets. The statewide GHG targets established by EO S-3-05 are as follows:

- By 2010, reduce to 2000 emission levels,
- By 2020, reduce to 1990 emission levels, and
- By 2050, reduce to 80 percent below 1990 levels.

EO B-30-15, issued by Governor Brown in April 2015, established an additional statewide policy goal to reduce GHG emissions 40% below their 1990 levels by 2030. Reducing GHG emissions by 40% below 1990 levels in 2030 and by 80% below 1990 levels by 2050 (consistent with EO S-3-05) aligns with scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius.

The State Legislature adopted equivalent 2020 and 2030 statewide targets in the California Global Warming Solutions Act of 2006 (also known as AB 32) and Senate Bill (SB) 32, respectively, both of which are discussed below. However, the legislature has not yet adopted a target for the 2050 horizon year. As a result of EO S-3-05, the California Action Team (CAT), led by the Secretary of CalEPA, was formed. The CAT is made of representatives from a number of state agencies and was formed to implement global warming emission reduction programs and to report on the progress made toward meeting statewide targets established under the EO. The CAT reported several recommendations and strategies for reducing GHG emissions and reaching the targets established in the EO.

The CAT stated that "smart" land use is an umbrella term for strategies that integrate transportation and land use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. "Intelligent transportation systems" is the application of advanced technology systems and management

strategies to improve operational efficiency of transportation systems and the movement of people, goods, and service.

EO B-55-18, issued by Governor Brown in September 2018, establishes a new statewide goal to achieve caron neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. Based on this executive order, CARB would work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal, as well as ensuring future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

ASSEMBLY BILL 32 — CALIFORNIA GLOBAL WARMING SOLUTION ACT

The California Global Warming Solutions Act of 2006 (also known as AB 32) commits the State to achieving the following:

- By 2010, reduce to 2000 GHG emission levels, and
- By 2020, reduce to 1990 levels.

To achieve these goals, which are consistent with the California CAT GHG targets for 2010 and 2020, AB 32 mandates that the CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. In order to achieve the reductions, AB 32 requires CARB to adopt rules and regulations in an open, public process that achieves the maximum technologically feasible and cost-effective GHG reductions.

SB 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

CLIMATE CHANGE SCOPING PLAN

In 2008, CARB approved a Climate Change Scoping Plan, as required by AB 32. Subsequently, CARB approved updates of the Climate Change Scoping Plan in 2014 (First Update) and 2017 (2017 Update), with the 2017 Update considering SB 32 (adopted in 2016) in addition to AB 32 (CARB 2014, 2017). The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals (to the level of 427 MMT CO_2e) defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. In May 2022, a draft 2022 Scoping Plan Update was circulated for review, with an errata issued by CARB September 21, 2022, to correct several typographical errors. This draft 2022 Scoping Plan Update assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update, which will likely be adopted by the end of 2022, focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

ASSEMBLY BILL 197

AB 197, signed September 8, 2016, is a bill linked to SB 32 that prioritizes efforts to reduce GHG emissions in low-income and minority communities. AB 197 requires the CARB to make available, and update at least annually on its website, the emissions of GHGs, criteria pollutants, and toxic air contaminants for each facility that reports to CARB and air districts. In addition, AB 197 adds two members of the legislature to the CARB board as ex officio, non-voting members, and also creates the Joint Legislative Committee on Climate Change Policies to ascertain facts and make recommendations to the legislature concerning the State's programs, policies, and investments related to climate change.

CAP-AND-TRADE PROGRAM

The 2008 Climate Change Scoping Plan identified a cap-and-trade program as one of the strategies for California to reduce GHG emissions. The cap-and-trade program is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85% of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85% of the state's total GHG emissions. Covered entities subject to the cap-and-trade program are sources that emit more than 25,000 $MTCO_2e$ per year. Triggering of the 25,000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule).

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first two auctions of GHG allowances on November 14, 2012, and February 19, 2013. The State has continued conducting tightly controlled auctions for GHG allowances every quarter, and released the four quarterly dates for 2023 in December 2022 (CARB 2022b). California's GHG cap-and-trade system is projected to reduce GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80% reduction from 1990 levels by 2050.

CALIFORNIA RENEWABLES PORTFOLIO STANDARD

The California Renewable Portfolio Standard (RPS) program (SB 1078; 2002) requires that 20% of the available energy supplies come from renewable energy sources by 2017. In 2006, SB 1078 accelerated the 20% mandate to 2010. These mandates apply directly to investor-owned utilities. On April 12, 2011, Governor Brown signed into law SB 2X, which modified the California RPS program to require that both public- and investor-owned utilities in California receive at least 33% of their electricity from renewable sources by the year 2020. SB 2X also requires regulated sellers of electricity to meet an interim milestone of procuring 25% of their energy supply from certified renewable sources by 2016. These levels of reduction are consistent with the Los Angeles Department of Water and Power's (LADWP's) commitment to achieve 35% renewables by 2020. LADWP indicated that 35.2% of its electricity came from renewable resources in year 2021 (LADWP 2021). Therefore, under SB 2X, LADWP currently meets its RPS requirement. Nearly all residents and businesses in unincorporated Los Angeles County receive 50% of their energy from renewable sources as part of the County's commitment to reducing GHG emissions (County of Los Angeles 2021). At its December 7, 2021, meeting, the Los Angeles County Board of Supervisors approved a measure that changed the default energy offering in unincorporated homes to 100% renewable, and most of the renewable energy will be produced in California. This is consistent with one of the targets set by the OurCounty Sustainability Plan (County of

Los Angeles 2019), which calls for eliminating all fossil fuels in the county by 2050, supporting policies and programs to reduce air and climate pollution, and preparing communities for the damaging impacts of climate change.

SENATE BILL 350

SB 350, signed October 7, 2015, is the clean Energy and Pollution Reduction Act of 2015. The objectives of SB 350 are 1) to increase the procurement of electricity from renewable sources from 33% to 50% by the end of 2030; and 2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

SENATE BILL 100

SB 100, signed September 10, 2018, is the 100 Percent Clean Energy Act of 2018. SB 100 updates the goals of California's RPS and SB 350, as discussed above, to the following: achieve a 50% renewable resources target by December 31, 2026, and achieve a 60% target by December 31, 2030. SB 100 also requires that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% procured to serve all state agencies by December 31, 2045.

SENATE BILL 1368

SB 1368, signed September 29, 2006, is a companion bill to AB 32, which requires the California Public Utilities Commission and the California Energy Commission (CEC) to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside of California and imported into the state. SB 1368 provides a mechanism for reducing the emissions electricity providers, thereby assisting CARB to meet its mandate under AB 32. On January 25, 2007, the California Public Utilities Commission adopted an interim GHG emissions performance standard, which is a facility-based emission standard requiring that all new long-term commitments for baseload generation to serve California customers be with power plants that have GHG emissions no greater than a combined-cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. Furthermore, on May 23, 2007, the CEC adopted regulations that establish and implement an identical emissions performance standard of 1,100 pounds of CO_2 per megawatt-hour.

ASSEMBLY BILL 1493 (PAVLEY REGULATIONS)

AB 1493, passed in 2002, requires the development and adoption of regulations to achieve the maximum feasible reduction in GHG emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the state. CARB originally approved regulations to reduce GHGs from passenger vehicles in September 2004, which took effect in 2009. On September 24, 2009, CARB adopted amendments to these regulations that reduce GHG emissions from new passenger vehicles from 2009 through 2016. Although setting emission standards on automobiles is solely the responsibility of the EPA, the federal CAA allows California to set state-specific emission standards on automobiles, and the State first obtains a waiver from the EPA. The EPA granted California that waiver until July 1, 2009. The comparison between the AB 1493 standards and the federal Corporate Average Fuel Economy standards was completed by CARB, and the analysis determined the California emission standards were 16% more stringent through the 2016 model year and 18% more stringent for the 2020 model year. CARB is also committed to further strengthening these standards beginning with 2020 model year vehicles, to obtain a 45% GHG reduction in comparison to 2009 model years.

In March 2020, the EPA issued the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule which would roll back fuel economy standards and revoke California's waiver. Under this rule, the EPA would amend certain average fuel economy and GHG standards for passenger cars covering model years 2021 through 2026. In September 2019, the EPA withdrew the waiver it had previously provided in California for the State's GHG and Zero Emission Vehicle (ZEV) programs under Section 209 of the Clean Air Act. The withdrawal of the waiver was effective on November 26, 2019. In response, several States including California have a lawsuit challenging the withdrawal of the EPA waiver. These actions continue to be challenged in court. On January 20, 2021, President Biden issued an executive order directing all executive departments and agencies to take action, as appropriate, to address federal regulations and other actions taken during the last 4 years that conflict with the administration's climate and environmental justice goals, which include the SAFE Vehicles Rule.

EXECUTIVE ORDER S-01-07 (CALIFORNIA LOW CARBON FUEL STANDARD)

EO S-01-07, the Low Carbon Fuel Standard (LCFS) (issued January 18, 2007), requires a reduction of at least 10% in the carbon intensity of California transportation fuels by 2020. Regulatory proceedings and implementation of the LCFS was directed to CARB. CARB released a draft version of the LCFS in October 2008. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the LCFS became effective on the same day.

The 2017 update has identified LCFS as a regulatory measure to reduce GHG emission to meet the 2030 emissions target. In calculating statewide emissions and targets, the 2017 update has assumed the LCFS be extended to an 18% reduction in carbon intensity beyond 2020. On September 27, 2018, CARB approved a rulemaking package that amended the LCFS to relax the 2020 carbon intensity reduction from 10% to 7.5%, and to require a carbon intensity reduction of 20% by 2030.

ADVANCED CLEAN CAR REGULATIONS

In 2012, CARB approved the Advanced Clean Cars program, a new emissions control program for model years 2015 through 2025. The components of the advance clean car standards include the Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero Emission Vehicle regulation, which requires manufacturers to produce an increasing number of pure ZEVs, with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years period. In March 2017, CARB voted unanimously to continue with the vehicle GHG emission standards and the ZEV programs for cars and light trucks sold in California through 2025.

SENATE BILL 375

This bill requires CARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a Sustainable Communities Strategy (SCS) that integrates transportation, land use, and housing policies to plan how it will achieve the emissions target for its region. If the SCS is unable to achieve the regional GHG emissions reductions targets, then the MPO is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target can be achieved through alternative development patterns, infrastructure, and/or transportation measures.

As required under SB 375, CARB is required to update regional GHG emission targets every 8 years, with the last update formally adopted March 2018. As part of the 2018 update, CARB adopted a passenger vehicle–related GHG reduction target of 19% by 2035 for the SCAG region, which is more stringent than the previous reduction target of 13% by 2035.

CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS (TITLE 24, PART 6)

California's Energy Efficiency Standards for Residential and Nonresidential Buildings, codified in Title 24, Part 6 of the California Code of Regulations (CCR) and commonly referred to as "Title 24", were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

On May 9, 2018, the CEC adopted the 2019 Title 24 Standards, which went into effect on January 1, 2020. The 2019 standards continue to improve upon the previous (2016) Title 24 standards for new construction of, and additions and alterations to, residential and non-residential buildings. The 2019 Title 24 Standards ensure that builders use the most energy-efficient and energy-conserving technologies and construction practices. Nonresidential buildings are projected to use approximately 30% less energy, due mainly to lighting upgrades. Compliance with Title 24 is enforced through the building permit process.

CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN CODE)

The California Green Building Standards Code—Part 11, Title 24, CCR—known as CALGreen, is the first-in-the-nation mandatory green building standards code. In 2007, the California Building Standards Commission developed green building standards in an effort to meet the goals of California's landmark initiative AB 32, which established a comprehensive program of cost-effective GHG reductions to 1990 levels by 2020.

The California Building Standards Commission has the authority to propose CALGreen standards for nonresidential structures that include new buildings or portions of new buildings, additions and alterations, and all occupancies where no other state agency has the authority to adopt green building standards applicable to those occupancies.

SENATE BILL 97

SB 97 was enacted in 2007, and required the Governor's Office of Planning and Research to develop, and the California Natural Resources Agency to adopt, amendments to the State CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those State CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply, and ways to reduce energy demand, including using efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the State CEQA Guidelines amendments. The amendments to the State CEQA Guidelines implementing SB 97 became

effective on March 18, 2010. SB 97 applies to any EIR, Negative Declaration, Mitigated Negative Declaration, or other document required by CEQA, which has not been finalized.

5.7.2.3 Regional

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The South Coast Air Quality Management District (SCAQMD) adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of chlorofluorocarbons, methyl chloroform, carbon tetrachloride, and halons by December 1995;
- Phase out the large-quantity use and corresponding emissions of hydrochlorofluorocarbons by the year 2000;
- Develop recycling regulations for hydrochlorofluorocarbons (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and
- Support the adoption of a California GHG emission reduction goal.

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds. Within its October 2008 document, SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit more than 3,000 $MTCO_2e$ per year. Under this proposal, commercial/residential projects that emit less than 3,000 $MTCO_2e$ per year would be assumed to have a less-than-significant impact on climate change. On December 5, 2008, the SCAQMD governing board adopted the staff proposal for an interim GHG significance threshold of 10,000 $MTCO_2e$ per year for stationary source/industrial projects where SCAQMD is the Lead Agency. However, SCAQMD has yet to adopt a GHG significance threshold for land use development projects such as commercial/residential projects; the proposed commercial/residential thresholds were never formally adopted.

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG coordinates with various air quality and transportation stakeholders in Southern California to ensure compliance with the federal and state air quality requirements, including applicable federal, state, and air district laws and regulations. As the federally designated MPO for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and state air quality plans to attain the National Ambient Air Quality Standards. In addition, SCAG is a co-producer, with SCAQMD, of the transportation strategy and transportation control measure sections of the 2016 Air Quality Management Plan (AQMP). The development of the 2016 AQMP relies on population and transportation growth projections contained in SCAG's 2016-2040 RTP/SCS.

On September 3, 2020, SCAG's Regional Council adopted an updated RTP/SCS known as the 2020-2045 RTP/SCS, or Connect SoCal. As with the 2016-2040 RTP/SCS, the purpose of the 2020-2045 RTP/SCS is to meet the mobility needs of the six-county SCAG region over the subject planning period through a

roadmap identifying sensible ways to expand transportation options, improve air quality, and bolster Southern California long-term economic viability. On October 30, 2020, the CARB accepted SCAG's determination that the SCS met the applicable state GHG emissions targets. The goals and policies of the 2020-2045 RTP/SCS are similar to, and consistent with, those of the 2016-2040 RTP/SCS. In addition, CARB's new target requiring a 19% reduction in per-capita GHG emissions has been included in the 2020-2045 RTP/SCS, to fulfill SB 375 compliance with respect to meeting the State's GHG emission reduction goals.

5.7.2.4 County of Los Angeles

This section provides a summary of the most relevant County plans and policies. An analysis of the project's consistency with the plans and policies in this section is provided in Section 5.7.5 under threshold (b).

COUNTY OF LOS ANGELES GENERAL PLAN

The County Board of Supervisors adopted the County General Plan on October 6, 2015. The adopted County General Plan represents a compromise comprehensive update intended to reflect changing demographics, growth, and infrastructure conditions in the county. The County General Plan contains an Air Quality Element that addresses air quality and related issues. Included in the Air Quality Element are goals encouraging mixed-use development, the use of "green building" principles, energy and water efficiency, reducing vehicle miles traveled and vehicle trips, and promoting alternative modes of transportation.

The Air Quality Element of the County General Plan establishes the following goals that are relevant to the project:

Goal AQ3: Implementation of plans and programs to address the impact of climate change.

> ***Policy AQ 3.2***: Reduce energy consumption of County operations by 20% by 2015.
>
> ***Policy AQ 3.3***: Reduce water consumption of County operations.
>
> ***Policy AQ 3.5***: Encourage energy conservation in new development and municipal operations.
>
> ***Policy AQ 3.6***: Support rooftop solar facilities on new and existing buildings.

OURCOUNTY – LOS ANGELES COUNTYWIDE SUSTAINABILITY PLAN

OurCounty is a regional sustainability plan for the County of Los Angeles and was adopted by the Board of Supervisors on Tuesday, August 6, 2019. It outlines what local governments and stakeholders can do to enhance the well-being of every community in the county while reducing damage to the natural environment and adapting to the changing climate, particularly focusing on those communities that have been disproportionately burdened by environmental pollution. This plan envisions streets and parks that are accessible, safe, and welcoming to everyone; air, water, and soil that are clean and healthy; affordable housing that enables all residents to thrive in place; and a just economy that runs on renewable energy instead of fossil fuels. OurCounty is organized around 12 goals for a sustainable Los Angeles County, discussed below.

Goal 1. *Resilient and healthy community environments where residents thrive in place.* The County will protect low-income communities and communities of color from pollution, reduce health and economic inequities, and support more resilient and inclusive communities.

Goal 2. *Buildings and infrastructure that support human health and resilience.* The buildings and infrastructure of both yesterday and tomorrow will use more efficient technologies and practices that reduce resource use, improve health, and increase resilience.

Goal 3. *Equitable and sustainable land use and development without displacement.* With policy tools such as anti-displacement measures, existing community members can remain in and strengthen their neighborhoods and networks while accepting new residents through more compact, mixed-use development.

Goal 4. *A prosperous LA County that provides opportunities for all residents and businesses and supports the transition to a green economy.* We will support the growth of green economy sectors through our procurement practices, land use authority, and various economic and workforce development incentives.

Goal 5. *Thriving ecosystems, habitats, and biodiversity.* The region's ecosystems, habitats, and biodiversity are under stress from urbanization and climate change. Careful planning will ensure that our ecosystems, including urban habitats, thrive even as our region becomes increasingly urbanized.

Goal 6. *Accessible parks, beaches, recreational waters, public lands, and public spaces that create opportunities for respite, recreation, ecological discovery, and cultural activities.* The County will help make parks and public lands more accessible and inclusive and will manage them carefully so that all residents may enjoy their benefits.

Goal 7. *A fossil fuel-free LA County.* By supporting an efficient transition to a zero emission energy and transportation system, the County will be a leader in taking action to address the climate crisis.

Goal 8. *A convenient, safe, clean, and affordable transportation system that enhances mobility while reducing car dependency.* By developing programs that focus on reducing the number of miles people travel in private vehicles, the County will help people choose alternatives to single-occupancy vehicles. These programs will expand residents' mobility, including those residents whose limited automobile access translates to stifled economic opportunity.

Goal 9. *Sustainable production and consumption of resources.* The County will effectively manage our waste, water, energy, and material resources by improving our ability to promote integrative and collaborative solutions at the local and regional scale.

Goal 10. *A sustainable and just food system that enhances access to affordable, local, and healthy food.* The County of Los Angeles will leverage its capital assets, public services, and regulatory authority to improve access to healthy food within County boundaries while optimizing its purchasing power and business services to make food production more sustainable.

Goal 11. *Inclusive, transparent, and accountable governance that facilitates participation in sustainability efforts, especially by disempowered communities.* The County will act to create a more inclusive and accountable governance structure, in order to build stronger communities and better-informed policy and programs.

Goal 12. *A commitment to realize OurCounty sustainability goals through creative, equitable, and coordinated funding and partnerships.* The County will seek to strengthen partnerships, establish new funding techniques, and leverage its own purchasing power to advance the goals of OurCounty.

5.7.2.5 City of Los Angeles

Although the project site is located within the city of Los Angeles, the site is owned by the County of Los Angeles. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, consideration of the city-level regulatory framework fulfills the intended purpose of CEQA as disclosing all relevant information associated with the project. An analysis of the project's consistency with the plans and policies in this section is provided in Section 5.7.5 under threshold (b).

CITY OF LOS ANGELES GENERAL PLAN

The Air Quality Element of the City General Plan was adopted on November 24, 1992, and sets forth the goals, objectives, and policies which guide the City of Los Angeles (City) in the implementation of its air quality improvement programs and strategies. The Air Quality Element acknowledges the interrelationships among transportation and land use planning in meeting the City's mobility and air quality goals. The Air Quality Element of the City General Plan establishes six goals:

Goal 1: Good air quality in an environment of continued population growth and healthy economic structure.

> ***Objective 1.1:*** It is the objective of the City of Los Angeles to reduce air pollutants consistent with the Regional Air Quality Management Plan (AQMP), increase traffic mobility, and sustain economic growth citywide.
>
> ***Objective 1.3:*** It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas. parking lots, and construction sites.
>
> > ***Policy 1.3.1:*** Minimize particulate emissions from construction sites.
> >
> > ***Policy 1.3.2:*** Minimize particulate emissions from unpaved roads and parking lots associated with vehicular traffic.

Goal 2: Less reliance on single-occupant vehicles with fewer commute and non-work trips.

> ***Objective 2.1:*** It is the objective of the City of Los Angeles to reduce work trips as a step toward attaining trip reduction objectives necessary to achieve regional air quality goals.
>
> > ***Policy 2.1.1:*** Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling–related facilities in order to reduce Vehicle Trips and/or Vehicle Miles Traveled (VMT) as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.
> >
> > ***Policy 2.2.2:*** Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel by instituting parking management practices.

Goal 4: Minimal impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.

> ***Objective 4.1:*** It is the objective of the City of Los Angeles to include regional attainment of ambient air quality standards as a primary consideration in land use planning.

Policy 4.1.1: Coordinate with all appropriate regional agencies in the implementation of strategies for the integration of land use, transportation, and air quality policies.

Objective 4.2: It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.

Policy 4.2.3: Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.

Policy 4.2.5: Emphasize trip reduction, alternative transit and congestion management measures for discretionary projects.

Goal 5: Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implementation of conservative measures including passive measures such as site orientation and tree planting.

Objective 5.1: It is the objective of the City of Los Angeles to increase energy efficiency of City facilities and private developments.

Policy 5.1.2: Effect a reduction in energy consumption and shift to nonpolluting sources of energy in its buildings and operations.

Policy 5.1.4: Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.

Objective 5.3: It is the objective of the City of Los Angeles to reduce the use of polluting fuels in stationary sources.

Policy 5.3.1: Support the development and use of equipment powered by electric or low-emitting fuels.

In accordance with CEQA requirements, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The City uses SCAQMD's CEQA Air Quality Handbook (1993) and SCAQMD's supplemental online guidance/information (2023) for the environmental review of plans and development proposals within its jurisdiction.

CITY OF LOS ANGELES GREEN LA ACTION PLAN

The City of Los Angeles began addressing the issue of global climate change by publishing *Green LA, An Action Plan to Lead the Nation in Fighting Global Warming* ("LA Green Plan") in 2007. This document outlined the goals and actions the City has established to reduce the generation and emission of GHGs from both public and private activities. According to the LA Green Plan, the City is committed to the goal of reducing CO_2 emissions to 35% below 1990 levels by the year 2030. To achieve this, the City has been implementing the following:

- Increase the generation of renewable energy;
- Improve energy conservation and efficiency; and
- Change transportation and land use patterns to reduce dependence on automobiles.

CITY OF LOS ANGELES GREEN NEW DEAL/SUSTAINABLE CITY PLAN

Rather than an adopted plan, the City of Los Angeles Green New Deal/Sustainable City Plan (Sustainable City pLAn) is a mayoral initiative released in 2015 that includes both short-term and long-term aspirations through the year 2035 in various topic areas, including: water, solar power, energy-efficient buildings, carbon and climate leadership, waste and landfills, housing and development, mobility and transit, and air quality, among others.

In 2019, the first 4-year update to the 2015 Sustainable City pLAn was released. While not a plan intended solely to reduce GHG emissions. this updated document, known as the City's Green New Deal, expands upon the City's vision for a sustainable future and provides accelerated targets and new goals, including climate mitigation. The Green New Deal has established targets such as 100% renewable energy by 2045, installation of 10,000 publicly available electric vehicle chargers by 2022 and 28,000 by 2028, diversion of 100% of waste by 2050, and recycling 100% of wastewater by 2035.

5.7.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to greenhouse gas emissions if it would:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Neither the State of California, County of Los Angeles, nor the SCAQMD has adopted applicable emission-based thresholds of significance for GHG emissions under CEQA. However, SCAQMD guidance provides that construction emissions should be amortized over the operational life of the project, which is assumed to be 30 years (SCAQMD 2008).

5.7.4 Impact Assessment Methodology

For the project, Los Angeles County, as the Lead Agency, has selected a 3,000 $MTCO_2e$ per year quantitative threshold to evaluate significance for GHG emissions. This is the interim GHG screening-level significance threshold. SCAQMD recommended this interim GHG screening-level threshold for projects that are in residential and commercial sectors[1] (SCAQMD 2008). It is important to note that the GHG threshold of 3,000 $MTCO_2e$ per year is based on an interim threshold developed in 2008 to address the State's year 2020 and 2050 GHG reduction goals established under AB 32, which does not address the State's more recent GHG-reduction target of achieving carbon neutrality by 2045, per Executive Order B-55-18 (2018).

To achieve carbon neutrality by 2045, it is recommended that future development include measures to support building decarbonization, including the replacement of natural gas service with other alternatives, such as use of electrically powered equipment (CARB 2022c; CEC 2021). Based on recent GHG

[1] While the La Brea Tar Pits Master Plan contemplates development that is not considered residential or commercial, the construction and operational attributes of the project (e.g., energy demand, water demand, offroad and stationary sources) are like that of development in the residential and commercial sectors. GHG emissions of residential, commercial, and museum facilities are similar in they are focused on mobile sources, energy sources, and off-road and stationary sources. Also, approaches to reducing GHGs will be similar for all these land use types and will center around efficiency improvements of the buildings, efficiency improvements of equipment, and switching to energy sources with lower GHG emissions.

threshold updates and supportive documentation prepared by the Bay Area Air Quality Management District and Sacramento Metropolitan Air Quality Management District, it is recommended that future development prohibit the installation of natural gas infrastructure and the use of natural gas–fired appliances, to the maximum extent possible, and incorporate electric-vehicle charging stations beyond what is required by current building standards in order to contribute its "fair share" of what would be required for the State to achieve its carbon neutrality goal (Bay Area Air Quality Management District 2022; Sacramento Metropolitan Air Quality Management District 2020). As a result, in addition to the GHG threshold of 3,000 $MTCO_2e$ per year noted above, project-generated GHG emissions would also be considered to have a potentially significant impact if the project would not prohibit the installation of natural gas–fired appliances and equipment, to the maximum extent possible, or prohibit the installation of electric-vehicle charging stations beyond what is required by current building standards. For this reason, the analysis of the project uses the SCAQMD interim screening-level threshold of 3,000 $MTCO_2e$ per year and also provides for an assurance that the project would prohibit the installation of natural gas infrastructure and use of natural gas–fired appliances and incorporate electric-vehicle charging stations beyond what is required by current building standards to contribute its "fair share" of what would be required for the State to achieve its carbon neutrality goal.

As an additional significance criterion, consistency with the applicable plans and policies to reduce GHG emissions—including the emissions reduction policies, strategies, and measures discussed within CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, and the County of Los Angeles General Plan—is also evaluated.

5.7.5 Environmental Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

CONSTRUCTION

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. The SCAQMD *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (2008:3-9) recommends that, "construction emissions be amortized over a 30year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies." Therefore, the total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions.

The California Emission Estimator Model (CalEEMod) was used to calculate the GHG emissions that would occur during proposed construction activities, which are anticipated to last a total of approximately 4 years. Project construction would consist of different activities undertaken in phases, through to the operation of the project. Typical construction equipment would be used during all phases of project construction, would be stored within the staging area, and would potentially include excavators, bulldozers, backhoes, dump trucks, water trucks, jackhammers, sandblasters, rollers, pavers, generators, scrapers, forklifts, delivery trucks, paving equipment, cranes, and air compressors. There is no blasting anticipated during construction. Table 7 of the Air Quality and Greenhouse Gas Technical Report (Appendix C) (SWCA 2022) shows the project's anticipated construction schedule, presents an estimate of the maximum number of pieces of equipment for each construction phase, and conservatively assumes equipment would be operating 8 hours per day, 6 days per week for the duration of the construction phase. Table 5.7-3 shows construction emissions for the project from on-site and off-site emission sources.

As shown in Table 5.7-3, the estimated total GHG emissions during construction would be approximately 3,962 $MTCO_2e$ over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 132 $MTCO_2e$ per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would only occur when construction is active, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Due to the potential persistence of GHGs in the environment, impacts are based on the estimated annual operational project-generated GHG emissions, as well as the construction GHG emissions which have been amortized over the estimated life of the project. Based on the project's estimated total GHG emissions during construction, impacts associated with project construction would be *less than significant*.

Table 5.7-3. Estimated Annual Greenhouse Gas Emissions during Project Construction

Construction Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2024	1,492	0.06	0.05	1,513
2025	889	0.04	0.04	902
2026	895	0.04	0.04	908
2027	632	0.02	0.02	639
Total	**3,908**	**0.16**	**0.15**	**3,962**
		Amortized construction emissions		***132.07***

Source: SWCA (2022).
Note: Appendix C provides the modeling inputs.

OPERATION

Operation of the project would generate GHG emissions through motor vehicle trips to and from the project site, landscape maintenance equipment operation, energy use (natural gas and generation of electricity consumed by the project), natural gas–fueled emergency generator maintenance and testing, solid waste disposal, off-road and stationary equipment, and generation of electricity associated with water supply, treatment, distribution, and wastewater treatment. The estimated motor vehicle trip assumptions were derived from the Transportation Assessment prepared by Kittelson and Associates (see Appendix J). Other inputs for modeling purposes used a combination of feedback from County staff and modeling defaults. CalEEMod was used to calculate the annual operational GHG emissions, and the results are shown in Table 5.7-4.

Table 5.7-4. Estimated Annual Greenhouse Gas Emissions during Project Operation

Operations Type	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Mobile	1,314	0.07	0.06	1,335
Area Sources (e.g., architectural coatings, landscaping equipment)	2.15	< 0.005	< 0.005	2.16
Energy	940	0.08	< 0.005	943
Water	8.12	0.11	< 0.005	11.6
Waste	8.76	0.88	0.00	30.6
Refrigeration	0	0	0.00	0.07

Operations Type	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Off-road	8.99	< 0.005	< 0.005	9.02
Stationary	19.4	< 0.005	< 0.005	19.5
Total	**2,301**	**1.13**	**0.07**	**2,351**
		Amortized construction emissions		*132.07*
	Total operational + amortized construction GHGs			***2,483.07***

Source: SWCA (2022)
Note: These emissions reflect operational year 2028. Appendix C provides the modeling inputs.

As shown in Table 5.7-4, estimated annual project-generated GHG emissions would be approximately 2,351 $MTCO_2e$ per year because of project operations only. After summing the amortized project construction emissions, total GHGs generated by the project would be approximately 2,483 $MTCO_2e$ per year, which is less than the SCAQMD interim screening-level threshold of 3,000 $MTCO_2e$ per year.

As noted above, it is also important to assure that the project provides a "fair share" contribution to achieve the State's carbon neutrality goal. Given the project plans have not been fully developed, it is not yet determined whether the project includes the installation of natural gas infrastructure and/or the use of natural gas–fired appliances. Further, while a commitment to electric vehicle charging stations has been made, the number of charging stations that would be installed is not known. For these reasons, impacts related to GHG emissions during operation of the project could be *significant*.

GHG Impact 1	
During project construction, the project would not generate greenhouse gas emissions, either directly or indirectly, that would result in a significant impact on the environment. Project construction impacts would be less than significant. During project operation, the project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Project operation impacts could be significant. (CEQA Checklist Appendix G Threshold VIII. a)	
Mitigation Measures	
GHG/mm-1.1.	*The modifications to the George C. Page Museum and the development of the new museum shall not include the installation of natural gas infrastructure. Future operation of the new facilities shall not use natural gas–fired appliances. In addition, the project shall provide more electric vehicle charging stations than the mandatory requirements in the Los Angeles County Code, Title 31, Green Building Standards, electric vehicle charging space and charging station calculations (Code Section 5.106.5.3.3).*
Impacts Following Mitigation	
Implementation of GHG/mm-1.1 would reduce operation impacts related to GHG emissions to less than significant.	

b) Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Relevant plans and policies to reduce GHG emissions include the emissions reduction policies, strategies, and measures discussed within CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, and the County of Los Angeles General Plan. The project's consistency with the identified plans for

reducing GHG emissions considers the project holistically. This approach is consistent with these plans and policies, which also consider the project holistically (i.e., the plans and policies generally do not segregate impacts by construction and operation). The project's consistency analysis is described below.

CARB'S CLIMATE CHANGE SCOPING PLAN

The Climate Change Scoping Plan outlines a framework that relies on a broad array of GHG reduction actions, including direct regulations, alternative compliance mechanisms, incentives, voluntary actions, and market-based mechanisms, such as the cap-and-trade program. The Climate Change Scoping Plan builds off of a wide array of regulatory requirements that have been promulgated to reduce statewide GHG emissions, particularly from energy demand and mobile sources. While these regulatory requirements are not targeted at specific land use development projects, they would indirectly reduce a development project's GHG emissions. A discussion of these regulatory requirements that would reduce·the project's GHG emissions is provided below.

California Renewable Portfolio Standard Program and SB 100 and SB 350

While this action does not directly apply to individual projects, the project complies with the RPS program inasmuch as its electricity is provided by LADWP, which, in compliance with the RPS program, is required to obtain 33% renewable power by 2020, and has committed to achieving 50% renewable power by 2025. Furthermore, per the updated requirements of SB 100 (2018), LADWP would be required to procure eligible renewable electricity for 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, and should plan to achieve 100% eligible renewable energy resources and zero carbon resources by December 31, 2045. Thus, the project would be supplied with electricity via renewable sources at increasing rates over time, reducing the project's electricity-related GHG emissions. As required under SB 350, doubling of the energy efficiency savings from end uses of retail customers by 2030 would primarily rely on the existing suite of building energy efficiency standards under CCR Title 24, Part 6 and utility-sponsored programs such as rebates for high-efficiency appliances; heating, ventilation, and air conditioning (HVAC) systems; and insulation. The project would comply with Title 24 Standards.

Senate Bill 1368/Assembly Bill 398, CCR Title 20, Cap-and-Trade Program

The State's cap-and-trade program reduces GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve emission reduction targets. While the cap-and-trade program does not directly apply to individual projects, the project would benefit from the program since the project's electricity usage and mobile source emissions would be covered by the cap-and-trade program since LADWP and California fuel suppliers are covered entities, resulting in an indirect reduction of GHG emissions from the project's energy consumption and mobile source emissions.

Title 24 Building Energy Efficiency Standards, and the CALGreen Code

The project would meet or exceed the energy standards in the Title 24 Building Energy Efficiency Standards, the CALGreen Code, and County of Los Angeles Green Building Standards Code (County of Los Angeles 2023b) and would implement project design features, including solar photovoltaic panels on the roof of the project building to reduce the amount of electricity drawn from City utilities. Additionally, the project would provide sustainability features, such as rainwater collection leading to bioswales; a sloped green roof; rooftop solar photovoltaic panels; HVAC systems that would be sized and designed in compliance with the CALGreen Code and County of Los Angeles Green Building Standards Code to maximize energy efficiency caused by heat loss and heat gain; new and existing tree canopies to protect

building walls from sun exposure and provide shade for the ground area; and the use of drought-tolerant landscaping to reduce water demand and avoid the use of pesticides. All these features would reduce the project's outdoor and indoor water demand, which would reduce the project's GHG emissions associated with water conveyance and wastewater treatment. As stated previously, the 2008 Climate Change Scoping Plan notes that water use requires significant amounts of energy, comprising approximately one-fifth of statewide electricity.

Assembly Bill 1493 (Pavley Regulations)

The State's Pavley Regulations apply to new passenger vehicles from model year 2012 through 2016 (Phase I) and model years 2017 through 2025 (Phase II). While this action does not apply to individual projects, future employees and visitors to the project site would purchase new vehicles in compliance with this regulation. Mobile source emissions generated by future visitors and employees would be reduced with implementation of AB 1493. However, it is noted that the vehicle emissions standards beyond model year 2020 may not occur if the federal SAFE Vehicles Rule and the One National Program on Federal\Preemption of State Fuel Economy Standards are upheld by the Advanced Clean Cars program. The Advanced Clean Cars program includes low-emission vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the ZEV regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel-cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years. While this action does not directly apply to individual projects, the standards would apply to all vehicles purchased or used by visitors and employees to the project. The project would designate electric vehicle charging stations and alternative transportation parking consistent with the County of Los Angeles Green Building Standards Code. Therefore, the project would support compliance with this regulation.

Advanced Clean Truck Regulation

The Advanced Clean Truck Regulation has two components, a manufacturer sales requirement and a reporting requirement. The manufacturer component of the regulation requires manufacturers that certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b-3 truck sales, 75% of Class 4-8 straight truck sales, and 40% of truck tractor sales. The reporting component of the regulation requires large employers, including retailers, manufacturers, brokers, and others, to report information about shipments and shuttle services. Fleet owners (with 50 or more trucks) would be required to report on their existing fleet operations. This information would help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs. This would be applicable to occasional delivery trucks to the project.

Low Carbon Fuel Standard (EO S-01-07)

This regulation establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 7.5% by 2020, and a 20% reduction in carbon intensity from a 2010 baseline by 2030. While this action does not directly apply to individual projects, future employees and visitors to the project would use transportation fuels in compliance with this regulation. GHG emissions related to project-related vehicular travel would benefit from this regulation and mobile source emissions generated by future employees and visitors to the project would be reduced with implementation of the LCFS.

Senate Bill 375

SB 375 establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. Under SB 375, CARB is required, in consultation with the State's MPOs, to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035. While this action does not directly apply to individual projects, the project would not conflict with the SCAG 2020-2045 RTP/SCS goals and objectives under SB 375 to implement "smart growth." The project would not conflict with the SCAG 2020-2045 RTP/SCS. The project would support a reduction in vehicle miles traveled (VMT) given its location at an urban infill location with nearby access to public transportation within 0.25 mile of the project. In addition, the project site is well served by public transit. Specifically, the Los Angeles County Metropolitan Transportation Authority (Metro) 20 and 720 bus lines on Wilshire Boulevard and the Metro 217, 218, and 780 bus lines on Fairfax Avenue all stop within half a block of the project site. In addition, Metro is currently constructing an extension of the Metro system D Line (Purple). This Metro project will construct three new heavy-rail subway stations along Wilshire Boulevard, which will serve the project site. The new stations will be located at Wilshire Boulevard/ La Brea Avenue, Wilshire Boulevard/Fairfax Avenue, and Wilshire Boulevard/La Cienega Boulevard. They are slated to open for service in 2024.

California Integrated Waste Management Act of 1989 and Assembly Bill 341

The Integrated Waste Management Act mandated that State agencies develop and implement an integrated waste management plan which outlines the steps to be taken to divert at least 50% of their solid waste from disposal facilities. AB 341 directs CalRecycle to develop and adopt regulations for mandatory commercial recycling and sets a statewide goal for 75% disposal reduction by the year 2020. In addition, the City has developed and is in the process of implementing the Solid Waste Integrated Resources Plan, also referred to as the Zero Waste Plan, the goal of which is to lead the City toward being a "zero waste" city by 2030. While this action does not directly apply to individual projects, the project would benefit from the Integrated Waste Management Act and the Solid Waste Integrated Resources Plan inasmuch as it would be served by a solid waste collection and recycling service that would include mixed-waste processing, and that yields waste diversion results comparable to source separation and consistent with citywide recycling targets. According to the City of Los Angeles Zero Waste Progress Report (March 2013), the City achieved a landfill diversion rate of approximately 76% by year 2012.

As demonstrated above, the project would not conflict with the future anticipated statewide GHG reduction goals. CARB has outlined a number of potential strategies for achieving the 2030 statewide reduction target of 40% below 1990 levels, as mandated by SB 32. These potential strategies include using renewable resources for half of the State's electricity by 2030, increasing the fuel economy of vehicles and the number of zero-emission or hybrid vehicles, reducing the rate of growth in VMT, supporting other alternative transportation options, and use of high-efficiency appliances, water heaters, and HVAC systems. The project would benefit from statewide and utility-provider efforts toward increasing the portion of electricity provided from renewable resources. The utility provider for the project, LADWP, provided 35% of 2021 electricity purchases from renewable sources and is required to provide 50% by 2025, 60% by 2030, and 100% by 2045.

Post-2030 Analysis

The 2017 and 2022 Scoping Plan also outline strategies to reduce GHG emissions to achieve the 2030 target from sectors that are not directly controlled or influenced by the project, but nonetheless contribute to project-related GHG emissions. For instance, the project itself is not subject to the cap-and-trade regulation; however, project-related emissions would decline pursuant to the regulation as utility providers and transportation fuel producers are subject to renewable energy standards, cap-and-trade,

and the LCFS. While CARB is in the process of expanding the regulatory framework to meet the 2030 reduction target based on the existing laws and strategies in the 2022 Scoping Plan, the project would support or not impede implementation of these potential GHG reduction strategies identified by CARB for all the reasons summarized above.

A report was published on the California PATHWAYS model that determined that "meeting the state's 2030 climate goals requires scaling up and using technologies already in the market such as energy efficiency and renewables, while pursing aggressive market transformation of new technologies that have not yet been utilized at scale in California (for example, zero-emission vehicles and electric heat pumps)" (CEC 2018:3). Priority GHG reduction strategies include energy efficiency in buildings, renewable energy, and smart growth through increased use of public transit, walking, biking, telepresence, and denser, mixed-use community design. The project would not conflict with these strategies, given it would incorporate renewable energy measures, including solar photovoltaic panels to reduce the amount of electricity drawn from City utilities, and energy efficient measures, including water demand reduction measures, minimizing energy use to support efforts by its utility provider, LADWP, to obtain renewable energy pursuant to State mandates. Furthermore, the project would support the priority market transformation strategy of zero-emission light-duty vehicles by providing for the installation of the conduit and panel capacity to accommodate future electric vehicle charging stations. Therefore, the project would not conflict with the findings relevant to the project from the updated California PATHWAYS model report (CEC 2018).

With statewide efforts underway to facilitate the State's achievement of those goals, it is reasonable to expect the project's GHG emissions to decline from their early operational years, as the regulatory initiatives identified by CARB in the 2022 Scoping Plan are implemented, and other technological innovations occur. Stated differently, the project's emissions at buildout likely represent the maximum emissions for the project, as anticipated regulatory developments and technology advances are expected to reduce emissions associated with the project, such as emissions related to electricity use and vehicle use.

Even though the 2022 Scoping Plan and supporting documentation do not provide an exact regulatory and technological roadmap to achieve 2050 goals, they demonstrate that various combinations of policies could allow the statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the study or not currently feasible at the time the 2022 Scoping Plan was adopted could enable the State to meet the 2050 targets.
For example, the 2022 Scoping Plan states some policies are not feasible at this time, such as Net Zero Carbon Buildings, but that this type of policy would be necessary to meet the 2050 target.

Based on the above, the project would not conflict with CARB's Climate Change Scoping Plan nor the State's GHG reduction targets for 2030 and 2050, and there would be an anticipated decline in project emissions once fully constructed and operational.

SCAG'S 2020-2045 RTP/SCS

The 2020-2045 RTP/SCS provides socioeconomic forecast projections of regional population growth. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the specific area; these are used by SCAG in all phases of implementation and review. While the project does not propose residential uses, new employees would be introduced by the project. According to the 2020-2045 RTP/SCS, the employment forecast for the City of Los Angeles Subregion in 2021 is approximately 1,897,883 employees. In 2028, the projected first operation year of the project, the City of Los Angeles Subregion is anticipated to have 1,937,552 employees. As such, the project's estimated 42 employees would constitute a very small

percentage of the city's employment growth forecasted between 2021 and 2028. Accordingly, the project's generation of employees would not conflict with employment generation projections contained in the 2020-2045 RTP/SCS.

The project site is well served by public transit. Specifically, the Metro 20 and 720 bus lines on Wilshire Boulevard and the Metro 217, 218, and 780 bus lines on Fairfax Avenue all stop within half a block of the project site. In addition, Metro is currently constructing an extension of the Metro system D Line (Purple), which will include construction of three new heavy-rail subway stations along Wilshire Boulevard, which will serve the project site. The new stations will be located at Wilshire Boulevard/ La Brea Avenue, Wilshire Boulevard/Fairfax Avenue, and Wilshire Boulevard/La Cienega Boulevard. They are slated to open for service in 2024. By locating the project's land uses within an area that has existing high-quality public transit (with access to existing regional bus and rail service) and employment opportunities within walking distance, and by including features that support and encourage pedestrian activity and other non-vehicular transportation in the Los Angeles area, the project would support the reduction of vehicle trips and VMT and resulting air pollution and GHG emissions.

In addition, the project was reviewed to determine potential inconsistencies with GHG reduction targets forecasted in the SCAG RTP/SCS. The project was analyzed using a total VMT threshold (as opposed to an efficiency-based impact threshold). Additional detail on this analysis is included in the Transportation Assessment prepared by Kittelson and Associates (see Appendix J). The project site functions as a regional attraction and the proposed project would result in a net increase in regional VMT. Since the project would result in a net increase in VMT, further evaluation was necessary to determine whether this project would be inconsistent with the VMT and GHG reduction goals of the SCAG RTP/SCS.

It was determined that, without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, ensuring safety, maximizing transportation productivity, encouraging active transportation, and improving air quality. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements.

In conclusion, the project may conflict with the following relevant RTP/SCS goals:

- Improve mobility, accessibility, reliability, and travel safety for people and goods
- Enhance the preservation, security, and resilience of the regional transportation system
- Increase person and goods movement and travel choices within the transportation system
- Reduce greenhouse gas emissions and improve air quality
- Leverage new transportation technologies and data-driven solutions that result in more efficient travel

COUNTY OF LOS ANGELES GENERAL PLAN

The project would meet the County of Los Angeles's General Plan goals to address the impact of GHGs and climate change. The project would implement project design features, including solar photovoltaic panels on the roof of the project building to reduce energy consumption and encourage energy conservation. Additionally, HVAC systems that would be sized and designed in compliance with the CALGreen Code and the County of Los Angeles Green Building Standards Code to maximize energy efficiency caused by heat loss and heat gain; new and existing tree canopies would protect building walls from sun exposure and provide shade for the ground area. The project would provide sustainability features, such as rainwater collection leading to bioswales; a sloped green roof; and the use of drought-tolerant landscaping to reduce water consumption. All of these features would reduce the project's energy

consumption, reduce water consumption, and encourage energy conservation. Therefore, the project would not conflict with the goals of the County of Los Angeles General Plan.

OURCOUNTY – LOS ANGELES COUNTYWIDE SUSTAINABILITY PLAN

The project would be consistent with the OurCounty regional sustainability plan, which consists of 12 goals. The project would implement project design features, including solar photovoltaic panels on the roof of the project building to reduce energy consumption and encourage energy conservation. Additionally, HVAC systems would be sized and designed in compliance with the CALGreen standards and the County of Los Angeles Green Building Standards Code to maximize energy efficiency caused by heat loss and heat gain. New and existing tree canopies would protect building walls from sun exposure and provide shade for the ground area. The project would also provide sustainability features, such as rainwater collection leading to bioswales, a sloped green roof, and the use of drought-tolerant landscaping to reduce water consumption. All these features would use efficient technologies and practices that reduce resource use, improve health, and increase resilience and would effectively manage waste, water, energy, and material resources consistent with the goals of OurCounty. For these reasons, the project would not conflict with the goals of OurCounty.

CITY OF LOS ANGELES GENERAL PLAN

The project would meet the City of Los Angeles's General Plan goals, objectives, and policies to address the air quality improvement programs and strategies (City of Los Angeles 1992). Consistent with the six goals of the City of Los Angeles General Plan, the project would reduce particulate air pollutants emanating from unpaved areas, parking lots, and construction sites by complying with the SCAQMD Rule 403 required fugitive dust control measures. The project would also provide visitors with the ability to access nearby public transit and opportunities for walking and biking, which would facilitate minimization of VMT and related vehicular GHG emissions, and would not conflict with the goals to reduce VMT. Bicycle parking and connections to walking and biking paths would also be provided. The project would implement project design features to reduce energy consumption and encourage energy conservation. Features of the project would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, supporting the City General Plan goals for a reduction in energy consumption, a shift to nonpolluting sources of energy in its buildings and operations, and reducing energy consumption and associated air emissions by encouraging waste reduction and recycling. For these reasons, the project would not conflict with the City of Los Angeles General Plan.

CITY OF LOS ANGELES GREEN LA ACTION PLAN

The project would be consistent with the City of Los Angeles Green LA Action Plan by including project design features, including solar photovoltaic panels on the roof of the project building, to reduce energy consumption and encourage energy conservation (City of Los Angeles 2007). Additionally, HVAC systems would be sized and designed in compliance with the CALGreen standards and the County of Los Angeles Green Building Standards Code to maximize energy efficiency caused by heat loss and heat gain. New and existing tree canopies would protect building walls from sun exposure and provide shade for the ground area. Similarly, the features described under the previous consistency analyses would also further the implementation of the City of Los Angeles Green LA Action Plan goals.

CITY OF LOS ANGELES GREEN NEW DEAL/SUSTAINABLE CITY PLAN

The City's Green New Deal includes both short-term and long-term aspirations through the year 2050 in various topic areas, including water, solar power, energy-efficient buildings, carbon and climate leadership, waste and landfills, housing and development, mobility and transit, and air quality, among

others (Garcetti 2019). While not a plan adopted solely to reduce GHG emissions, within the City's Green New Deal, climate mitigation is one of eight explicit benefits that help define its strategies and goals. Although the Green New Deal mainly targets GHG emissions related to City-owned buildings and operations, certain reductions associated with the project would promote the Green New Deal's goals. Such measures include increasing renewable energy usage, reduction of per-capita water usage, promotion of walking and biking, promotion of educational and recreational uses close to transit, and various recycling and trash diversion goals.

Although the City's Green New Deal is not an adopted plan or directly applicable to private development projects, the project would not conflict with these aspirations as it is an infill development consisting of educational and recreational uses on a project in proximity to transit. In addition, the project would comply with Title 24 Standards and would implement measures to reduce overall energy usage compared to baseline conditions. Furthermore, the project would also result in GHG reductions beyond those specified by the City and would minimize its GHG emissions by implementing project design features that reduce electricity and water consumption. The project would be serviced by providers who comply with the City of Los Angeles Solid Waste Management Policy Plan (Los Angeles Sanitation and Environment 2015) and the Exclusive Franchise System Ordinance (Ordinance No. 182,986) to further the aspirations included in the Green New Deal with regard to energy-efficient buildings, waste, and landfills. The project would also provide bicycle parking and connections to walking and biking paths to further reduce VMT and decrease GHG emissions.

Therefore, as the project's GHG emissions would be generated in connection with a development located within the city and designed to be consistent with the applicable City plan goals and actions for reducing GHG emissions, the project would not conflict with these City plans adopted for the purpose of reducing GHG emissions, and the project's GHG emissions would result in less-than-significant impacts.

CONCLUSION

Through the analysis above, it was determined that the project may be inconsistent with regional plans related to mobility and GHG reductions, specifically in relation to SCAG's 2020-2045 RTP/SCS. It was determined that without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, transportation productivity, and encouraging active transportation. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. However the project does include design features that would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, as well as provide visitors with public transportation incentives, with the ability to access nearby public transit and opportunities for walking and biking, all of which are consistent with the County of Los Angeles General Plan, OurCounty, City of Los Angeles General Plan, City of Los Angeles Green LA Action Plan, and the City's Green New Deal. Thus, the project could result in a *significant impact* related to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

GHG Impact 2
The project could result in a significant impact related to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, specifically the potential conflict with the SCAG 2020-2045 RTP/SCS in relation to improving mobility and accessibility, transportation productivity, and encouraging active transportation. Impacts could be significant. (CEQA Checklist Appendix G Threshold VIII. b)

GHG Impact 2
Mitigation Measures
Implement Mitigation Measures TRA/mm-1.1.
Impacts Following Mitigation
With implementation of TRA/mm-1.1, impacts related to the project's consistency with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions would be less than significant.

5.7.6 Cumulative Impact Analysis

The geographic scope considered in the cumulative impact analysis for GHG emissions is global. Adverse environmental impacts of cumulative GHG emissions, including sea level rise, increased average temperatures, more drought years, and more large forest fires, are already occurring. As a result, cumulative impacts related to GHG emissions are significant.

The analysis of a project's GHG emissions is inherently a cumulative impact analysis because impacts of climate change are experienced on a global scale regardless of the location of GHG emission sources. The GHG emissions from an individual development project are not typically going to have a noticeable impact on the global climate, but individual projects contribute to the significant cumulative problem of global warming and climate change. As the California Supreme Court has indicated, "an individual project's emissions will most likely not have any appreciable impact on the global problem by themselves, but they will contribute to the significant cumulative impact caused by greenhouse gas emissions from other sources around the globe. The question therefore becomes whether the project's incremental addition of greenhouse gases is 'cumulatively considerable' in light of the global problem" (Cleveland National Forest Foundation v. San Diego Association of Governments 2017:14).

Consistent with the inherent consideration of GHG emissions as a cumulative contribution to a global environmental condition, the analysis presented above in Section 5.7.5 considers the potential for the project to contribute considerably to the cumulative impact of global climate change.

The analysis provided in the previous sections demonstrates that the project includes many design features that support the reduction of GHG emissions, including features that would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, as well as provide visitors with public transportation incentives, the ability to access nearby public transit, and opportunities for walking and biking. However, it has also been determined that, without additional measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, transportation productivity, and encouraging active transportation. This is because the project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. Also, since detailed design plans have not been developed for the project at this stage, it is also not known whether natural gas use would be included in the final design. As a fossil fuel, natural gas production and use are significant contributors to GHG emissions. For the building sector to achieve carbon neutrality, natural gas usage will need to be phased out and replaced with electricity usage, and electrical generation will need to shift to 100% carbon-free sources. Thus, without mitigation, the project could cause a *significant* contribution to the cumulative impact of GHG emissions and global climate change.

GHG Impact 3 (Cumulative)
The project could result in a significant contribution to the cumulative impact of GHG emissions and global climate change.
Mitigation Measures
Implement Mitigation Measures GHG/mm-1.1 and TRA/mm-1.1.
Impacts Following Mitigation
With implementation of the identified mitigation measures to reduce project-specific impacts, impacts would be less than significant.

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5.8 HAZARDS AND HAZARDOUS MATERIALS

This section describes the hazards and hazardous materials and potential health and safety issues associated with the project. The presence of project site-specific health, safety, and hazardous material status is evaluated, and an analysis of the potential impacts associated with the project is presented. This section also includes feasible mitigation measures, where applicable, to reduce significant impacts associated with hazardous materials and health and safety risks. The analysis in this section is based on a desktop environmental database search prepared by SWCA, the *La Brea Tar Pits Master Plan Preliminary Civil Engineering Narrative* prepared by KPFF Consulting Engineers (KPFF) dated March 4, 2021, and *Methane Survey Report for the La Brea Tar Pits Site Master Plan* prepared by Leighton Consulting, Inc., dated January 12, 2023 (Appendix G).

5.8.1 Existing Conditions

5.8.1.1 Existing and Past Uses of the Project Site

The project site consists of 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses La Brea Tar Pits, with facilities including the 1977 George C. Page Museum (Page Museum); 1952 Observation Pit; various tar pit excavation sites and features, primarily with temporary construction serving as support facilities; a concession and public restroom building; a multipurpose lawn and recreational areas; hardscaping/landscaping features throughout the park; and a surface parking lot. The larger 23-acre Hancock Park, established in the 1920s, has remained intact as a relatively undeveloped open space, public park, and cultural institution in the Mid-Wilshire neighborhood for nearly a century. Dating back to the early 1900s, prior to the dedication of the project site to its current use, the project site was used for oil mining for the production of asphalt materials.

The project site currently supports a variety of museum and research-related activities, including the excavation and processing of fossils, requiring the use and storage of hazardous materials typically associated with museums. According to the Safety Data Sheets provided by the Los Angeles County Museum of Natural History Foundation (Foundation), these include compressed gases (i.e., ethers, carbon dioxide, nitrogen, butylene oxide, methoxyphenol), biodiesel fuels, acetone, vapor degreasing solvents, various paints, resins, and cleaning supplies (Foundation 2022). At the project site, health and safety responsibilities are managed by a Safety and Risk Management professional, a position funded by the Foundation. The Safety and Risk Management position is responsible for managing the use of hazardous materials at the project site in compliance with regulatory standards and reporting requirements.

5.8.1.2 Recorded Hazardous Materials Sites

Government Code Section 65962.5 requires the California Environmental Protection Agency (CalEPA) to compile and annually update lists of hazardous waste sites and land designated as hazardous waste sites throughout the state. The Government Code Section 65962.5 list is not one document but rather a series of data resources lists from responsible organizations including the California Department of Toxic Substance Control (DTSC), the California Department of Health Services, the State Water Resources Control Board (SWRCB), and the California Integrated Waste Management Board (CalEPA 2023). The DTSC EnviroStor is the data management system that tracks cleanup, permitting, enforcement, and investigation efforts at hazardous waste facilities and sites with known contamination. The DTSC EnviroStor also lists hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code. The SWRCB GeoTracker database is the data management system that identifies hazardous materials sites that impact, or have the potential to impact, groundwater quality in the state including leaking underground storage tank (LUST) sites, solid waste disposal sites with waste

constituents above hazardous waste levels, active cease and desist orders, and cleanup and abatement orders that concern the discharge of wastes that are hazardous materials.

Based on a desktop query of the databases above, the project site was not included on any of the identified Government Code Section 65962.5 lists identified above (DTSC 2022; SWRCB 2022). Of note, there is a LUST cleanup site at Museum Square (5757 Wilshire Boulevard), which is approximately 300 feet southeast of the project site. The potential contaminant of concern was diesel; however, the case was closed as of May 21, 1996. As such, there are no active Government Code Section 65962.5 hazardous materials sites located within the project site or within a 1,000-foot radius of the project site (DTSC 2022; SWRCB 2022).

A search of the environmental records was conducted by Environmental Data Resources, Inc. (EDR) on July 21, 2022, to determine whether hazardous waste or hazardous material management, handling, treatment, or disposal activities have occurred on or near the project site (EDR 2022). Review of the EDR database report and supplemental records from state and federal regulatory databases found the following:

- The project site is identified by the California Environmental Reporting System (CERS) as a generator of hazardous waste and as a chemical storage facility. Numerous administrative violations are noted but none that would indicate potential leaks, spills, or contamination.
- The project site (under the name George C. Page Museum) is identified as a Resource Conservation and Recovery Act (RCRA) large-quantity generator and transporter of hazardous waste. No violations are noted and there are no indications of potential leaks, spills, or contamination. The RCRA database contains information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA, and a listing as a RCRA site is not an indication of leaks, spills, or contamination.
- The project site (under the name George C. Page Museum) is identified in the California Hazardous Material Incident Reporting System. In 1999, oil from an oil/water separator at the museum entered the Ballona Creek storm drain system. Cleanup was completed by the Los Angeles County Fire Department. The type of oil is not reported. Because of the amount of time that has passed, and because it likely immediately washed away in the storm drain system, this spill is not expected to affect the project site.
- The southwest-adjoining Los Angeles County Museum of Art is identified in several listings:
    - It is identified as a RCRA small-quantity generator of hazardous waste. No violations are noted and there are no indications of potential leaks, spills, or contamination.
    - The facility is identified by CERS as a chemical storage facility. The listing notes several administrative violations but none that would indicate potential leaks, spills, or contamination.
- The Wilshire Courtyard property, adjoining the southeast of the project site at 5750 Wilshire Boulevard, is identified in the CERS tanks program as a UST site. No violations are noted in these listings and there are no indications of potential leaks, spills, or contamination. No further details are provided. This location is also identified by CERS as a facility that stores chemicals. Numerous administrative violations are noted but none that would indicate potential leaks, spills, or contamination.
- Pearls Cleaners, also at 5750 Wilshire Boulevard (adjoining the project site), is identified as having been a dry-cleaning plant from 1991 to 2005. This listing also identifies Attila Photo/One Hour Lab at this address in 1991. Historically, dry cleaners have had a high frequency of spills and discharges. The primary contaminants from dry cleaners are the chlorinated solvents perchloroethylene (PCE), trichloroethylene (TCE), and vinyl chloride (VC). These contaminants

are volatile, mobile, and resistant to degradation. The concern for properties near historical dry cleaners is vapor intrusion—the movement of contaminant vapors through the soil, utility corridors, or other pathways, which can then permeate foundations and concentrate in enclosed indoor areas. Old photography labs are also commonly identified as sources of contamination.

- AT&T California - H4A02, adjoining the south of the project site at 5820 Wilshire Boulevard, is identified by CERS as a facility that stores chemicals. No violations are noted and there are no indications of potential leaks, spills, or contamination.
- Several listings are identified at 5757 Wilshire Boulevard, located 240 feet east the project site:
    - Museum Square discovered a diesel fuel leak from a UST in 1995. Because the case was closed in 1996 after assessment and abatement actions, this facility is not expected to affect the project site.
    - Downey Center, Inc., is identified as having been a convenience store and automotive repair shop (Rancho Santa Fe Auto Center, LP) from 1999 to 2008.
    - Splendid Cleaners is identified as having been a dry-cleaning plant from 1993 to 2002. As discussed above, dry cleaners are often a concern.
- Wardrobe Cleaners, located 540 feet northwest of the project site at 540 South Ogden Drive, is identified as having been a dry-cleaning plant from 2008 to 2012. As discussed above, dry cleaners are often a concern.
- Mobile Cleaners, located 560 feet southwest of the project site at 5900 Wilshire Boulevard, is identified as having been a dry cleaner from 1994 to 1999. As discussed above, dry cleaners are often a concern.
- Al-Sal Oil (old Unocal), located 500 feet west of the project site at 6050 West 6th Street, is listed as a LUST site. A gasoline LUST was identified in 1994. Because the case was closed in 1995, this facility is not expected to affect the project site.
- MAS Auto Service, located 0.4 mile northwest of the project site at 371 South Fairfax Avenue, is listed as a LUST site. The case is open and remediation is ongoing. A gasoline leak was reported at this location in 1991, and the site was the subject of several enforcement actions between 1999 and 2021. Because of its distance, this facility is not expected to affect the project site.
- The Grove at Farmers Market, located 0.45 mile north of the project site at 6301 West 3rd Street, is identified as a state Cleanup Program Site – Spills, Leaks, Investigations and Cleanups (CPS-SLIC site). Because of its distance, and because remediation is complete, this facility is not expected to affect the project site.
- Shinwa Corporation, located 0.44 mile southwest of the project site at 938 Orange Grove Avenue, is identified as a CPS-SLIC site. Because of its distance, and because it achieved no further action status, this facility is not expected to affect the project site.

5.8.1.3 Methane Gas

The project site is located within a designated methane zone mapped by the City of Los Angeles (2022). Areas underlain by methane are extensive in Southern California; these areas are typically characterized by subsurface methane gas produced from naturally occurring petroleum fields. Methane is a naturally occurring gas associated with the decomposition of organic materials. In high concentrations of between 50,000 and 150,000 parts per million by volume (ppmv) in the presence of oxygen, methane can be an explosion hazard. In Los Angeles County, the typical trigger concentration in which methane gas protection systems are required to be installed is 5,000 ppmv. Based on results of a subsurface investigation conducted for the project by Leighton Consulting, Inc., on October 18 and October 19,

2022, elevated methane concentrations of up to 50,000 ppmv were identified in the soils at the project site.

5.8.1.4 Tar Seeps

The project site is subject to natural tar seeps resulting from release of oil and methane gas pressure through fissures in the substrate. Oil or tar then migrates to the surface throughout the project site. It has been observed that the pressure from tar and gas has caused the entire Central Green lawn to heave over time, resulting in grades that are higher than originally designed and constructed (KPFF 2021). The most recent documented locations of the tar seeps within the project site show the largest concentration of tar seeps within the current parking lot, with others occurring near walkways around the Central Green and the Lake Pit (Figure 5.8-1). It is important to note that tar seeps can develop throughout the entire project site and may not be limited to the locations shown in Figure 5.8-1.

Historically, various strategies have been employed to manage breakouts of tar at the surface of the ground. Prior environmental investigations revealed that concrete curbs and fences had been constructed around a tar seep to allow tar to continue to vent in that location while protecting the public (KPFF 2021). Some of the existing "tar pits" may have initially been examples of these protective measures. There are also three locations within the surface parking lot where several parking spaces have been replaced with a chain-link barrier around an obvious tar seep, as well as similar barriers in the surrounding lawn areas. Additional approaches to address the issue have involved a series of open-bottom manholes constructed around apparent tar seeps. Several of these manholes or vaults exist throughout the project site and are intended to collect and concentrate tar below grade. Vacuum trucks (also known as "pumper trucks") then periodically pump out the water and tar that collects within the manhole and empty the contents into the Lake Pit. This activity is performed by a contractor licensed to handle and transport these materials to ensure that any tar material pumped from the manholes that could be considered hazardous does not come in contact with the public or employees at the project site. In addition, water collected during this process is treated via an underground clarifying system located west of the Lake Pit that filters out fine oil particulates and settleable constituents through a two-step reverse clarifier sequence and is then discharged into the sewer system per an existing agreement between the Foundation and Los Angeles Sanitation and Environment (LASAN) (Foundation 2023). Another strategy the staff at La Brea Tar Pits have implemented is putting up cones or other barriers (e.g., chain-link fencing) around aboveground tar seeps to limit access to these areas. Implementation of these strategies has adequately and safety managed tar seeps at the site to-date (Foundation 2023).

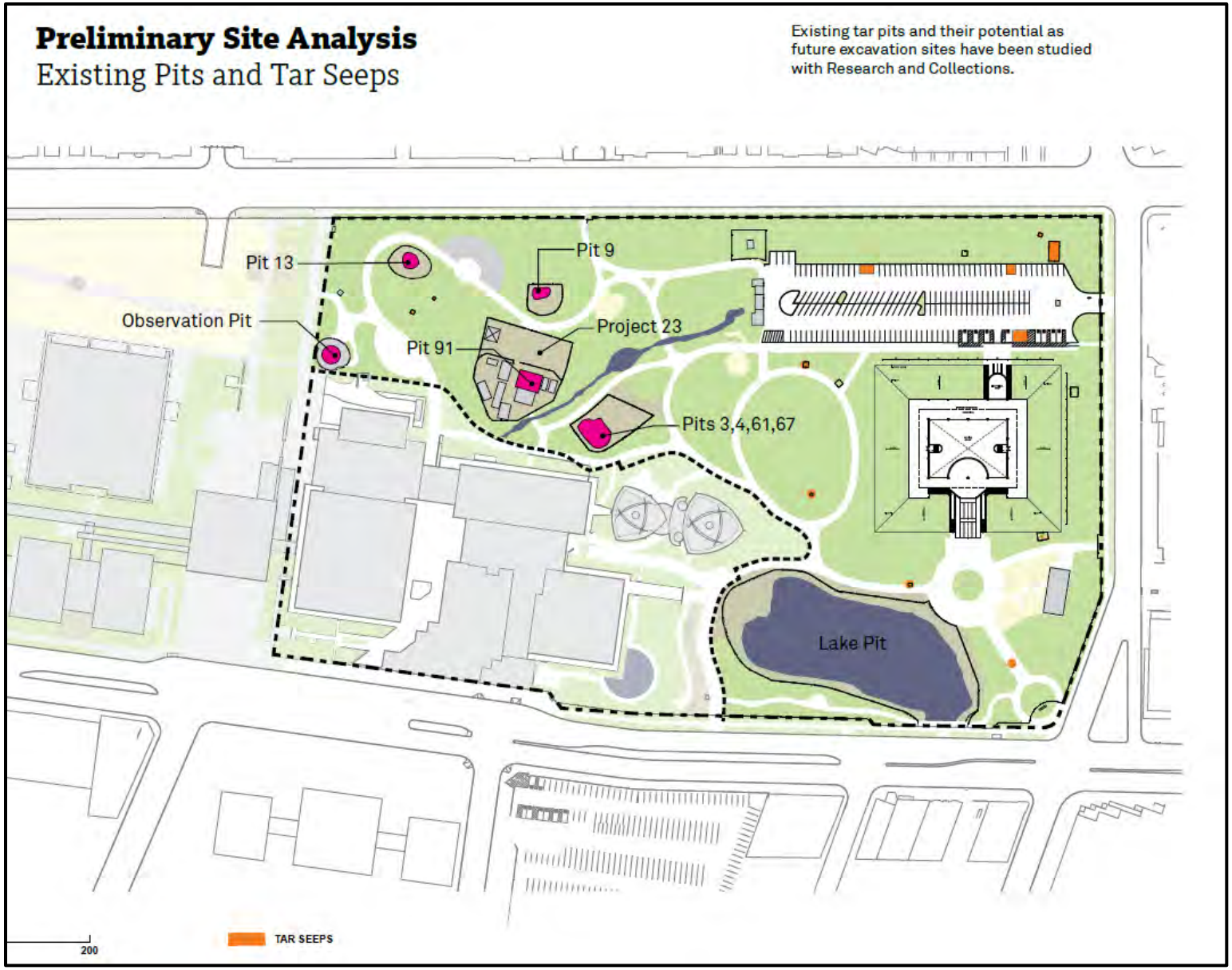


Figure 5.8-1. Tar seeps within the project site.

5.8.1.5 Schools

Table 5.8-1 provides a list of existing school facilities in close proximity (less than 1 mile) to the project site. The nearest school to the project site is Fusion Academy Miracle Mile, a private learning institution for middle and high school–aged students.

Table 5.8-1. Existing Schools in the Project Vicinity

School	Address	Distance and Direction from the Project site
Fusion Academy Miracle Mile	5757 Wilshire Boulevard	0.12 mile east
Hancock Park Elementary School	408 Fairfax Avenue	0.45 mile northwest
Westside Jewish Community Preschool	5870 West Olympic Boulevard	0.46 mile south
Shalhevet High School	910 S. Fairfax Avenue	0.50 mile southwest
Yachaywasi Spanish Immersion Preschool	934 Hauser Boulevard	0.52 mile southeast
Cathedral Chapel Middle School	755 S. Cochran Avenue	0.56 mile southeast
Le Petit Bebe Day Care	6268 Del Valle Drive	0.70 mile southwest
Language Garden Preschool	1067 South Fairfax Avenue	0.86 miles southwest
Le Petit Gan International Preschool	1071 South Fairfax Avenue	0.86 miles southwest
Ohr Eliyahu Academy also known as Yeshiva Aharon Yaakov Ohr Eliyahu (Preschool)	241 South Detroit Street	0.96 mile northeast

5.8.1.6 Airports

The project site is not located within 2 miles of a public airport or public use airport. The nearest airport to the project site is Santa Monica Airport, which is located approximately 6 miles southwest of the project site.

5.8.1.7 Emergency Response Plans

The Los Angeles County Operational Area Emergency Response Plan (Emergency Response Plan) maintained by the Los County Office of Emergency Management describes the planned response of the County Operational Area to emergencies associated with natural and human-made disasters and technological incidents. This plan also provides an overview of operational concepts, identifies components of the County's Emergency Management Organization, and describes responsibilities of the federal, state, and local agencies for protecting life and property. The Office of Emergency Management leads and coordinates disaster plans and disaster preparedness exercises for all areas of Los Angeles County including cities. In addition, the Los Angeles County Community Emergency Response Team, composed of local residents trained in emergency response and coordinated by the Los Angeles County Fire Department, is deployed as needed during emergencies.

Local emergency preparedness plans and emergency response operations have also been prepared by the City of Los Angeles (City). The City's Emergency Operation Plan, adopted in November 2018, addresses the City's response from small- to large-scale emergency situations associated with natural disasters or human-caused emergencies. It describes the methods for carrying out emergency operations, the process for rendering mutual aid, the emergency services of governmental departments and agencies, how resources are mobilized, how the public will be informed, and the process to ensure continuity of government during an emergency or disaster.

As part of the Emergency Response Plan, the City has identified Disaster Routes for the Los Angeles County Operational Area. Disaster Routes are freeway, highway, or arterial routes pre-identified for use during times of crisis. These routes are used to bring in emergency personnel, equipment, and supplies to impacted areas in order to save lives, protect property, and minimize impact to the environment. During a disaster, these routes have priority for clearing, repairing, and restoration over all other roads. According to the Los Angeles County Department of Public Works (County Public Works) Disaster Route maps, the project site is within Area H, Los Angeles Central. There are no streets immediately adjacent to the project site that are designated Disaster Routes (County Public Works 2022). The nearest designated Disaster Routes to the project site include Beverly Boulevard approximately 1 mile to the north, Olympic Boulevard approximately 0.4 mile to the south, La Brea Avenue approximately 0.6 mile to the east, and North La Cienega Boulevard approximately 1.2 miles to the west.

5.8.2 Regulatory Setting

5.8.2.1 Federal

RESOURCE CONSERVATION AND RECOVERY ACT OF 1976

The Resource Conservation and Recovery Act of 1976 establishes the framework for a national system of solid waste control. RCRA is a program administered by the U.S. Environmental Protection Agency (EPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. Among other things, the use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act (EPA 2022a).

TOXIC SUBSTANCES CONTROL ACT OF 1976

The Toxic Substances Control Act (TSCA) of 1976 authorizes the EPA to require reporting, recordkeeping, testing requirements, and restrictions related to chemical substances and/or mixtures. Food, drugs, cosmetics, and pesticides are generally excluded from the TSCA. The EPA focuses on six primary substances under the TSCA: polychlorinated biphenyls (PCBs), asbestos, radon, lead, formaldehyde, and mercury. TSCA requirements most often affect the regulation of PCBs, asbestos, and lead in federal facilities. For example, under the TSCA, asbestos regulations require that only properly trained and certified persons perform asbestos abatement activities in public or commercial buildings (EPA 2022b).

HAZARDOUS MATERIAL TRANSPORTATION UNIFORM SAFETY ACT OF 1990

The Hazardous Material Transportation Uniform Safety Act was amended in 1990 to clarify conflicting state, local, and federal regulations. The amendment requires the Secretary of Transportation to issue regulations for the safe transport of hazardous material in domestic and foreign commerce. The Secretary also retains the authority to designate hazardous materials as hazardous when they pose an uncontrolled threat to health, safety, or property. The Act also includes provisions to encourage uniformity among different state and local highway routing regulations, to develop criteria for issuance of federal permits to motor carriers of hazardous materials, and to regulate the transport of radioactive materials.

FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION – PROCESS SAFETY MANAGEMENT STANDARD

The federal Occupational Safety and Health Administration (OSHA) issued the Process Safety Management of Highly Hazardous Chemicals standard (29 Code of Federal Regulations [CFR] 1910.119 and 1926.64) to identify requirements for the management of hazards during the use of hazardous chemicals for general industry and construction activities. This standard includes requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. Requirements of this standard include providing employees with information about hazardous chemicals, training employees on the operation of equipment that use hazardous materials, and employer requirements to perform a process hazard analysis.

ASBESTOS HAZARD EMERGENCY RESPONSE ACT OF 1986

The Asbestos Hazard Emergency Response Act (AHERA) of 1986 requires the EPA to evaluate the extent of danger to human health posed by asbestos in public and commercial buildings and the means to respond to any identified danger. AHERA establishes regulations for inspections, abatement activity, appropriate response actions, implementation of response actions, operations and maintenance programs, periodic surveillance of asbestos, transport and disposal, and management plans required for schools. AHERA also creates accreditation programs for inspectors, management plan developers, and abatement contractors.

CLEAN AIR ACT

Regulations under the Clean Air Act are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store minimum quantities (called threshold quantities) or greater of listed regulated substances to develop a risk management plan including hazard assessments and response programs, to prevent and respond to accidental releases of listed chemicals.

5.8.2.2 State

GOVERNMENT CODE SECTION 65962.5

Government Code Section 65962.5 requires the CalEPA to compile and annually update lists of hazardous waste sites and land designated as hazardous waste sites throughout the state. The Government Code Section 65962.5 list is not one document but rather a series of data resources lists from responsible organizations including the DTSC, the California Department of Health Services, the SWRCB, and the California Integrated Waste Management Board (CalEPA 2023). Before lead agencies accept applications for any development project as complete, the applicant must consult these lists to determine if the subject site is included on the Cortese List. The project site is not included on a Government Code Section 65962.5 list (DTSC 2022; SWRCB 2022).

HAZARDOUS WASTE CONTROL LAW

California Health and Safety Code (HSC) Division 20, Chapter 6.5 codifies the Hazardous Waste Control law, which states that generators of hazardous waste must employ technology and management practices for the safe handling, treatment, recycling, and destruction of their hazardous wastes prior to disposal. The law also creates the Hazardous Waste Management Council, which is responsible for making recommendations for a system that ensures financial liability for persons injured or otherwise affected by hazardous wastes that are treated or disposed of within their community. It is the overall intent of this law to grant those powers necessary to secure and maintain interim and final authorization for the state

hazardous waste program in accordance with the requirements of Section 3006 of Public Law 94-580, RCRA (42 United States Code 6926), and to implement such program in lieu of the federal program. The Hazardous Waste Control Law empowers DTSC to administer the State's hazardous waste program and implement the federal program in California.

ENVIRONMENTAL HEALTH STANDARDS FOR THE MANAGEMENT OF HAZARDOUS WASTE

Title 22, Division 4.5 of the California Code of Regulations (CCR) codifies regulations in place for the management of hazardous waste, implemented by and affecting the DTSC. The DTSC is a department of the CalEPA, which is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California HSC.

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the CCR as follows:

> *A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.* (22 CCR Section 66261.10)

Title 22 of the CCR identifies several regulations pertaining to the management of hazardous materials, and the following may be applicable to construction and/or operation of the project:

- 22 CCR 66261.20 classifies hazardous waste as a substance that is ignitable, corrosive, reactive, or toxic.
- 22 CCR 66262.11 provides a method of determination for hazardous materials to ensure generators properly handle, store, transport, and/or dispose of hazardous materials accordingly.
- 22 CCR 66262.30–66262.35 requires proper packaging, labeling, marking, placarding, and accumulation timing of hazardous materials that are to be transported.
- 22 CCR 66262.70 states that waste pesticide, including pesticide containers or inner liners from pesticide containers, that meets the definition of hazardous waste, generated as part of a commercial farming operation, is not required to be managed in compliance with the standards in this chapter.
- 22 CCR 66263.30–66262.32 requires that in the event of a discharge of hazardous waste during transportation, the transporter shall take immediate action to protect human and environmental health, shall clean up spilled hazardous waste discharge, and properly report the incident.
- 22 CCR 66268 identifies land disposal restrictions for hazardous wastes, treatment standards for wastes, prohibitions on storage and land disposals, and potential incineration requirements.

CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

Under California Division of Occupational Safety and Health Administration (Cal/OSHA) Title 8, subchapter 2, employers must disclose potential workplace hazards and develop site-specific health and

safety plans for workers and the workplace. In addition, workers that may potentially be exposed to hazardous materials in their workplace must be notified of exposure so that they are aware of workplace hazards.

CALIFORNIA VEHICLE CODE LICENSE TO TRANSPORT HAZARDOUS MATERIALS SECTION 32000.5 ET SEQ.

The California Department of Transportation (Caltrans) regulates hazardous materials transportation on all interstate roads. Within California, the state agencies with primary responsibility for enforcing federal and state regulations and for responding to transportation emergencies are the California Highway Patrol and Caltrans. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications for vehicles transporting hazardous materials.

LEAD-BASED PAINT REGULATIONS

Lead-based paint is defined as any paint, varnish, stain, or other applied coating that has 1 milligram per square centimeter (mg/cm^2) (5,000 micrograms per gram [µg/g] or 0.5% by weight) or more of lead. The U.S. Consumer Product Safety Commission (16 CFR 1303) banned paint containing more than 0.06% lead for residential use in 1978. Buildings built before 1978 are much more likely to have lead-based paint. The Page Museum was built in 1977.

The demolition of buildings containing lead-based paint is subject to a comprehensive set of California regulatory requirements that are designed to assure the safe handling and disposal of these materials. Cal/OSHA has established limits of exposure to lead contained in dusts and fumes, which provides for exposure limits, exposure monitoring, and respiratory protection, and mandates good working practices by workers exposed to lead, particularly since demolition workers are at greatest risk of adverse exposure. Lead-contaminated debris and other wastes must also be managed and disposed of in accordance with applicable provisions of the California HSC.

CALIFORNIA WATER CODE

The California Water Code authorizes the SWRCB to implement provisions of the Clean Water Act, including the authority to regulate waste disposal and require cleanup of discharges of hazardous materials and other pollutants. In regards to construction dewatering discharge analysis and treatment, groundwater may be encountered during deeper excavation. While the exact depth of construction and the finish grade of the new museum building has not been established, this analysis assumes that the depth of excavation would be approximately 6 to 10 feet below ground surface. While the final elevation of the foundation for the new museum building is not known at this time, it may be below the existing ground surface in order to provide a smooth connection to the existing Page Museum.

Under the California Water Code, discharge of any such groundwater to surface waters, or any point sources hydrologically connected to surface waters, such as storm drains, is prohibited unless conducted in compliance with a Waste Discharge Requirement (WDR) permit. In addition to the California Water Code, these permits implement and are in compliance with the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) program. In accordance with these legal requirements, dewatering, treatment, and disposal of groundwater encountered during construction activities would be conducted in accordance with the Los Angeles Regional Water Quality Control Board's (LARWQCB's) Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties, pursuant to adopted Order No. R4-2013-0095, or any other appropriate WDR permit identified by the LARWQCB. Compliance with an appropriate WDR permit would include monitoring, treatment if appropriate, and

proper disposal of any encountered groundwater in accordance with applicable water quality standards. If, for example, extracted groundwater contains total petroleum hydrocarbons or other petroleum breakdown compounds in concentrations exceeding water quality standards, compliance with legal requirements would mandate treatment to meet published state water quality standards prior to discharge into a storm drain system.

5.8.2.3 County of Los Angeles

COUNTY OF LOS ANGELES CERTIFIED UNIFIED PROGRAM AGENCY

The primary local agency with responsibility for implementing federal and state laws and regulations pertaining to hazardous materials management is the Los Angeles County Health Department, Environmental Health Division. The Los Angeles County Health Department is the Certified Unified Program Agency (CUPA) for the County of Los Angeles. A CUPA is a local agency that has been certified by CalEPA to implement the six state environmental programs within the local agency's jurisdiction. This program was established under the amendments to the California HSC made by Senate Bill 1082 in 1994. The six consolidated programs are:

- Hazardous Materials Release Response Plan and Inventory (Business Plans);
- California Accidental Release Prevention (CalARP);
- Hazardous Waste (including Tiered Permitting);
- Underground Storage Tanks (USTs);
- Aboveground Storage Tanks (ASTs) (Spill Prevention, Control, and Countermeasures requirements); and
- UFC Article 80 Hazardous Material Management Program (HMMP) and Hazardous Material Identification System (HMIS).

As the CUPA for the County, the Los Angeles County Health Department, Environmental Health Division maintains the records regarding location and status of hazardous materials sites in the county and administers programs that regulate and enforce the transport, use, storage, manufacturing, and remediation of hazardous materials. A Participating Agency is a local agency that has been designated by the local CUPA to administer one or more Unified Programs within their jurisdiction on behalf of the CUPA. The Los Angeles County Health Department, Environmental Health Division has designated the Los Angeles Fire Department (LAFD) as a Participating Agency. The LAFD monitors the storage of hazardous materials in the city for compliance with local requirements. Specifically, businesses and facilities that store more than threshold quantities of hazardous materials as defined in California HSC Code Chapter 6.95 are required to file an Accidental Risk Prevention Program with LAFD. This program includes information such as emergency contacts, telephone numbers, facility information, chemical inventory, and hazardous materials handling and storage locations. LAFD also has the authority to administer and enforce federal and state laws and local ordinances for USTs. Plans for the construction/installation, modification, upgrade, and removal of USTs are reviewed by LAFD Inspectors. LAFD, in their role as a Participating Agency of the CUPA, also oversees and addresses issues relating to the presence and handling of contaminated soils that may be present at the project site. In addition, the LAFD may consult with other agencies (e.g., DTSC and the LARWQCB) if the nature of the contamination warrants the involvement of these agencies.

COUNTY OF LOS ANGELES 2035 GENERAL PLAN SAFETY ELEMENT

The project is subject to relevant goals, policies, and actions listed in the Los Angeles County 2035 General Plan (County of Los Angeles 2015). Goals, policies, and actions related to hazardous materials are included below.

Goal S 7. Effective County emergency response management capabilities.

> ***Policy S 7.1.*** Ensure that residents are protected from the public health consequences of natural or human-made disasters through increased readiness and response capabilities, risk communication, and the dissemination of public information.
>
> ***Policy S.4.3.*** Coordinate with other County and public agencies, such as transportation agencies and health care providers, on emergency planning and response activities, and evacuation planning.

COUNTY OF LOS ANGELES MUNICIPAL CODE

The Los Angeles County Code Title 2 (Administration), Division 3 (Departments and other Administrative Bodies), Chapter 2.68 (Emergency Services), provides plans to provide coordination of emergency operations to protect the public peace, health, and lives and property of people in Los Angeles County in the event of an emergency. This portion of the County Code provides the direction for the emergency organization; and the coordination of the emergency functions of the County with all other public agencies, corporations, organizations, and affected private persons.

COUNTY OF LOS ANGELES BUILDING CODE

The County of Los Angeles Building Code (Title 33) establishes the minimum requirements to safeguard the public health, safety, and general welfare by regulating the repair, alteration, change of occupancy, addition to, and relocation of existing buildings. The provisions of Title 33 apply to any existing building or structure within the unincorporated territory of the Los Angeles County and to such work or use by the County in any incorporated city.

LOS ANGELES COUNTY OPERATIONAL AREA EMERGENCY RESPONSE PLAN

The County of Los Angeles developed the Emergency Response Plan to ensure the most effective allocation of resources for the maximum benefit and protection of the public in time of emergency. The Emergency Response Plan does not address normal day-to-day emergencies or the well-established and routine procedures used in coping with them. Instead, the operational concepts reflected in this plan focus on potential large-scale disasters like extraordinary emergency situations associated with natural and human-made disasters and technological incidents which can generate unique situations requiring an unusual or extraordinary emergency response. The purpose of the plan is to incorporate and coordinate all facilities and personnel of the County government, along with the jurisdictional resources of the cities and special districts within the County, into an efficient Operational Area organization capable of responding to any emergency using a Standard Emergency Management System, mutual aid and other appropriate response procedures. The goal of the plan is to take effective life-safety measures and reduce property loss, provide for the rapid resumption of impacted businesses and community services, and provide accurate documentation and records required for cost-recovery.

5.8.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles. Nonetheless, City regulatory and planning documents that are most relevant to the project as they relate to hazards and hazardous materials are provided herein for informational purposes.

CITY OF LOS ANGELES GENERAL PLAN SAFETY ELEMENT

The City of Los Angeles General Plan Safety Element includes policies related to the City's response to hazardous materials and represents the long-range emergency response plan for the City of Los Angeles.

Goal 1. A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City due to hazards is minimized.

> ***Policy 1.1.4 (Health/Environmental Protection).*** Protect the public and workers from the release of hazardous materials and protect City water supplies and resources from contamination resulting from accidental release or intrusion resulting from a disaster event, including protection of the environment and public from potential health safety hazards associated with program implementation.

Goal 2. A city that responds with the maximum feasible speed and efficiency to disaster events so as to minimize injury, loss of life, property damage and disruption of the social and economic life of the City and its immediate environs.

> ***Policy 2.1.2 (Health and environmental protection).*** Develop and implement procedures to protect the environment, sensitive species, and public from potential health and safety hazards associated with hazard mitigation and disaster recovery efforts.

CITY OF LOS ANGELES FIRE CODE

The City of Los Angeles Fire Code, Chapter V, Article 7, Section 57.101 et seq., of the City of Los Angeles Municipal Code (LAMC) establishes the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion, panic, or dangerous conditions in new and existing buildings, structures, and premises, and to provide a reasonable level of safety to firefighters and emergency responders during emergency operations. At the local level, the LAFD monitors the storage of hazardous materials for compliance with local requirements and enforces the Fire Code.

CITY OF LOS ANGELES METHANE CODE AND METHANE BUFFER ZONES

The City of Los Angeles Methane Seepage Regulations (Methane Code), Chapter IX, Article I, Division 71, Section 91.7103 et seq., of the LAMC, establishes requirements for buildings and paved areas located in methane zones and methane buffer zones. The project site is located within a designated methane zone mapped by the City (City of Los Angeles 2022).

Requirements for new construction within such zones include methane gas sampling and, depending on the detected concentrations of methane and gas pressure at the site, application of design remedies for reducing potential methane impacts. The required methane mitigation systems are based on the Site Design Level, with more involved mitigation systems required at the higher Site Design Levels.

EMERGENCY MANAGEMENT DEPARTMENT, EMERGENCY OPERATIONS ORGANIZATION, AND EMERGENCY OPERATIONS CENTER

The City's Emergency Management Department consists of four divisions and two units: the administrative services division, communications division, community emergency management division, operations division, planning unit, and training exercise unit. The Emergency Management Department works with City departments, municipalities, and with community-based organizations to ensure that the City and its residents have the resources and information they need to prepare, respond, and recover from emergencies, disasters, and significant events. The Emergency Operations Organization is the operational department responsible for the City's emergency preparations (planning, training, and mitigation), response, and recovery operations. The Emergency Operations Organization centralizes command and information coordination to enable its unified chain-of-command to operate efficiently and effectively in managing the City's resources.

The Emergency Operations Center is the focal point for coordination of the City's emergency planning, training, response, and recovery efforts. Emergency Operations Center processes follow the National All-Hazards approach to major disasters such as fires, floods, earthquakes, acts of terrorism, and large-scale events in the city that require involvement by multiple City departments.

5.8.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to hazards and hazardous materials if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as result, would it create a significant hazard to the public or the environment.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Thresholds a) through f) are discussed under Section 5.8.5, Environmental Impact Analysis, below. However, it has been determined that the project would not result in significant impacts related to wildland fires (threshold g). The project site is surrounded by a variety of urban land uses and is not classified by the California Department of Forestry and Fire Protection (CAL FIRE) as located within a very high fire hazard severity zone in a state responsibility area or local responsibility area (CAL FIRE 2022). Therefore, the project would not interfere with emergency response or evacuation plans during wildfires, exacerbate wildfire risks, require the installation of wildfire prevention infrastructure, or expose

people or structures to post-fire flooding or landslides. As a result, threshold g) will not be further discussed in this section. See Chapter 7, Other CEQA Considerations, for a brief evaluation of this and other impacts found not to be significant.

5.8.4 Impact Assessment Methodology

The project's potential impacts associated with hazards and hazardous materials were evaluated based on a comprehensive review of the desktop environmental database search prepared by SWCA, the *La Brea Tar Pits Master Plan Preliminary Civil Engineering Narrative* prepared by KPFF dated March 4, 2021, the *Methane Survey Report for the La Brea Tar Pits Site Master Plan* prepared by Leighton Consulting, Inc., dated January 12, 2023 (see Appendix G), and all applicable regulatory requirements.

5.8.5 Environmental Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

CONSTRUCTION

During project demolition, earthwork, grading, and building construction, hazardous materials such as fuel and oils associated with construction equipment, as well as coatings, paints, adhesives, and caustic or acidic cleaners, could be routinely used on-site. In addition, the project would require earthwork activities with excavations that could reach up to approximately 10 feet. Due to anticipated soil impacts from the naturally occurring tar seeps present throughout the project site, on-site soils may not be suitable for reuse and would need to be exported for proper remediation and disposal (KPFF 2021). Of this export, it is conservatively assumed that an estimated 53,000 cubic yards may include potentially hazardous substances, which would be exported to an appropriate disposal facility based on waste sampling and characterization, which would be required for any material leaving the site. Each disposal facility would require testing of the material being proposed for disposal to characterize and determine whether they could accept the material. Facilities that would potentially accept the materials include those characterized as Class I for federal hazardous waste (e.g., U.S. Ecology in Beatty, Nevada), Class II for California hazardous waste (e.g., Kettleman Hills Landfill in Kettleman City, California), or Class III for non-hazardous waste (e.g., Chiquita Canyon Landfill in Castaic, California).

Health and safety responsibilities are managed at the project site by a Safety and Risk Management professional. The Safety and Risk Management professional is responsible for managing the use of hazardous materials at the project site in compliance with regulatory standards and reporting requirements. Construction contractors would be required to comply with applicable federal, state, and local laws and regulations regarding the transport, use, and storage of hazardous construction-related materials (Section 5.8.2, Regulatory Setting), and all potentially hazardous materials used during construction would be required to be handled and disposed of in accordance with manufacturers' specifications and instructions. When tested for hydrocarbon range and EPA SW-846 hazardous waste test methods, tar could also be characterized as hazardous material due to flammability and potential for vapor inhalation. The presence of the naturally occurring tar seeps throughout the project site and the required removal of contaminated soils to an off-site location have the potential to create a hazard to construction workers at the site during construction activities, the public, and the staff at La Brea Tar Pits. Construction-related impacts could be *significant*. Construction-related impacts could be *significant*.

OPERATION

Upon project completion, the use of hazardous materials typically used in museums and for building and grounds maintenance, including cleaning solvents and pesticides for landscaping, would occur. As proposed operations would be similar to those operations occurring presently on-site, substantial increases in the amount or type of operational hazardous wastes would not be expected. Activities involving the handling and disposal of hazardous waste would occur in compliance with all applicable federal, state, and local requirements concerning the handling and disposal of hazardous waste.

The project site is susceptible to naturally occurring tar seeps, including the Central Green and parking lot areas. The location of past and existing tar seeps is generally shown in Figure 5.8-1, including seeps within the existing parking lot. Implementation of the project would not change the expected attributes or characteristics of this naturally occurring phenomenon currently at the project site.

As described in Section 5.8.1.4, various strategies have been employed to manage tar seeps within the project site, including implementing a series of open-bottom manholes around apparent tar seeps to collect and concentrate tar below grade. Vacuum trucks (also known as "pumper" trucks) then periodically pump out the water and tar that collects within the manhole and empty the contents into the Lake Pit. This activity is performed by a contractor licensed to handle and transport these materials to ensure that any tar material pumped from the manholes that could be considered hazardous does not come in contact with the public or employees at the project site. In addition, water collected during this process is treated via an underground clarifying system located west of the Lake Pit that filters out fine oil particulates and settleable constituents through a two-step reverse clarifier sequence and is then discharged into the sewer system per an existing agreement between the Foundation and LASAN (Foundation 2023). Another strategy the staff at La Brea Tar Pits have implemented is using cones or other barriers (e.g., chain-link fencing) around aboveground tar seeps to limit access to these areas. Implementation of these strategies has adequately and safely managed tar seeps at the site to-date (Foundation 2023).

Operation of the project would not create new tar seeps within the project site. Further, operation of the project would not trigger the need to change the existing tar management approach or modify the existing protocol to manage tar accumulation at the project site. The existing strategies discussed above address the project site's dynamic conditions and serve to prevent operational hazards associated with the routine movement and disposal of the tar during the operational life of the project. In addition, any new facilities or structures constructed on the project site, including the new museum building, would be designed to accommodate this naturally occurring phenomenon through the engineering and design process to provide appropriate foundational materials that would provide barriers for intrusion and ensure structural stability. Therefore, operational hazards associated with the routine movement and disposal of the tar throughout the project site, including in areas that may interface with the new facilities proposed by the project, would be *less than significant*.

HAZ Impact 1
During project construction, the project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Construction workers, facility employees, and the public could be exposed to hazardous materials associated with the naturally occurring tar seeps present within the project site through the required removal of contaminated soils to an off-site location. Impacts during project construction could be significant. Project operation would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold IX. a)

HAZ Impact 1	
Mitigation Measures	
HAZ/mm-1.1	*Prior to earthwork activities, the project contractor, in coordination with the LAFD and the County, through the Foundation, shall be required to prepare a Soil Management Plan (SMP) for the removal of contaminated soils and their transportation off-site. The SMP shall be prepared in accordance with all relevant and applicable federal, state, and local laws and regulations that pertain to the transportation and disposal of hazardous materials and waste. The SMP shall:* • *Describe the methodology to identify and manage (reuse or off-site disposal) contaminated soil during soil excavation and/or construction;* • *Provide protocols for confirmation sampling, segregation and stockpiling, profiling, backfilling, disposal, guidelines for imported soil, and backfill approval from the DTSC Information Advisory on Clean Imported Fill Material; and* • *In addition, the LAFD may consult with other agencies (e.g., DTSC and the LARWQCB) if the nature of the contamination warrants the involvement of these agencies.*
HAZ/mm-1.2	*The following requirements and precautionary actions shall be implemented when disturbing soil at the project site:* • *No soil disturbance or excavation activities shall occur without a project site-specific Health and Safety Plan (HASP). Any soil that is disturbed, excavated, or trenched due to on-site construction activities shall be handled in accordance with applicable local, state, and federal regulations, as well as sampled and analyzed by a certified laboratory for constituents in accordance with the accepting landfill's requirements (including testing for the presence of hydrocarbons, volatile organic compounds, semi-volatile organic compounds, heavy metals, and pesticides).* • *The contractor shall prepare a project-specific HASP. It is the responsibility of the contractor to review available information regarding project site conditions, including the SMP, and potential health and safety concerns in the planned area of work. The HASP shall describe the proposed construction activities and hazards associated with each activity. Hazard mitigation shall be presented in the HASP to limit construction-related risks to workers. The HASP shall include emergency contact numbers, maps to the nearest hospital, gas monitoring action levels, gas response actions, allowable worker exposure times, and mandatory personal protective equipment (PPE) requirements. The HASP shall specify Certificate of Competency action levels for construction workers as well as monitoring criteria for increasing the level of PPE. The HASP shall be signed by all workers on-site to demonstrate their understanding of the construction-related risks.* • *The contractor and each subcontractor shall require their employees who may directly come in contact with Suspect Soil (soil that is stained or odorous) to perform all activities in accordance with the contractor's HASP. If Suspect Soil is encountered, to minimize the exposure of other workers to potential contaminants on the project site, the contractor may erect temporary fencing around excavation areas with appropriate signage as necessary to restrict access and to warn unauthorized on-site personnel not to enter the fenced area.* • *There shall be no reuse of excavated soil deemed inappropriate for reuse as defined in the project-specific SMP.* • *The contractor shall conduct, or have its designated subcontractor conduct, visual screening of soil during activities that include soil disturbance. If the contractor or subcontractor(s) encounter any Suspect Soil, the contractor and subcontractor(s) shall immediately stop work and take measures to not further disturb the soils (e.g., cover suspect soil with plastic sheeting) and inform the Foundation and the environmental monitor. The Foundation shall identify the environmental monitor—an experienced professional trained in the practice of the evaluation and screening of soil for potential*

HAZ Impact 1
impact working under the direction of a licensed Geologist or Engineer—prior to the beginning of work. • *Prior to excavation activities, the contractor or designated subcontractor shall establish specific areas for stockpiling Suspect Soil, should it be encountered, to control contact by workers and dispersal into the environment, per the provisions provided in the SMP.*
Impacts Following Mitigation
Implementation of HAZ/mm-1.1 and HAZ/mm-1.2 would reduce construction impacts associated with routine transport, use, or disposal of hazardous materials to less than significant. Operational impacts would be less than significant.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

CONSTRUCTION

As discussed above, during project construction, activities (including earthwork, grading, and building construction) would likely require the use of hazardous materials such as fuel and oils associated with construction equipment, coatings, paints, adhesives, and caustic or acidic cleaners could be used and would require proper handling, management, and in some cases, waste disposal. The use, handling, storage, and disposal of these materials could result in hazardous materials releases and, subsequently, the exposure of people and the environment to hazardous materials. However, as previously discussed, all potentially hazardous materials used during construction would be handled, used, and disposed of in accordance with manufacturers' specifications and instructions, thereby reducing associated risks. In addition, as described in Section 5.8.2, Regulatory Setting, various regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. The project would be required to be in full compliance with all applicable federal, state, and local requirements concerning the use, storage, and management of hazardous materials. General construction and OSHA regulations require the on-site availability of Safety Data Sheets for all potentially hazardous materials. Additionally, spill containment kits would be maintained on-site during construction to respond to the release of potentially hazardous construction-related chemicals.

Regarding impacted soils from naturally occurring tar seeps on-site, project construction activities have the potential to create a hazard to workers at the site as well as the public, as tar could also be characterized as hazardous material due to flammability and the potential for vapor inhalation. Soil removal activities during construction would require appropriate regulatory protocols and management during all soil disturbance activities. Excavated soil with naturally occurring tar impacts would be stored on plastic sheeting to reduce the potential for naturally occurring tar to come in contact with surficial soils. Soil stockpiles would be bermed to contain any potential run-off or seepage and covered when not in use. Soil would be transported in lined and covered trucks properly manifested in accordance with United States Department of Transportation and other regulatory requirements. Excavated soil, including soil with naturally occurring tar in it, would be disposed of in accordance with CalEPA and federal EPA requirements and by contractors licensed to handle and transport these materials.

Regarding surface vapors, the project site is located within a designated methane zone mapped by the City. Extensive areas of Southern California are underlain by areas with high concentrations of methane; the occurrence of methane under the ground surface is typically related to subsurface methane gas

produced from naturally occurring petroleum fields. A subsurface investigation was conducted by Leighton Consulting, Inc., on October 18 and October 19, 2022, and the results of this investigation were documented in the Methane Survey Report prepared for the project, dated January 12, 2023 (see Appendix G). The Methane Survey Report identified elevated methane concentrations of up to 50,000 ppmv in the soils at the project site. Based on these findings, the project site is classified as Site Design Level V based on the LAMC Ordinance No. 175790. The typical trigger concentration in which gas protection systems are required to be installed in Los Angeles County is 5,000 ppmv; therefore, an active methane mitigation is required beneath any proposed structures and should follow Site Design Level V of the City's Department of Building and Safety Methane Code. Additionally, for existing buildings located within a methane zone, additions, alterations, repairs, changes of use, or changes of occupancy must comply with the methane mitigation requirements of LAMC Sections 91.7104.1 and 91.7104.2, when required by LAMC Chapter IX, Article 1, Division 81 or 82. Methane systems should be designed in accordance with the latest regulatory control measures, including the City of Los Angeles Methane Hazard Mitigation Standard Plans, as required by the Department of Building and Safety.

Based on the discussion above, impacts related to impacted soils from naturally occurring tar seeps on-site and subsurface methane gas, as well as associated potential impacts to soil and groundwater, could occur during project construction and may exacerbate the risk of spill and/or accident conditions involving the release of hazardous materials into the environment. Impacts during construction could be *significant*.

OPERATION

Upon project completion, operation of the project would be similar to those operations occurring on-site under existing conditions and would continue to support a variety of museum and research-related activities requiring the use and storage of hazardous materials typically associated with museums (Section 5.8.1.1). As such, the use of hazardous materials typically used in museums and for building and grounds maintenance, including cleaning solvents and pesticides for landscaping, would occur as they do under existing conditions. However, as previously discussed, all potentially hazardous materials used during project operation would be handled, used, and disposed of in accordance with manufacturers' specifications and instructions, thereby reducing associated risks. In addition, as described in Section 5.8.2, Regulatory Setting, various regulations establish specific guidelines regarding risk planning and accident prevention, protection from exposure to specific chemicals, and the proper storage of hazardous materials. As with existing practice, operation of the project would be required to be in full compliance with all applicable federal, state, and local requirements concerning the use, storage, and management of hazardous materials to reduce the risk of release of hazardous materials into the environment.

While project operation would not exacerbate the risk of upset and accident conditions involving the release of tar-related hazardous materials into the environment, the existing high concentration of subsurface methane gas at the project site would require ongoing control measures to ensure a properly designed methane mitigation system would provide a barrier for hazardous vapors. Due to the high potential for elevated concentrations of methane gas at the project site, operational impacts related to the release of hazardous materials into the environment could be *significant*.

HAZ Impact 2
Construction of the project could result in the release of hazardous materials into the environment related to naturally occurring tar seeps and subsurface methane gas. Impacts during project construction could be significant. During project operation, hazardous vapors from subsurface methane gas could result in the release of hazardous materials into the environment. Impacts during project operation could be significant. (CEQA Checklist Appendix G Threshold IX. b)
Mitigation Measures
Construction Mitigation
Implement Mitigation Measures HAZ/mm-1.1 and HAZ/mm-1.2.
HAZ/mm-2.1 *During construction activities at the project site, controls shall be in place to address the effects of subsurface gases and impacted soil and groundwater on workers and the public. During construction, the following shall be implemented:* • *Monitoring devices for methane and benzene shall be present to alert workers of elevated gas concentrations when subsurface soil-disturbing work is being performed.* • *Any trench or excavation wider than 18 inches and having a depth greater than 2× its narrowest width shall be monitored with a portable combustible gas detector. The portable detector shall have a resolution capable of reporting to 1% LEL (Lower Explosive Limit), or 0.1% by volume in air, or in parts per million (ppm). If concentrations of combustible gases reach or exceed 20% LEL, or 1.0% by volume in air, or 10,000 ppm, the trench or excavation shall be evacuated until such time as the gas concentrations are determined to be steadily below these levels. All welding and electrical equipment shall be removed from the trench/excavation until the area is deemed to be safe. Portable blowers are the most appropriate means of controlling combustible gas concentrations. The blower motors and appurtenant electrical wiring shall not be placed in the trench or excavation.* • *No welding, cutting, or other hot work shall be performed close to flammable tars which, when subjected to heat, might produce flammable or toxic vapors (per OSHA 1910.252(a)(3)(i)). Smoking should also be avoided when working near tar seeps.* • *Contingency procedures shall be in place if elevated gas concentrations are detected, such as the mandatory use of PPE, evacuating the area, and/or increasing ventilation within the immediate work area where the elevated concentrations are detected.* • *Workers shall be trained to identify exposure symptoms and implement alarm response actions.* • *Soil and groundwater exposure during excavations shall be minimized to reduce the surface area which could off-gas. This shall be achieved by staggering exposed excavation areas.* • *Soil removed as part of construction shall be sampled and tested for off-site disposal in a timely manner. If soil is stockpiled prior to disposal, it shall be managed in accordance with the project's Stormwater Pollution Prevention Plan.* • *Fencing shall be erected to limit public access and allow for gas dilution. The construction contractor can determine the appropriate type of fencing, as long as public access is restricted such that interaction with hazardous construction conditions does not occur.* • *All requirements of the project-specific HASP shall be implemented and followed as described in HAZ/mm-1.2.*

HAZ Impact 2	
Operation Mitigation	
HAZ/mm-2.2	*As part of the final project design, the project engineer shall develop and implement a methane mitigation system. The mitigation system, which would provide a barrier for hazardous vapors, methane, and tar, consists of a subslab venting system that exhausts to the atmosphere, a subslab impermeable gas/tar barrier membrane system, and a monitoring system consisting of probes above and below the gas barrier membrane. The monitoring program consists of routine (quarterly) monitoring and reporting to the County Public Works, Environmental Programs Division. The Environmental Programs Division shall also review the plans to see if the criteria meet the requirements of Los Angeles County Code 110.4 Methane Gas Hazards. Additionally, tar collection systems underneath the gas mitigation systems need to be evaluated by the engineer and by the county engineer to evaluate the performance of the overall system.* *A contingency plan should also be prepared to describe how matters shall be handled in the event that high concentrations of methane gas enter a building despite the mitigation measures.* *The inspection and periodic observations of membrane and vapor control measures shall be performed by the Vapor Barrier Engineer (i.e., the Engineer or his Designee). At a minimum, inspection/observation shall take place during the installation of the vent piping, after backfilling of the vent piping, during the installation of the vapor barrier, after the installation of the vapor barrier (prior to backfilling), during the placement of the protection course, immediately prior to placement of foundation concrete, during and at the completion of the vent riser installation for the vent piping, and at the completion of construction prior to the issuance of the system certification and certification of occupancy.*
Impacts Following Mitigation	
Implementation of HAZ/mm-1.1, HAZ/mm-1.2, and HAZ/mm-2.1 during project construction would reduce impacts associated with the release of hazardous materials into the environment to less than significant. *Implementation of HAZ/mm-2.2 would reduce the operational impacts associated with the release of hazardous materials associated with the project to less than significant.*	

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The nearest schools to the project site include Fusion Academy Miracle Mile, located approximately 0.12 mile directly east of the project site, and Hancock Park Elementary School, located approximately 0.45 mile northwest of the project site. Based on the list of cumulative development projects in the project vicinity (see Chapter 4, Environmental Setting), no proposed new school facilities are located within 0.25 mile of the project site.

CONSTRUCTION

Construction of the project would involve the use of hazardous materials common to urban construction projects and museum operations. All activities involving the handling, use, storage, transport, and disposal of hazardous materials and wastes would occur in compliance with applicable federal, state, and local requirements. However, as discussed in HAZ Impacts 1 and 2, project construction could create a significant hazard to the public or the environment associated with the naturally occurring tar seeps present within the project site through the required removal of contaminated soils to an off-site location. In addition, construction of the project could result in the release of hazardous materials into the environment related to subsurface methane gas. As such, project construction could result in potential

hazardous emissions or the handling of hazardous materials and wastes within 0.25 mile of an existing school. Impacts could be *significant*.

OPERATION

As stated in HAZ Impacts 1 and 2, while the project operation would not exacerbate the use, handling, and disposal of hazardous materials or increase the risk of spill and accident conditions involving the release of hazardous materials into the environment, the existing, naturally occurring tar seeps and the existing high concentration of subsurface methane gas at the project site would require control measures to ensure proper collection and disposal of accumulated tar near the ground surface as well as a methane mitigation system to provide a barrier for hazardous vapors (see Mitigation Measure HAZ/mm-2.2). As such, operational impacts associated with potential hazardous emissions or the handling of hazardous materials and wastes within 0.25 mile of an existing school could be *significant*.

HAZ Impact 3
The project could introduce hazardous materials within 0.25 mile of an existing or proposed school during both construction and operation. Impacts during project construction and operation could be significant. (CEQA Checklist Appendix G Threshold IX. c)
Mitigation Measures
Construction Mitigation
Implement Mitigation Measures HAZ/mm-1.1, HAZ/mm-1.2, and HAZ/mm-2.1.
Operation Mitigation
Implement Mitigation Measure HAZ/mm-2.2.
Impacts Following Mitigation
Implementation of HAZ/mm-1.1, HAZ/mm-1.2, and HAZ/mm-2.1 during project construction would reduce impacts associated with the emission of hazardous materials in the vicinity of existing or proposed schools to less than significant. *Implementation of HAZ/mm-2.2 during project operation would reduce impacts associated the emission of hazardous materials in the vicinity of existing or proposed schools to less than significant.*

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The project site is not identified on any of the hazardous materials lists compiled pursuant to Government Code Section 65962.5 (Section 5.8.1.2). The environmental records review conducted by SWCA on July 21, 2022, identified four historic dry cleaners and one historic photography lab within a 1-mile radius of the project site. Historically, dry cleaners have had a high frequency of spills and discharges. The primary contaminants from dry cleaners are the chlorinated solvents PCE, TCE, and VC. These contaminants are volatile, mobile, and resistant to degradation. The concern for properties near historical dry cleaners is vapor intrusion—the movement of contaminant vapors through the soil, utility corridors, or other pathways, which can then permeate foundations and concentrate in enclosed indoor areas. Old photography labs are also commonly identified as sources of contamination. However, the records search did not indicate any areas of concern related to historical hazardous materials sites within the project site

or vicinity of the project site (EDR 2022). Therefore, construction and operation of the project would not create a significant hazard to the public or the environment as it relates to hazardous materials sites compiled pursuant to Government Code Section 65962.5. *No impact* would occur.

HAZ Impact 4
The project site is not identified on any of the hazardous materials lists compiled pursuant to Government Code Section 65962.5. Construction and operation of the project would not create a significant hazard to the public or the environment as it relates to hazardous materials sites compiled pursuant to Government Code Section 65962.5. No impact would occur. (CEQA Checklist Appendix G Threshold IX. d)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. No impact would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The project site is not located within 2 miles of a public airport or public use airport. The nearest airport to the project site is Santa Monica Airport, which is approximately 6 miles southwest of the project site. Therefore, the project would not result in an airport-related safety hazard during either project construction or operation. *No impact* would occur.

HAZ Impact 5
The project site is not located within 2 miles of a public airport or public use airport. The project would not result in an airport-related safety hazard during either project construction or operation. No impact would occur. (CEQA Checklist Appendix G Threshold IX. e)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. No impact would occur.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project site is not located along a designated Disaster Route as defined by County Public Works. The nearest designated Disaster Routes to the project site include Beverly Boulevard approximately

1 mile to the north, Olympic Boulevard approximately 0.4 mile to the south, La Brea Avenue approximately 0.6 mile to the east, and North La Cienega Boulevard approximately 1.2 miles to the west.

CONSTRUCTION

While all construction activities, including construction staging of equipment, would be situated entirely within the project site, it is possible that project construction and the need for unique construction-period access may occur in adjacent street rights-of-way during certain periods of the day. However, the designated Disaster Routes discussed above would not be impacted in such a way that the project would interfere with the County or City's Emergency Response Plan. Therefore, construction impacts associated with emergency response and emergency evacuation plans would be *less than significant*.

OPERATION

Upon project completion, the project operation would comply with LAFD access requirements and would not include features that would impede access to and around the site. Thus, the project would not cause an impediment along the designated disaster routes or impair implementation of any adopted emergency response or emergency evacuation plans. Therefore, operational impacts associated with emergency response and emergency evacuation plans would be *less than significant*.

HAZ Impact 6
The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan during either construction or operation. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold IX. f)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to an adopted emergency response plan or an emergency evacuation plan would be less than significant.

5.8.6 Cumulative Impact Analysis

Cumulative growth and related development projects in the vicinity of the project site are discussed in Chapter 4, Environmental Setting. The geographic area where projects have potential to contribute to cumulative impacts varies depending on the environmental resource under consideration. The geographic scope of analysis for cumulative hazardous materials impacts is limited to the project site and its immediately adjacent area (defined as the adjacent Los Angeles County Museum of Art parcel, and all land uses and roadways directly and immediately surrounding the project site, including those along West 6th Street, South Curson Avenue, and Wilshire Boulevard). This is because impacts relative to hazardous materials are most typically site-specific. For example, hazardous materials incidents tend to be limited to a smaller, more localized area surrounding the immediate spill location, and the extent of the release could only be cumulative if two or more hazardous materials releases occurred at the same time and overlapped at the same location.

As previously discussed, the project would have no impact related to being located on an identified hazardous materials site pursuant to Government Code Section 65962.5 (threshold d) or being situated within 2 miles of a public or private airstrip (threshold e). In addition, the project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan during either construction or operation (threshold f). Accordingly, the project could not contribute to cumulative impacts related to these topics and they are not discussed further. For this analysis, cumulative impacts related to hazards and hazardous material could occur if the incremental impacts of the proposed project combined with the incremental impacts of other projects, including those identified in Chapter 4, Environmental Setting. The following three projects are known projects that are in close proximity to the project site that could contribute to cumulative impacts:

- **Metro D (Purple) Line Extension:** Extension of underground light rail transit service infrastructure to parallel Wilshire Boulevard located directly adjacent to the project site along with seven new transit stations. This project is under construction with the first phase (Wilshire/ La Brea, Wilshire/Fairfax, and Wilshire/ La Cienega Stations) anticipated to be completed and in operation by 2024.
- **Los Angeles County Museum of Art Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction with an anticipated completion date of 2024.
- **Wilshire Curson Project:** Located approximately 0.03 mile southeast of the project site at 5700-5780 Wilshire Boulevard, 712-752 South Curson Avenue, 5721-5773 West 8th Street, and 715-761 South Masselin Avenue. The project includes office and commercial uses and would involve both the renovation of existing buildings as well as the demolition and construction of new buildings. The project is currently under environmental review, and a construction timeline was not available at the time of publication for this EIR.

Each of the related projects has or would require evaluation for potential threats to public safety, including those associated with the use, storage, and/or disposal of hazardous materials and the potential for the release of hazardous materials into the environment as a result of construction and operation. In addition to the environmental review conducted for the projects, it is important that all project-related activities for the projects listed above would be required to comply with all applicable local, state, and federal laws, rules, and regulations regulating the use, disposal, transport, and management of hazardous materials. In addition to the projects above, activities would occur within the project area within the construction timeframe that would not require review under CEQA. For instance, the establishment of a new business in the area that uses hazardous materials may not trigger CEQA review. In addition, during the construction phase and operational life of the project, there could be proposed development projects in the vicinity that would not require discretionary review. As well, unforeseen accidents could always potentially occur through the routine use of hazardous substances by and at surrounding commercial and residential land uses.

Although existing regulations and review processes would likely address hazardous materials concerns, because of the conditions related to the occurrence of petroleum deposits, tar, and methane at the project site and within this general area of the city, it is possible that cumulatively considerable impacts to hazardous materials would occur in the project area if different hazardous conditions or incidents were to occur at the same time (i.e., two or more accidents occurred at the same time).

As identified in the project analysis above, the project could result in:

- Significant construction and operational impacts related to creating a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials associated with the naturally occurring tar seeps present within the project site (threshold a);
- Significant construction and operational impacts associated with the release of hazardous materials into the environment due to naturally occurring tar seeps and subsurface methane gas present within the project site (threshold b); and
- The introduction of hazardous materials within 0.25 mile of an existing or proposed school during both construction and operation (threshold c).

Because construction and operation of the project could result in these direct impacts, the potential exists for the project to also contribute significantly to cumulative impacts. If mitigation were not to be implemented, it is conceivable that the project would significantly contribute to these impacts. Therefore, the project's contribution could be cumulatively considerable; impacts could be *significant*.

Project mitigation measures have been identified and included to address these impacts. The identified mitigation measures would address the direct impacts associated with the project itself as well as the project's potential contribution to cumulatively considerable and significant hazardous materials impacts. Implementation of HAZ/mm-1.1 and HAZ/mm-1.2 during construction would reduce the project's construction and operational impacts associated with routine transport, use, or disposal of hazardous materials to less than significant with mitigation (threshold a). Implementation of HAZ/mm-1.1, HAZ/mm-1.2, and HAZ/mm-2.1 during project construction and implementation of HAZ/mm-2.2 during project operation would reduce impacts associated with the release of hazardous materials into the environment to less than significant with mitigation (thresholds b and c).

HAZ Impact 7 (Cumulative Impacts)
Prior to the consideration of proposed mitigation measures, construction and operation of the project could result in hazardous materials impacts associated with the naturally occurring tar seeps and methane conditions present at the project site, including accidental spills or releases associated with the disposal, transport, and management of hazardous materials. If unaddressed, potential contributions to cumulative hazardous materials impacts could be significant.
Mitigation Measures
Implement Mitigation Measures HAZ/mm-1.1, HAZ/mm-1.2, HAZ/mm-2.1, and HAZ/mm-2.2.
Impacts Following Mitigation
With implementation of Mitigation Measures HAZ/mm-1.1, HAZ/mm-1.2, HAZ/mm-2.1, and HAZ/mm-2.2, the project's contribution to cumulative impacts related to release of hazardous materials into the environment would be reduced to less than significant.

5.9 HYDROLOGY AND WATER QUALITY

This section provides a description of the existing water resources in the region and at the project site, then provides an evaluation of the potential for the project to result in impacts related to hydrology, water quality, drainage, groundwater resources, and flooding. The analysis is based on information provided in the Los Angeles Regional Water Quality Control Board's (LARWQCB's) 2014 *Water Quality Control Plan for the Los Angeles Region* (Basin Plan) and the Enhanced Watershed Management Program for the Ballona Creek Watershed (EWMP). In addition, project-specific reports used in this analysis include the *Preliminary Civil Engineering Narrative* prepared by KPFF Consulting Engineers (KPFF), dated March 2021, *Low Impact Development (LID) and Hydrology Report* prepared by KPFF, dated June 2023 (Appendix H), and the *Geology and Soil Discipline Report* prepared by Shannon and Wilson, dated January 27, 2023 (Appendix E).

5.9.1 Existing Conditions

5.9.1.1 Surface Water

REGIONAL SURFACE WATER

The project site is located within the Santa Monica Bay Watershed Management Area (WMA) in the Los Angeles Basin (Figure 5.9-1). The Santa Monica Bay WMA encompasses an area of 414 square miles, with the northern boundary extending from the crest of the Santa Monica Mountains and the Ventura–Los Angeles County line through downtown Los Angeles to the Pacific Ocean. The boundary then extends south and west across the Los Angeles plain to include the area east of Ballona Creek and north of the Baldwin Hills. Within the Santa Monica Bay WMA, surface water flows into the Santa Monica Bay through 28 catchment basins that are further grouped into nine subwatershed areas. These nine watershed areas include the North Coast, Malibu Creek, Topanga Creek, Santa Monica Canyon, Pico-Kenter, Ballona Creek, El Segundo-LAX, South Bay, and Palos Verdes (LARWQCB 2014). The seasonal normal rainfall in the Santa Monica Bay WMA ranges from 26.72 inches in the San Gabriel Mountains to 7.27 inches in the desert. The average annual rainfall for the county is 15.17 inches (Los Angeles County Department of Public Works [County Public Works] 2021).

LOCAL SURFACE WATER

The project site is within the Ballona Creek Watershed (Figure 5.9-2). The Ballona Creek Watershed totals about 130 square miles and includes all or parts of the cities of Beverly Hills, Culver City, Inglewood, Los Angeles, Santa Monica, and West Hollywood, as well as unincorporated areas of Los Angeles County. The watershed is highly developed, with its land use consisting of 64% residential, 8% commercial, 4% industrial, and 17% open space (County Public Works 2022).

Ballona Creek flows as an open channel for approximately 9.5 miles from mid-Los Angeles (approximately 2 miles south of the project site), flowing generally southwest through Culver City, reaching the Pacific Ocean at Playa del Rey (Marina del Rey Harbor), where it discharges into Santa Monica Bay (see Figure 5.9-2). Most of the creek is concrete-lined, with only the estuary portion of the creek, from Centinela Avenue to the outlet, being soft bottomed. Ballona Creek is fed by a network of underground storm drains, which reaches north into Beverly Hills and West Hollywood. The major tributaries to the Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous storm drains (County Public Works 2021).

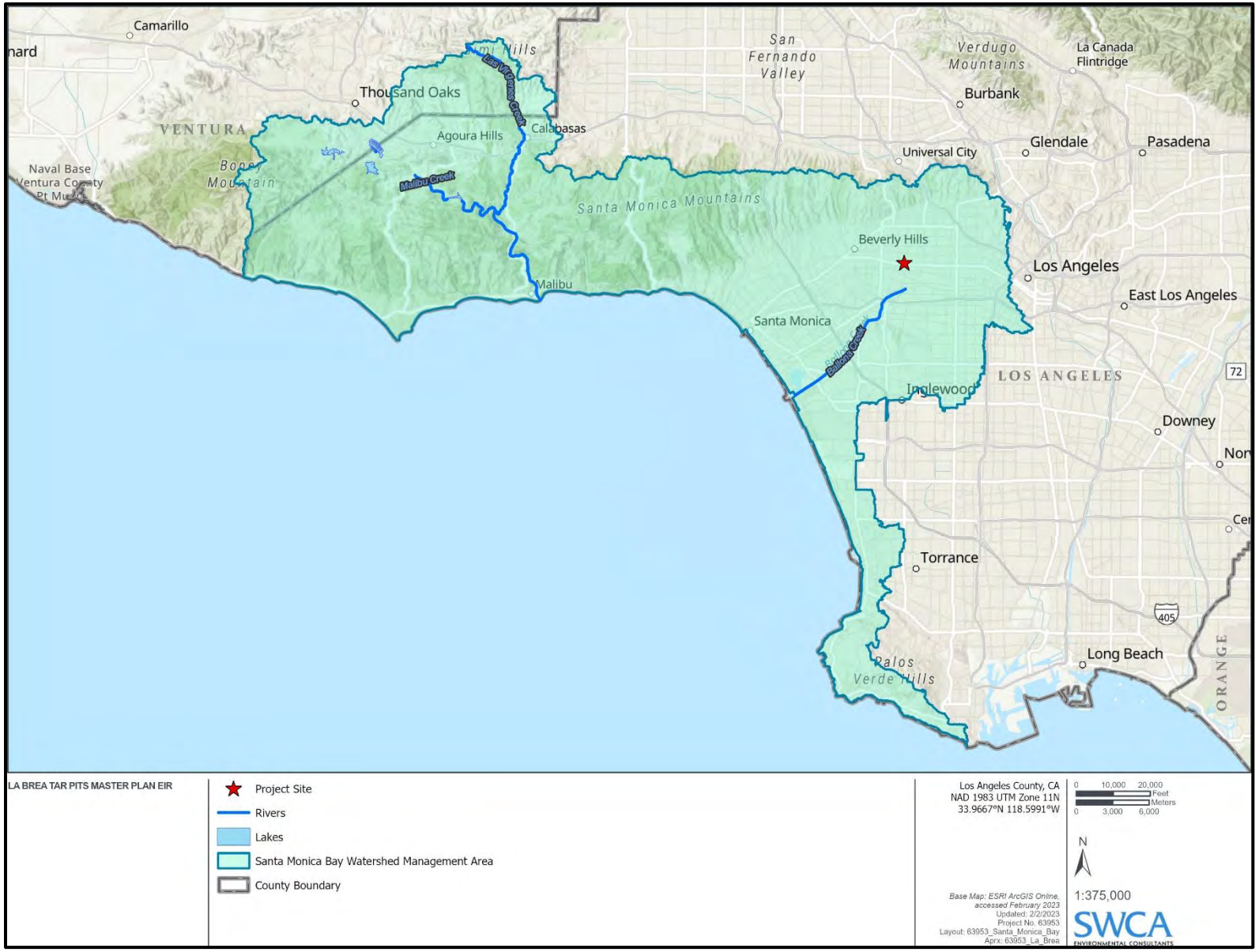


Figure 5.9-1. Santa Monica Bay Watershed Management Area.

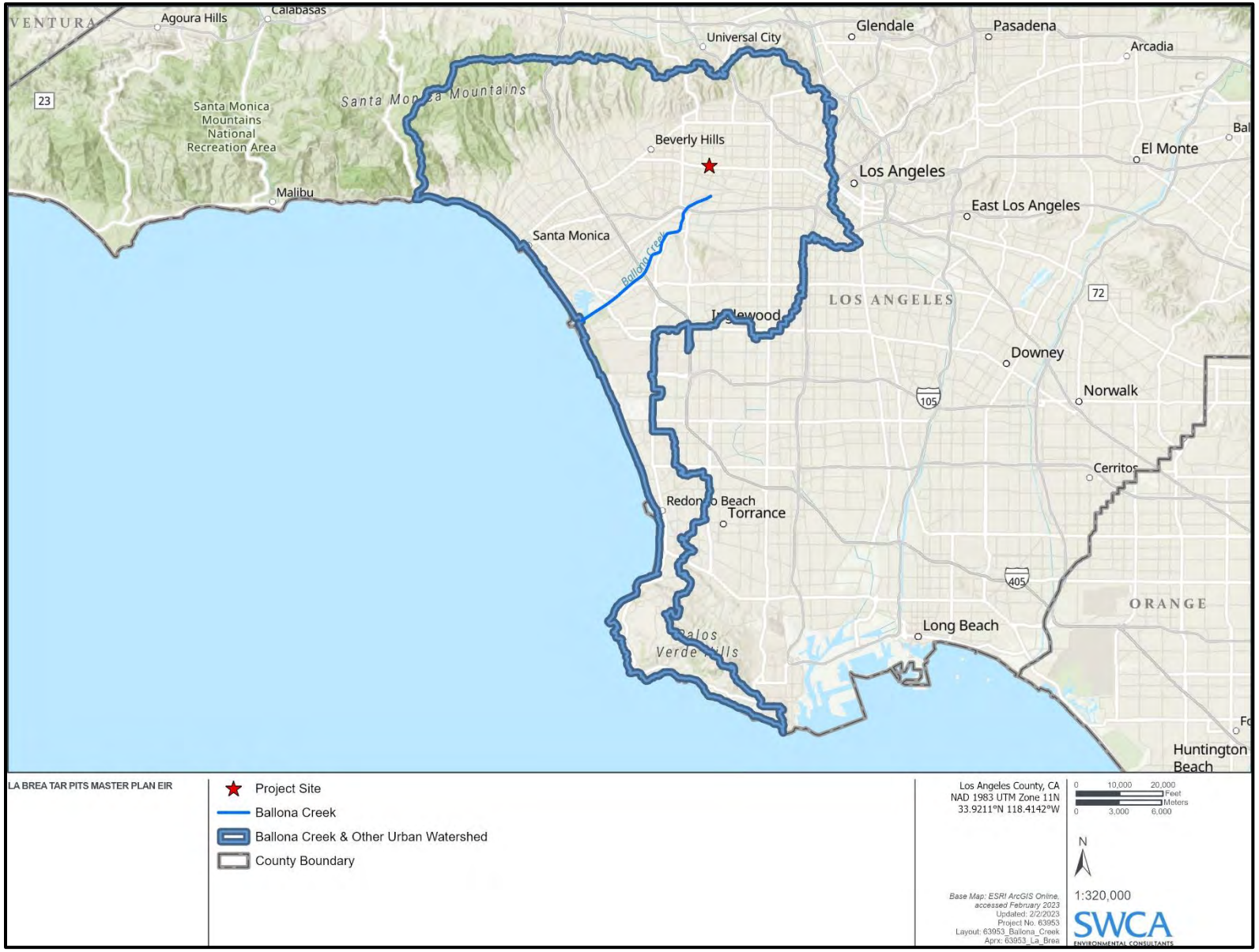


Figure 5.9-2. Ballona Creek watershed area.

In the vicinity of the project site, stormwater runoff enters off-site catch basins and underground storm drainage pipes which convey stormwater through underground pipe networks into Ballona Creek. Underground stormwater drainage facilities located off-site along Wilshire Boulevard (a 30-inch-diameter main line) are owned and maintained by the City of Los Angeles (City). Underground stormwater drainage facilities located off-site along Ogden Drive are owned and maintained by Los Angeles County Flood Control District (LACFCD). The existing catch basin and stormwater infrastructure located in Wilshire Boulevard have been designed to carry the 50-year storm event per the Los Angeles County Hydrology Manual and currently have sufficient capacity to accept the stormwater runoff from the surrounding existing developed areas (County Public Works 2006).

SURFACE WATER AT THE PROJECT SITE

Surface water of note on the project site includes that from Oil Creek. Oil Creek is a historic feature which, as early as 1941 (based on historical aerial imagery), conveyed flow from approximately the intersection of 6th Street and South Curson Avenue southwest to the intersection of Wilshire Boulevard and South Ogden Drive. As discussed in Section 5.3, Biological Resources, Oil Creek appears to receive its primary hydrologic input source from groundwater. Oil Creek also receives hydrologic inputs from precipitation and irrigation system runoff. Stormwater runoff around Lake Pit and Oil Creek drains into the Lake Pit. There is a system at the west end of Lake Pit to manage the water level in the Lake Pit. Low-flow storm water runoff from Oil Creek also is pumped to Lake Pit. However, large-flow rain events draining to Oil Creek bypass the low-flow pump. This occurs via a weir wall within the downstream inlet structure at the terminus of Oil Creek and connects to the LACMA storm drain.

Existing Drainage

The project site is nearly level with a gentle slope downward from northeast to southwest. In the northeast corner of the site, the existing asphalt surface parking lot slopes from east to west. There are existing catch basins in both the northwest and southwest corners of the parking lot. These catch basins connect to underground storm drainage piping which joins a 12-inch-diameter stormwater collection pipeline that collects stormwater flows from the George C. Page Museum (Page Museum), as well as landscape drainage around the multi-purpose lawn.

Currently, the existing project site is 68.1% pervious.[1] For the purposes of analyzing hydrology and drainage patterns for the project, the streets adjacent to the project site have been included in the studied area analyzed in the Low Impact Development (LID) and Hydrology Report prepared by KPFF, dated June 2023 (see Appendix H). With the addition of the adjacent streets, the overall permeability of the existing hydrology study area is 59.3% (Appendix H). The existing drainage patterns on-site include four drainage management areas as described in Table 5.9-1 and shown in Figure 5.9-3. Table 5.9-1 also provides the existing percent permeability, peak discharge flow rates, and runoff volume by drainage area.

[1] A pervious surface allows water to percolate through to the area underneath rather than becoming runoff. Impervious surfaces are solid surfaces that prevent infiltration and water penetration.

Table 5.9-1. Existing Drainage Area Descriptions

Drainage Area (DA)	Description	Percent (%) Permeability	Peak Flow (cfs)	Runoff Volume (cu-ft)
DA-1	Drainage Area 1 is within the central core of the project site. Area drains and catch basins collect surface runoff and discharge to an existing natural channel, Oil Creek. Oil Creek ultimately drains to an existing 30-inch storm drain that connects south into a City of Los Angeles mainline located in Wilshire Boulevard.	58.56%	21.19	73,086.58
DA-2	Drainage Area 2 is highest on the southeast corner at the intersection of Wilshire Boulevard and South Curson Avenue and slopes to the northwest of the project site toward West 6th Street and Ogden Drive. The north edge of the project site slopes toward West 6th Street where runoff flows to the street gutter and ultimately to existing curb inlets located in the street. Similarly, east of the Page Museum, the landscaping slopes east towards South Curson Avenue where the runoff drains north to West 6th Street. A portion of the roof runoff generated by the Page Museum also discharges directly to South Curson Avenue.	49.00%	5.39	43,826.33
DA-3	Drainage Area 3 includes runoff from the southern portion of the project site which drains into the Lake Pit. A small portion of the southeast corner of the site drains directly to Wilshire Boulevard where it is collected by existing curb inlets.	85.79%	9.65	17,673.44
DA-4	Drainage Area 4 includes runoff that drains to Wilshire Boulevard and consists entirely of public right-of-way.	0%	0.59	11,350.44

Note: cfs = cubic feet per second; cu-ft = cubic feet

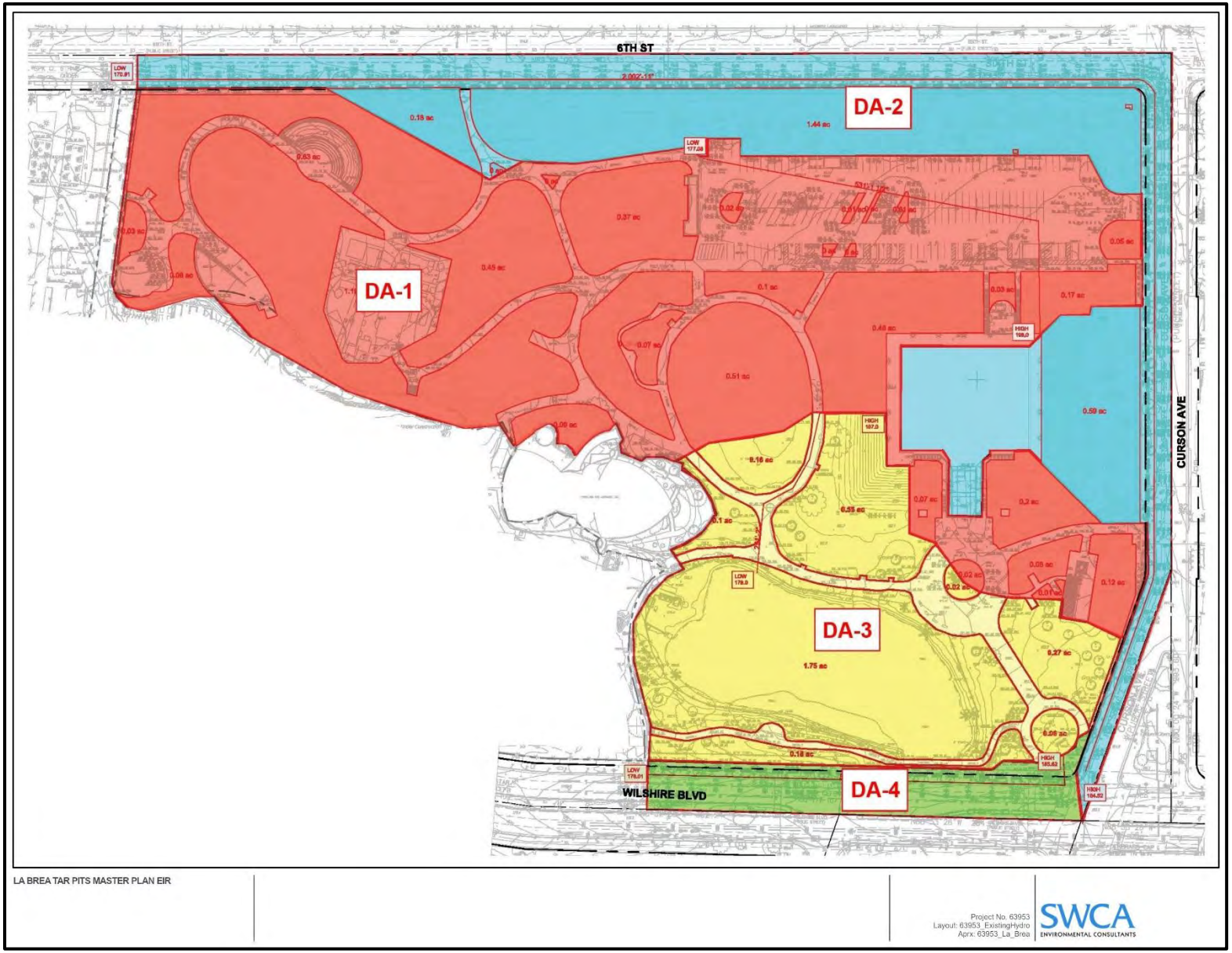


Figure 5.9-3. Existing hydrology and drainage area map.

SURFACE WATER QUALITY

Water quality in the majority of Ballona Creek (including the Ballona Estuary and Wetlands, terminating in the Pacific Ocean) has been impaired by pollutants from dense clusters of residential, industrial, and other urban activities. Constituents of concern listed for Ballona Creek under the federal Clean Water Act Section 303(d) List include cadmium (sediment), chlordane (tissue and sediment), coliform bacteria, copper (Dissolved), cyanide Silver (sediment), Dichlorodiphenyltrichloroethane (DDT), lead, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), sediment toxicity, Shellfish Harvesting Advisory, silver, selenium toxicity, trash, viruses (enteric), and zinc (LARWQCB 2022).

Pursuant to Section 303(d) of the federal Clean Water Act, the State Water Resources Control Board (SWRCB) and the LARWQCB identify impaired bodies of water that do not meet water quality standards and prioritize them for development of Total Maximum Daily Loads (TMDLs). TMDLs are action plans with the purpose of restoring clean water. TMDLs identify the sources of pollution in a given waterbody and specify the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. Those facilities and activities that are discharging into the waterbody, collectively, must not exceed the TMDL. The Ballona Creek Watershed has TMDLs for PCBs, DDT, cadmium, zinc, chlordane, indicator bacteria, PAHs, copper, toxicity, lead, silver, trash, and viruses (enteric) (LARWQCB 2022).

Besides the Lake Pit system discussed previously, the project site does not implement any structural stormwater best management practices (BMPs). However, there are a range of non-structural BMPs that are currently used throughout the project site to minimize the impact of pollutant sources, including general housekeeping practices such as regular trash collection and street sweeping, and proper storage of hazardous materials and waste. Based on the existing operations within the project site, the on-site runoff likely contains the following pollutants of concern: sediment, nutrients, pesticides, metals, pathogens, and oil and grease.

5.9.1.2 Groundwater

REGIONAL AND LOCAL GROUNDWATER

The project site is located within the city of Los Angeles, which is underlain by the Los Angeles Coastal Plain Groundwater Basin. The Los Angeles Coastal Plain Groundwater Basin totals approximately 580 square miles and is divided into the following subbasins: Hollywood, Santa Monica, Orange County Coastal Plain, Central, and West Coast Basins (Figure 5.9-4). Groundwater flow in the Los Angeles Coastal Plain Groundwater Basin is generally south-southwesterly and may be restricted by natural geological features. Replenishment of groundwater basins occurs mainly by percolation of precipitation throughout the region via permeable surfaces, spreading grounds, and groundwater migration from adjacent basins, as well as injection wells designed to pump freshwater along specific seawater barriers to prevent the intrusion of salt water (California Department of Water Resources [DWR] 2004).

Within the Los Angeles Coastal Plain Groundwater Basin, the project site is underlain by the Central Subbasin, commonly referred to as the “Central Basin”, totaling approximately 280 square miles and is bounded on the north by a surface divide called the La Brea high, and on the northeast and east by emergent less-permeable Tertiary rocks of the Elysian, Repetto, Merced, and Puente Hills. The southeast boundary between Central Basin and Orange County Coastal Plain roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood fault system and the associated folded rocks of the Newport Inglewood uplift. The Los Angeles and San Gabriel Rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean (DWR 2004).

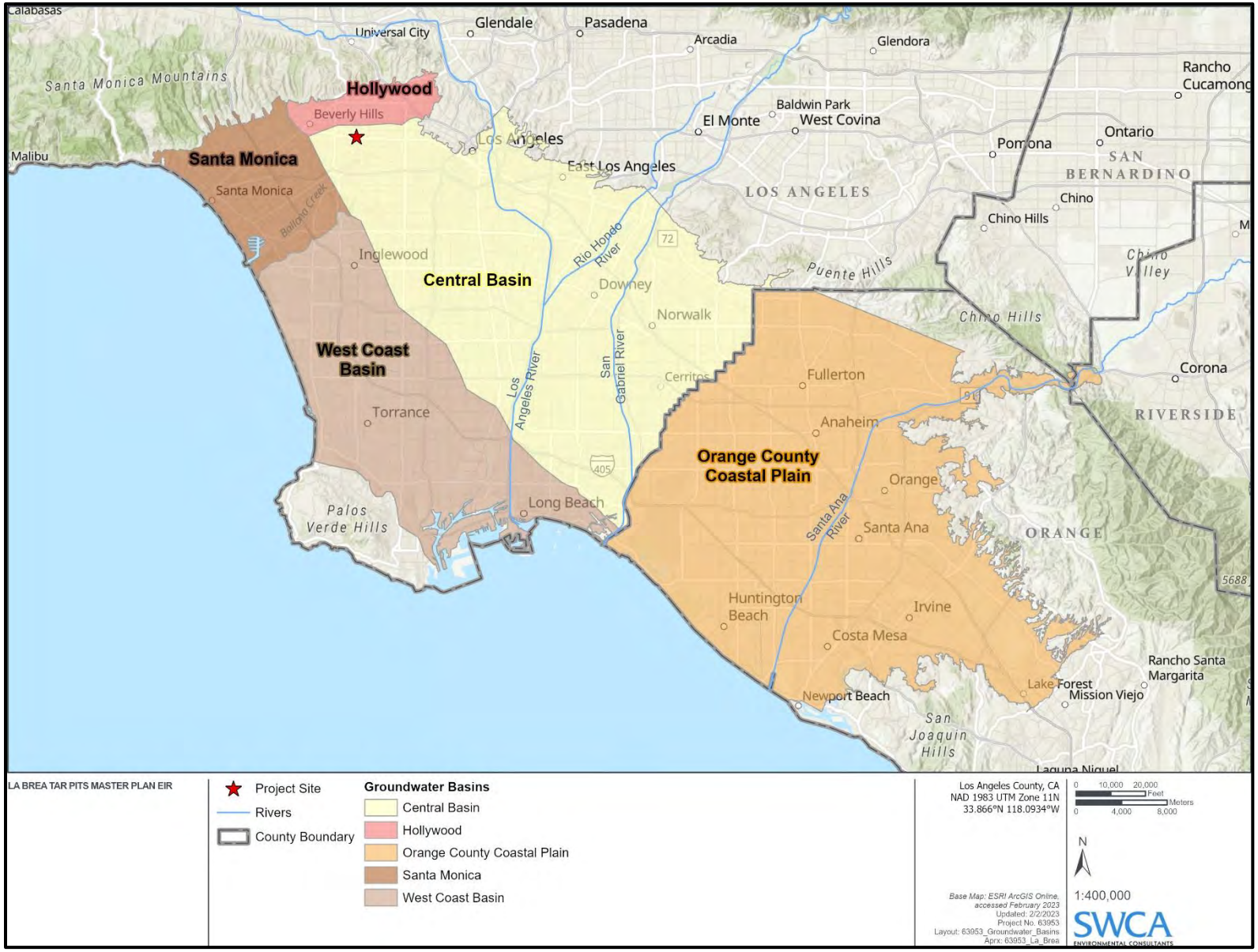


Figure 5.9-4. Los Angeles Coastal Plain Groundwater Basin.

The Central Basin is further divided hydrogeologically into four subareas: the Los Angeles Forebay, Montebello Forebay, Whittier Area, and Pressure Area. The forebays are areas where confining layers are thin or absent and infiltration of precipitation and surface water can recharge deeper potable water supply aquifers. The project site is located in the northwestern portion of the Central Subbasin.

GROUNDWATER CONDITIONS AT THE PROJECT SITE

Groundwater depth at the project site fluctuates in response to rainfall, seasonal variations, and other factors, and varies throughout the site. According to the *Geology and Soil Discipline Report, La Brea Tar Pits Museum Master Plan Project* (Geology and Soil Discipline Report) prepared for the project by Shannon and Wilson dated January 27, 2023 (Appendix E), the project site lies within the 10-foot water level contour of the historically high groundwater levels, indicating that the historical high groundwater depth is at or shallower than 10 feet below ground surface (bgs) (Shannon and Wilson 2023). Previous subsurface boring explorations conducted at the project site encountered groundwater levels at depths less than 10 feet bgs. Two of previous boring sites adjacent to the project site have been converted to groundwater monitoring wells, with groundwater data being collected over 1.5 to 2 years. Over that time, the shallowest groundwater depth encountered was approximately 1 foot bgs, corresponding to an elevation of approximately 167.5 feet above mean sea level, and approximately 5.7 feet bgs, corresponding to an elevation of 164 feet above mean sea level (Shannon and Wilson 2023).

Groundwater levels at the east side of the project site are typically found at very shallow depths at or near the water surface elevation of Lake Pit, as the Lake Pit is a naturally occurring open waterbody. According to the *Preliminary Civil Engineering Narrative* prepared by KPFF in March 2021, substantial groundwater intrusion has occurred, and continues to occur, in the lowest level of the Page Museum (KPFF 2021). Groundwater intrusion has also been observed within access manholes, vaults, and pits throughout the project site. Groundwater depths increase and fall off from the northeast corner of the project site, where it is found to be very shallow, to the southwest corner of the project site, where it is found to be deeper. This pattern appears to mimic the historical evidence of a natural spring known as Oil Creek which had headwaters near the intersection of 6th Street and Curson Avenue. Oil Creek has been disturbed and manipulated over time. It is partially paved where the parking lot is located and is channelized with pavers near its terminus. It is dominated by non-native grasses in parts and planted with native riparian vegetation in other parts. Oil Creek historically flowed in a southwesterly course lending credence to the theory that the natural flow of water may still exist, only below the ground surface. If natural groundwater flow does exist on the project site, it is assumed to be relatively slow due to site soil being rendered viscous by the prevalence of tar. Tar occurs within the groundwater as observed at Lake Pit, and tar seeps occur randomly throughout the site. Both of these indicate the potential for near-surface groundwater and tar to be encountered (KPFF 2021).

WATER QUALITY

As previously mentioned, the city overlies the Los Angeles Coastal Plain Groundwater Basin, which falls under the jurisdiction of the LARWQCB. According to the Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, water quality objectives applying to all groundwaters of the region include those concerning bacteria, chemical constituents and radioactivity, mineral quality, nitrogen (nitrate, nitrite), taste, and odor. Within the Central Basin, the following constituents of concern include: boron, chloride, sulfate, total dissolved solids, and nitrate (DWR 2004).

5.9.1.3 Flooding and Hydrological Hazards

Flood hazard areas identified on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area

that will be inundated by the flood event having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance flood is also referred to as the base flood or 100-year flood. According to the FEMA FIRM No. 06037C1605F, dated September 26, 2008, the project site is within FEMA Flood Zone X, which is defined as "areas determined to be outside the 0.2 percent annual chance floodplain" or not within a 100-year flood zone (FEMA 2008).

The project site is located approximately 10 miles east of the coastline along the Pacific Ocean. Based on the California Department of Conservation Map of Los Angeles County Tsunami Hazard Areas, the project site is not located within a tsunami zone (California Department of Conservation 2019).

There are two bodies of standing water present in the immediate vicinity of the project site. The larger of the two is the Lake Pit, located in the southern portion of the site. The second body of water is a small pond within a topographic low area that includes Pit 91. Both surface bodies of water within the project site would have low potential to cause a seiche as they are considered too small or shallow. Further, the water surface level at the Lake Pit is several feet below the edge of the surrounding bank. As such, neither are expected to generate a seiche large enough to overflow their banks. Additionally, the Safety Element of the City's General Plan maps the project site within the potential inundation area for the Hollywood Reservoir, which is held by the Mulholland Dam. The Mulholland Dam is a Los Angeles Department of Water and Power (LADWP) dam located in the Hollywood Hills, approximately 6 miles northeast of the project site.

5.9.2 Regulatory Setting

5.9.2.1 Federal

FEDERAL CLEAN WATER ACT, 33 USC 1251 ET SEQ. (1977)

The federal Clean Water Act (CWA) is the primary federal law regulating discharges of pollutants into waters of the U.S. and regulating water quality standards for surface waters. The CWA prohibits the discharge of any pollutants from a point source into navigable waters unless a National Pollutant Discharge Elimination System (NPDES) permit is obtained. The following CWA sections include relevant policies for regulating water quality:

- **Section 208** requires all states to assess damages to water quality from nonpoint source pollution, including runoff. Section 208 requires states to develop either regulatory or non-regulatory programs to control nonpoint source pollution.
- **Section 303(d)** authorizes the U.S. Environmental Protection Agency (EPA) to assist states, territories, and authorized tribes in listing impaired waters and developing TMDLs for the identified waterbodies. A TMDL establishes the maximum amount of a pollutant allowed in a listed waterbody. In addition, a TMDL establishes a starting point for restoring water quality.
- **Section 304(a)(4)** requires the EPA to designate potential water pollutants as either conventional pollutants or toxic pollutants based on the latest scientific knowledge regarding the effects of pollutants on water quality. Conventional pollutants include biochemical oxygen demand total suspended solids, fecal coliform, pH, oil, and grease. The EPA has designated 126 "priority" toxic pollutants.
- **Section 313** requires that each federal agency that has jurisdiction over any facility or is engaged in an activity that may result in discharge or runoff of pollutants must comply with all federal, state, and local water pollution control requirements. This may include adherence to all requirements, including, but not necessarily limited to, reporting, recordkeeping, and/or permitting requirements.

- **Section 401** requires a water quality certification to be issued or waived by states and authorized tribes prior to issuance of a permit or license to conduct activities that may result in discharge to waters of the U.S. In cases where a state or tribe does not have authority, the EPA is responsible for issuing certification. The major federal licenses and permits subject to Section 401 include: 1) CWA Section 402 and 404 permits issued by the EPA or U.S. Army Corps of Engineers (USACE); 2) Federal Energy Regulatory Commission (FERC) licenses for hydropower facilities and natural gas pipelines; and 3) Rivers and Harbors Act Section 9 and 10 permits.
- **Section 402** establishes the NPDES. Discharges of point source pollutants to waters of the U.S. are prohibited unless they are compliant with provisions of the CWA. Typically, compliance is achieved by obtaining authorization to discharge pursuant to an NPDES permit issued by the EPA or a state agency that has an approved NPDES program. NPDES permits generally contain water quality- and/or technology-based standards for effluent discharges, monitoring requirements, analytical testing methods, and reporting requirements.
- **Section 404** requires facilities that discharge dredged or fill materials into waters of the U.S. to apply for a permit issued by the USACE.
- **Section 405** requires that facilities that treated domestic sewage must meet federal requirements for the use and disposal of sewage discharge through land application, surface disposal, or incineration. These requirements are incorporated to permits issued under CWA Section 402.

The project would be subject to CWA Section 208, 303(d), 304(a)(4), 313, 401, 402, 404, and 405 permits.

EXECUTIVE ORDER 11988

FEMA oversees floodplains and manages the National Flood Insurance Program. FEMA also prepares FIRMs for states and other communities participating in the program. FIRMs delineate regulatory floodplains to assist communities with land use and floodplain management decisions. Specifically, Executive Order 11988, Floodplain Management requires federal agencies to avoid long- and short-term impacts associated with the occupancy and modification of floodplains to the extent feasible. Executive Order 11988 also requires agencies to avoid direct and indirect support of floodplain management wherever there is a practicable alternative. According to FEMA FIRM No. 06037C1605F, dated September 26, 2008, the project site is located within “Zone X (unshaded),” which corresponds to areas of minimal flood hazard (FEMA 2008).

FEDERAL ANTIDEGRADATION POLICY

The Federal Antidegradation Policy, adopted in 1972, requires states to develop statewide policies to prevent degradation of surface water and groundwater resources and identify methods for implementing them. Pursuant to the Code of Federal Regulations (CFR), state antidegradation policies and implementation methods shall, at a minimum, protect and maintain: 1) existing in-stream water uses; 2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the State finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and 3) water quality in waters considered an outstanding national resource. While this policy was established after the adoption of the State of California Antidegradation Policy, it laid the groundwork for other states to adopt antidegradation policies to protect surface and groundwater quality.

5.9.2.2 State

CALIFORNIA DEPARTMENT OF WATER RESOURCES

The California Department of Water Resources (DWR) is the state agency that studies, constructs, and operates regional-scale flood protection systems, in partnership with federal and local agencies. DWR also provides technical, financial, and emergency response assistances to local agencies related to flooding.

Several bills were signed by Governor Schwarzenegger in 2007, adding to and amending state flood and land use management laws. The laws contain requirements and considerations that outline a comprehensive approach to improving flood management at state and local levels.

FloodSAFE California is a strategic multifaceted program initiated by DWR in 2006. FloodSAFE is guiding the development of regional flood management plans, which encourage regional cooperation in identifying and addressing flood hazards. Regional flood plans include flood hazard identification, risk analyses, review of existing measures, and identification of potential projects and funding strategies. The plans emphasize multiple objectives, system resiliency, and compatibility with state goals and Integrated Regional Water Management Plans (IRWMPs). DWR has the lead role to implement FloodSAFE, and will work closely with state, federal, tribal, and local partners to help improve integrated flood management systems statewide. DWR's role is to advise and provide assistance as a resource to local jurisdictions as they pursue compliance.

As required by California Water Code section 6161, the DWR's Division of Safety of Dams (DSOD) regulates the siting, design, construction, and periodic review of all dams in the state. DSOD reviews and approves inundation maps prepared by licensed civil engineers and submitted by dam owners for extremely high, high, and significant hazard dams and their critical appurtenant structures. Inundation maps approved by DSOD are a tool used to develop emergency action plans, and the maps are intended to provide general information for emergency planning. The project site is identified in the City's Safety Element as being located within the potential inundation area for the Hollywood Reservoir, which is held by the Mulholland Dam. The Mulholland Dam is a LADWP dam located in the Hollywood Hills, approximately 6 miles northeast of the project site and is ultimately regulated and monitored by DSOD and the USACE to prevent dam failure.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (Water Code Section 13000 et seq.) created the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs) within the state. The SWRCB coordinates responsibilities of water quality and water rights within the state. The proposed project is within the jurisdiction of the Los Angeles RWQCB (LARWQCB), further discussed in Section 5.9.2.3, below.

The Porter-Cologne Act requires that waters of the State are protected. The SWRCB is given authority to enforce the Porter-Cologne Act, as well as CWA Section 401. In California, the SWRCB issues a statewide Construction General Permit to regulate runoff from construction sites involving grading and earth moving in areas over 1 acre. The Construction General Permit also applies to projects of less than 1 acre that are part of a larger plan of common development and requires covered construction projects to use the best available technology economically achievable and the best conventional pollution control technology. Each construction project subject to the Construction General Permit is required to have a Stormwater Pollution Prevention Plan (SWPPP) prepared. A SWPPP identifies likely sources of sediment and pollution and incorporates measures to minimize sediment and pollution in runoff water.

The proposed project site is approximately 13 acres in size and is therefore subject to the Construction General Permit.

CALIFORNIA ANTIDEGRADATION POLICY

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High Quality Water in California, was adopted by the SWRCB pursuant to State Board Resolution No. 68-16 in 1968. Unlike the Federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the State (e.g., isolated wetlands and groundwater), not just surface waters. The policy states that whenever the existing quality of a waterbody is better than the quality established in individual Basin Plans such high quality shall be maintained, and discharges to that waterbody shall not unreasonably affect present or anticipated beneficial uses of that water resource.

CALIFORNIA TOXICS RULE

In 2000, the EPA promulgated the California Toxics Rule, which establishes water quality criteria for certain toxic substances to be applied to waters in the State. In 1994, a California state court revoked the State's water quality control plans, which contained numeric criteria for water quality. This was in direct violation of the CWA and required EPA action. The EPA then implemented the California Toxics Rule. The EPA promulgated this rule based on Section 303(c)(2)(B) of the Clean Water Act, which dictates that States must adopt numeric criteria in order to protect human health and the environment. The California Toxics Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water such as inland surface waters and enclosed bays and estuaries that are designated by the LARWQCB as having beneficial uses protective of aquatic life or human health.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM CONSTRUCTION GENERAL PERMIT

Construction associated with the proposed project would disturb more than 1 acre of land surface affecting the quality of stormwater discharges into waters of the U.S. The proposed project would, therefore, be subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb 1 acre or more of land surface, or that are part of a common plan of development or sale that disturbs more than 1 acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving waterbodies and is based on the nature of the construction activities and the location of the site relative to receiving waterbodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge.

The Construction General Permit requires the development and implementation of a SWPPP that includes specific BMPs designed to prevent sediment and pollutants from contacting stormwater from moving off-site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by

preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Each category contains specific BMPs to achieve the goals of the overarching category. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment.

The SWPPP must be prepared before construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing, and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

In the project site, the Construction General Permit is implemented and enforced by the LARWQCB, which administers the stormwater permitting program. Dischargers are required to electronically submit a notice of intent and permit registration documents in order to obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the LARWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner. A Legally Responsible Person, who is legally authorized to sign and certify permit registration documents, is responsible for obtaining coverage under the permit.

CONSTRUCTION GENERAL PERMIT (SWRCB ORDER 2009-0009-DWQ, AS AMENDED)

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities ("Construction General Permit"; SWRCB Order 2009-0009-DWQ) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit is required for all projects where construction activity would disturb 1 acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires the development and implementation of a SWPPP, which would include and specify water quality BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off-site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by "qualified individuals" as defined by the SWRCB.

NPDES MUNICIPAL STORMWATER PERMIT AND STORMWATER QUALITY MANAGEMENT PROGRAM

In 1987, amendments to the Clean Water Act expanded the NPDES permit program to regulate discharges from storm drains owned and operated by municipalities. In November 1990, EPA published regulations that established application requirements for stormwater permits for municipal stormwater discharges. In California, the NPDES stormwater permit program is administered and enforced by the SWRCB through the nine RWQCBs by issuing Waste Discharge Requirements and NPDES permits. These permits are reissued approximately every 5 years and also include applicable provisions of the state Porter-Cologne Act, which is the principal legislation for controlling stormwater pollutants in California. The permit establishes regulations covering discharge prohibitions, receiving water limitations, municipal operations (such as the proposed project), new development, construction site controls (construction site runoff), and other regulations to regulate surface water quality.

The discharge prohibitions prohibit the discharge of non-stormwater (materials other than stormwater) into, storm drain systems, and watercourses. The municipal operations regulations include a number of requirements to control and reduce non-stormwater discharges and polluted stormwater to storm drains and watercourses during operation, inspection, and routine repair and maintenance activities of municipal facilities and infrastructure, such as the proposed project. The requirements include source control, site design, and stormwater treatment requirements, such as minimizing disturbance of natural infiltration areas and the addition of impervious surfaces, controlling and directing runoff, and the use of infiltration and bioretention measures, among other measures.

The County of Los Angeles and 84 incorporated cities (Co-Permittees, including the City of Downey) implemented a stormwater quality management program (SQMP) to comply with LARWQCB Order No. R4-2012-0175-A01 Amending Order No. Order No. R4-2012-0175 as Amended by State Water Board Order WW 2015-0075, NPDES Permit No. CAS004001, *Waste Discharge Requirements For Municipal Separate Storm Sewer System (MS4), Discharges Within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4*, dated September 8, 2016. The SQMP has the goal of accomplishing the requirements of the MS4 Permit and reducing the amount of pollutants in stormwater runoff. The requirements include source control, site design, and stormwater treatment requirements, such as minimizing disturbance of natural infiltration areas and the addition of impervious surfaces, controlling and directing runoff, and the use of infiltration and bioretention measures, among other measures.

The SWMP requires the Co-Permittees to:

- Implement a public information and participation program to conduct outreach on stormwater pollution;
- Control discharges at commercial/industrial facilities through tracking, inspecting, and ensuring compliance at facilities that are critical sources of pollutants;
- Implement a development planning program for specified development projects;
- Implement a program to control construction runoff from construction activity at all construction sites within the relevant jurisdictions;
- Implement a public agency activities program to minimize stormwater pollution impacts from public agency activities; and
- Implement a program to document, track, and report illicit connections and discharges to the storm drain system.

The MS4 Permit contains the following provisions for implementation of the SQMP by the Co-Permittees:

1. General Requirements:
    a. Each permittee is required to implement the SQMP in order to comply with applicable stormwater program requirements.
    b. The SQMP shall be implemented and east permittee shall implement additional controls so that discharge of pollutants is reduced.
2. Best Management Practice Implementation:
    a. Permittees are required to implement the most effective combination of BMPs for stormwater/urban runoff pollution control. This should result in the reduction of stormwater runoff.
3. Revision of the SQMP:
    a. Permittees are required to revise the SQMP in order to comply with requirements of the RWOCB while complying with regional watershed requirements and/or waste load allocations for implementation of TMDLs for impaired waterbodies.
4. Designation and Responsibilities of the Principal Permittee:
    a. The Los Angeles County Flood Control District is designated as the Principal Permittee who is responsible for:
        i. Coordinating activities that comply with requirements outlined in the NPDES permit;
        ii. Coordinating activities among Permittees;
        iii. Providing personnel and fiscal resources for necessary updates to the SQMP;
        iv. Providing technical support for committees required to implement the SQMP; and
        v. Implementing the Countywide Monitoring Program required under this Order and assessing the results of the monitoring program.
5. Responsibilities of Co-Permittee:
    a. Each co-permittee is required to comply with the requirements of the SQMP as applicable to the discharges within its geographical boundaries. These requirements include:
        i. Coordinating among internal departments to facilitate the implementation of the SQMP requirements in an efficient way;
        ii. Participating in coordination with other internal agencies as necessary to successfully implement the requirements of the SQMP; and
        iii. Preparing an annual Budget Summary of expenditures for the stormwater management program by providing an estimated breakdown of expenditures for different areas of concern, including budget projections for the following year.
6. Watershed Management Committees (WMCs):
    a. Each WMC shall be comprised of a voting representative from each Permittee in the Watershed Management Area (WMA).
    b. Each WMC is required to facilitate exchange of information between Co-Permittees, establish goals and deadlines for WMAs, prioritize pollution control measures, develop and update adequate information, and recommend appropriate revisions to the SQMP.

7. Legal Authority:
    a. Co-Permittees are granted the legal authority to prohibit non-stormwater discharges to the storm drain system including discharge to the MS4 from various development types.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act (SGMA) is managed by the DWR and provides a long-term statewide framework to protect groundwater resources. The SGMA comprises a three-bill legislative package, including Assembly Bill 1739, Senate Bill 1168, and Senate Bill 1319. The SGMA requires local agencies to form Groundwater Sustainability Agencies for high- and medium-priority basins. It is the responsibility of the Groundwater Sustainability Agencies to prepare and implement a Groundwater Sustainability Plan to mitigate overdraft.

The SGMA does not apply to the adjudicated portion of the Los Angeles Coastal Plain Groundwater Basin, Central Subbasin. However, the project site is within an area of the Los Angeles Coastal Plain Groundwater Basin, Central Subbasin that is not adjudicated. The Central Subbasin is within a low- and very low-priority basin, which has the option to develop a groundwater sustainability plan.

5.9.2.3 County of Los Angeles

INTEGRATED REGIONAL WATER MANAGEMENT PLANS

Integrated Regional Water Management Plans (IRWMPs) are planning documents that outline strategies for the sustainable management of water resources within a specific region delineated by one or more watersheds. IRWMPs generally contain an assessment of current and future water demand, water supply, water quality, and environmental needs. They address the challenges for delivering a stable and clean supply of water for the public, addressing stormwater and urban runoff water quality, providing flood protection, meeting water infrastructure needs, maximizing the use of reclaimed water, enhancing water conservation, and promoting environmental stewardship. There are four IRWMP regions in Los Angeles County: Antelope Valley IRWMP; Upper Santa Clara River IRWMP; Greater Los Angeles County IRWMP; and Los Angeles Gateway Region. The project site is within the Greater Los Angeles County IRWMP.

BASIN PLAN FOR THE COASTAL WATERSHEDS OF LOS ANGELES AND VENTURA COUNTIES

As required by the California Water Code, the LARWQCB has adopted a plan entitled, “Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties” (Basin Plan). Specifically, the Basin Plan designated beneficial uses for surface waters and groundwater, sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state’s Antidegradation Policy, and describes implementation programs to protect all waters in the Los Angeles Region. In addition, the Basin Plan incorporates (by reference) all applicable state and RWQCB plans and policies and other pertinent water quality policies and regulations. Those of other agencies are referenced in appropriate sections throughout the Basin Plan. The Basin Plan is a resource for the RWQCB and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. The Basin Plan provides valuable information to the public about local water quality issues.

ENHANCED WATERSHED MANAGEMENT PROGRAM FOR BALLONA CREEK

The EWMP for the Ballona Creek Watershed was developed by the Ballona Creek Watershed Management, which includes the cities of Los Angeles (lead coordinating agency), Beverly Hills, Culver City, Inglewood, Santa Monica, West Hollywood, and the unincorporated County of Los Angeles and the LACFCD. The project site is within the Ballona Creek Watershed boundary and the jurisdictional area of the EWMP.

The EWMP for the Ballona Creek Watershed describes a customized compliance pathway that Los Angeles County MS4 Permittees in the watershed will use to fulfill the Watershed Management Program requirements contained in the 2012 MS4 Permit (Order No. R4-2012-0175; NPDES Permit No. CAS004001). The EWMP for the Ballona Creek Watershed identifies a detailed implementation strategy that provides not only water quality improvement but also environmental, aesthetic, recreational, water supply and/or other community enhancements.

The EWMP provides a multi-pollutant approach that maximizes the retention and use of urban runoff as a resource for water reuse, irrigation, and indoor use, while also creating additional benefits for the communities in the Ballona Creek Watershed. The EWMP also presents watershed control measures to address applicable stormwater quality regulations, including Low Impact Development (LID) control measures, green streets wherein street rights-of-way are landscaped to provide surfaces that retain runoff, and regional projects that are able to capture runoff from large upstream areas.

LOS ANGELES COUNTY LOW IMPACT DEVELOPMENT MANUAL

In 2008, the County adopted a Low Impact Development ordinance to require use of LID principles in all development projects except for road and flood infrastructure projects. The LID ordinance was amended in response to the 2012 MS4 Permit. The County prepared the 2014 LID Standards Manual to comply with the requirements of the NPDES MS4 Permit. The County LID Standards Manual provides guidance for the implementation of stormwater quality control measures in new development and redevelopment projects in unincorporated areas of the county, with the intention of improving water quality and mitigating potential water quality impacts from stormwater and non-stormwater discharges. Chapter 12.84 of the Los Angeles County Code outlines LID Standards and their applicability to projects in the county. The LID Standards Manual addresses the following objectives and goals (County Public Works 2014):

- Lessen the adverse impacts of stormwater runoff from development and urban runoff on natural drainage systems, receiving waters, and other waterbodies;
- Minimize pollutant loadings from impervious surfaces by requiring development projects to incorporate properly designed, technically appropriate BMPs and other LID strategies; and
- Minimize erosion and other hydrologic impacts on natural drainage systems by requiring development projects to incorporate properly designed, technically appropriate hydromodification control development and technologies.

The provisions in Chapter 12.84 shall not be construed to augment any county, state, or federal ordinance, status, regulation, or other requirement governing the same or related matter, and where a conflict exists between a provision in Chapter 12.84 and such other ordinance, statute, regulation, or requirement, the stricter provision shall apply to the extent permitted by law.

COUNTY OF LOS ANGELES HYDROLOGY MANUAL

The County of Los Angeles Department of Public Works Hydrology Manual (Hydrology Manual) requires that a storm drain conveyance system be designed for a 25-year storm event and that the combined capacity of a storm drain and street flow system accommodate flow from a 50-year storm event (County Public Works 2006). Areas with sump conditions are required to have a storm drain conveyance system capable of conveying flow from a 50-year storm event. The County also limits the allowable discharge into existing storm drain facilities based on the municipal separate stormwater sewer systems permit and is enforced on all new developments that discharge directly into the County's storm drain system. Any proposed drainage improvements of County-owned storm drain facilities such as catch basins and storm drain lines requires the approval/review from the County Flood Control District department.

COUNTY OF LOS ANGELES 2035 GENERAL PLAN

The proposed project is subject to relevant goals, policies, and actions listed in the County of Los Angeles 2035 General Plan (County of Los Angeles 2015). Goals, policies, and actions related to the Conservation and Natural Resources Element are included below. The County of Los Angeles Board of Supervisors adopted the Los Angeles County 2035 General Plan on October 6, 2015. The 2035 General Plan is intended to provide policy framework for development within the county through the year 2035.

Conservation and Natural Resources Element

Goal C/NR 5. Protected and useable local surface water resources.

> ***Policy C/NR 5.1.*** Support the LID philosophy, which seeks to plan and design public and private development with hydrologic sensitivity, including limits to straightening and channelizing natural flow paths, removal of vegetative cover, compaction of soils, and distribution of naturalistic BMPs at regional, neighborhood, and parcel-level scales.
>
> ***Policy C/NR 5.2.*** Require compliance by all County departments with adopted Municipal Separate Storm Sewer System (MS4), General Construction, and point source NPDES permits.
>
> ***Policy C/NR 5.3:*** Actively engage with stakeholders in the formulation and implementation of surface water preservation and restoration plans, including plans to improve impaired surface waterbodies by retrofitting tributary watersheds with LID types of BMPs.
>
> ***Policy C/NR 5.4:*** Actively engage in implementing all approved Enhanced Watershed Management Programs/Watershed Management Programs and Coordinated Integrated Monitoring Programs/Integrated Monitoring Programs or other County-involved TMDL implementation and monitoring plans.
>
> ***Policy C/NR 5.5:*** Manage the placement and use of septic systems in order to protect nearby surface waterbodies.
>
> ***Policy C/NR 5.6***: Minimize point and non-point source water pollution.
>
> ***Policy C/NR 5.7:*** Actively support the design of new and retrofit of existing infrastructure to accommodate watershed protection goals, such as roadway, railway, bridge, and other—particularly—tributary street and greenway interface points with channelized waterways.

Goal C/NR 6. Protected and usable local groundwater resources.

> ***Policy C/NR 6.1.*** Support the LID philosophy, which incorporates distributed, post-construction parcel-level stormwater infiltration as part of new development.
>
> ***Policy C/NR 6.2:*** Protect natural groundwater recharge areas and regional spreading grounds.
>
> ***Policy C/NR 6.4:*** Manage the placement and use of septic systems in order to protect high groundwater.
>
> ***Policy C/NR 6.5:*** Prevent stormwater infiltration where inappropriate and unsafe, such as in areas with high seasonal groundwater, on hazardous slopes, within 100 feet of drinking water wells, and in contaminated soils

Goal C/NR 7. Protected and healthy watersheds.

> ***Policy C/NR 7.1.*** Support the LID philosophy, which mimics the natural hydrologic cycle using undeveloped conditions as a base, in public and private land use planning and development design.
>
> ***Policy C/NR 7.2***: Support the preservation, restoration and strategic acquisition of available land for open space to preserve watershed uplands, natural streams, drainage paths, wetlands, and rivers, which are necessary for the healthy function of watersheds.
>
> ***Policy C/NR 7.4:*** Promote the development of multi-use regional facilities for stormwater quality improvement, groundwater recharge, detention/attenuation, flood management, retaining non-stormwater runoff, and other compatible uses.

Safety Element

Goal S 2**:** An effective regulatory system that prevents or minimizes personal injury, loss of life, and property damage due to flood and inundation hazards.

> ***Policy S 2.6*****:** Work cooperatively with public agencies with responsibility for flood protection, and with stakeholders in planning for flood and inundation hazards.

Public Services and Facilities Element

Goal PS/F 2: Increased water conservation efforts.

> ***Policy PS/F 2.1:*** Support water conservation measures.

Water and Waste Management Element

Objective: To mitigate hazards and avoid adverse impacts in providing water and waste services and to protect the health and safety of all residents.

Objective: To develop improved systems of resource use, recovery, and reuse.

> ***Policy 25.*** Encourage development and application of water conservation, including recovery and reuse of storm and waste water.

Objective: To provide efficient water and waste management services.

***Objective*:** To maintain the high quality of our coastal, surface, and ground waters.

Policy 17. Protect public health and prevent pollution of ground water through the use of whatever alternative is necessary.

Policy 19. Avoid or mitigate threats to pollution of the ocean, drainage ways, lakes, and groundwater reserves.

5.9.2.4 City of Los Angeles

PLANNING AND LAND DEVELOPMENT HANDBOOK FOR LOW IMPACT DEVELOPMENT

The City of Los Angeles Bureau of Sanitation (referred to as Los Angeles Sanitation and Environment [LASAN]) is responsible for stormwater pollution control throughout the city in compliance with the Los Angeles County Municipal NPDES permit. The LASAN administers the City's stormwater program, which has two major components: pollution abatement and flood control. The Planning and Land Development Handbook for Low Impact Development provides guidance to developers for compliance with the County's Municipal NPDES permit through the incorporation of water quality management into development planning (LASAN 2016). The Planning and Land Development Handbook for Low Impact Development reiterates the policies contained within the Construction General Permit, provides specific minimum BMPs for all construction activities, and requires the preparation of a SWPPP and the filing of a notice of intent to comply with the State NPDES Construction General Permit requirements with the LARWQCB. The Planning and Land Development Handbook for Low Impact Development provides guidance to developers to ensure the post-construction operation of newly developed and redeveloped facilities comply with the developing planning program regulations of the city's stormwater program.

5.9.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to hydrology and water quality if it would:

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   i. Result in substantial erosion or siltation on- or off-site.

   ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

   iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

   iv. Impede or redirect flood flows.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

5.9.4 Impact Assessment Methodology

The hydrology and water quality analysis presented in this chapter is based on literature review of relevant documents including the County of Los Angeles General Plan, the LARWQCB's Basin Plan, and EWMP for the Ballona Creek Watershed, as well as technical reports prepared for the project including the *Preliminary Civil Engineering Narrative* prepared by KPFF dated March 2021, the *Low Impact Development (LID) and Hydrology Report* prepared by KPFF, dated June 2023 (see Appendix H), and the *Geology and Soil Discipline Report* prepared by Shannon and Wilson on January 27, 2023 (see Appendix E).The LID and Hydrology Report outlines the existing and proposed hydrology and drainage management areas for the project site. The LID and Hydrology Report also provides the LID measures required to reduce the project's volume of stormwater runoff and potential pollutants in accordance with the Los Angeles County Department of Public Works' Low Impact Development Standards Manual dated (County Public Works 2014). Hydrology calculations for the project's proposed drainage follow the Los Angeles County Hydrology Manual methodology (County Public Works 2006). Detailed methodologies are provided in Appendix H. The results of the LID analysis are discussed in Section 5.9.5, threshold a. The results of the proposed modifications to the drainage on the project site are discussed below in Section 5.9.5, threshold c.

5.9.5 Environmental Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

CONSTRUCTION IMPACTS

During project construction, particularly during the grading phase, stormwater runoff from precipitation events could cause exposed and stockpiled soils to be subject to erosion and convey sediments into municipal storm drain systems. It is anticipated that project earthwork activities would include an estimated 53,000 cubic yards of cut/export and potentially 37,000 cubic yards of imported fill. In addition, on-site watering activities to reduce airborne dust could contribute to pollutant loading in runoff. Pollutant discharges relating to the storage, handling, use and disposal of chemicals, adhesives, coatings, lubricants, and fuel could also occur. Due to the presence of naturally occurring tar (petroleum) in the subsurface soils, contaminated soils and impacted groundwater may be encountered when performing excavations; therefore, the project may have the potential to require dewatering during construction. Dewatering operations are practices that remove and discharge non-stormwater from an earthwork location into a drainage system in order to proceed with construction. Discharges from dewatering operations can contain high levels of fine sediments, which, if not properly treated, could lead to exceedance of NPDES requirements. During construction, temporary dewatering pumps and filtration would be used in compliance with the NPDES permit. These temporary systems would comply with all applicable NPDES requirements related to construction and discharges from dewatering operations, as well as the LARWQCB's Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties.

As project construction would disturb more than 1 acre of soil, the project would be required to obtain coverage under the NPDES Construction General Permit. In accordance with the requirements of the NPDES Construction General Permit, the project would prepare and implement a site-specific SWPPP that specifies BMPs to be used during construction to manage stormwater and non-stormwater discharges.

BMPs would include, but would not be limited to, erosion control, sediment control, non-stormwater management, and materials management BMPs. The SWPPP would include a description of potential sources of pollutants, including pollutants originating from off-site, which may flow across or through areas of construction. The SWPPP would specify the location, type, and maintenance requirements for BMPs necessary to prevent stormwater runoff from carrying construction-related pollutants into nearby receiving waters (in this case, Ballona Creek). BMPs would be required to be implemented to address the potential release of fuels, oil, and/or lubricants from construction vehicles and equipment (e.g., drip pans, secondary containment, washing stations), release of sediment from material stockpiles and other construction-related excavations (e.g., sediment barriers, soil binders), and other construction-related activities with the potential to adversely affect water quality. The number, type, location, and maintenance requirements of BMPs to be implemented as part of the SWPPP depend on site-specific risk factors, such as soil erosivity factors, construction season/duration, and receiving water sensitivity.

Compliance with the requirements of the LARWQCB (CWA NPDES Program and Porter-Cologne Act waste discharge requirements), Construction General Permit, and County stormwater regulations would be sufficient to address the potential for buildout of the project to violate water quality standards or waste discharge requirements during construction activities. Therefore, impacts related to degradation of surface or groundwater quality from construction activities would be *less than significant*.

OPERATIONAL IMPACTS

The project would decrease the overall permeability of the project site from 59.3% to 51.9%, representing an approximate 7% decrease in pervious surfaces within the project site upon project completion (KPFF 2023b).

Increased impervious surfaces from the expanded parking lot and drop-off area would collect automobile-derived pollutants such as oils, greases, heavy metals, and rubber. During storm events, these pollutants would be transported into the proposed stormwater management system by surface runoff. An increase in point-source and nonpoint-source pollution could result from increases in development intensity that may directly impact water quality specific to site drainage patterns. These increases would have the potential to increase the quantity of pollutants and non-stormwater discharges that could adversely impact water quality.

As provided in the Preliminary Civil Engineering Narrative and Low Impact Development (LID) and Hydrology Report, the project proposes to implement three LID BMPs to manage stormwater runoff, in accordance with the Los Angeles County LID Standards Manual (KPFF 2021, 2023b). The three LID BMPs are biofiltration planters, which are shallow vegetated planters that are designed to receive and detain stormwater runoff from the building and site, filter the runoff, and eventually discharge the filtered runoff to the public storm drain system. Planters are sized to treat 150% of the required 85th percentile storm, mitigated stormwater volume. To protect the amended soil within the planters from tar infiltration as well as prevent high groundwater from flooding the planters, the project is proposing closed-bottom planters with an underdrain (KPFF 2023b). The proposed biofiltration planters have been sized based on tributary area and are as follows:

- In the northwestern portion of the site, Oil Creek is proposed to be refurbished as a bioswale. The existing creek drainage would be cleared, lined with an impermeable liner, and partially filled with gravel subdrainage with a perforated pipe, amended soil, and plants. Runoff would be conveyed to the creek via sheet flow and existing or relocated underground pipes. After being filtered by the biofiltration media, stormwater would be collected at the bottom of the system and connected to the existing downstream stormwater system.

- In the northeastern portion of the site, the large planter within the proposed drop-off area would be constructed as a biofiltration planter. The planter would be excavated down 4 to 5 feet, lined with an impermeable liner, and filled with gravel subdrainage with a perforated pipe, amended soil, and plants. Supporting wall structures would likely be required underground (appearing at the surface as curbs), to separate the compacted soil for traffic loading and the uncompacted biofiltration media. Runoff would be conveyed to the system via sheet flow, filtered by the system, and then collected in the perforated subdrain and piped to the existing site stormwater system.
- In the southeastern portion of the site, east of Lake Pit, an in-ground biofiltration planter would be installed. The construction of this system would be similar to the Oil Creek system as described above. Subdrainage would be connected into public storm drain mains in either Wilshire Boulevard or South Curson Avenue.

Detailed figures and LID calculations are provided in Appendix H. The project would also be subject to LARWQCB post-construction stormwater management requirements.

While incorporation of the LID BMPs (i.e., the three proposed biofiltration areas) and LARWQCB post-construction stormwater management requirements would improve stormwater runoff water quality, which would benefit the water quality of downstream surface waters as well as underlying groundwater resources, additional non-structural BMPs would also need to be implemented to ensure that the increase in impervious surfaces with project implementation would not contribute to the degradation of surface or groundwater quality. Without implementation of non-structural BMPs, operational impacts related to degradation of surface or groundwater quality could be *significant*.

HYD Impact 1	
During project construction, the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Construction impacts would be less than significant. Implementation of the project would increase impervious surfaces within the project site, and project operation would have the potential to contribute to the degradation of surface or groundwater quality. Operational impacts could be significant. (CEQA Checklist Appendix G Threshold X. a)	
Mitigation Measures	
HYD/mm-1.1	*The Foundation shall implement the following non-structural Best Management Practices (BMPs) for the life of the project:* ***Open Paved Areas and Biofiltration Planter Areas*** • *Regular sweeping of all open and planter areas, at a minimum, on a weekly basis in order to prevent dispersal of pollutants that may collect on those surfaces.* • *Regular pruning of the trees and shrubs in the planter areas to avoid formation of dried leaves and twigs, which are normally blown by the wind during windy days. These dried leaves are likely to clog the surface inlets of the drainage system when rain comes, which would result in flooding of the surrounding area due to reduced flow capacities of the inlets.* • *Trash and recycling containers shall be used such that, if they are to be located outside or apart from the principal structure, are fully enclosed and watertight in order to prevent contact of stormwater with waste matter, which can be a potential source of bacteria and other pollutants in runoff. These containers shall be emptied and the wastes disposed of properly on a regular basis.*

HYD Impact 1	
	Education and Training • *Annual training of employees on property management and proper methods of handling and disposal of waste shall be provided. Employees should understand the on-site BMPs and their maintenance requirements.* ***Landscape Management*** • *Landscaping shall be maintained using minimum or no pesticides.* ***Litter Control*** • *An adequate number of trash receptacles shall be provided and inspected regularly. Leaky receptacles shall be prepared or replaced. Receptacles shall be covered.* • *Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site.* ***Housekeeping of Loading Docks*** • *Loaded and unloaded items shall be moved indoors as soon as possible.* ***Catch Basin Inspection*** • *Stormwater pollution prevention information shall be provided. Owner shall be made aware that the following is to be followed: "Property owner shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create potential discharge to storm drains."* • *Catch basins shall be inspected regularly.* ***Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction*** • *Trash and waste will be handled and stored for pickup adjacent to the loading dock. This limits the potential introduction of pollutants into the site. Trash and waste pickup will occur regularly.* ***Use Efficient Irrigation Systems and Landscaping Design*** • *Landscape shall be generally designed to provide an efficient and continuous irrigation system.* • *Landscape areas shall be designed to include plants that are friendly to the climate of Los Angeles.* ***Storm Drain Stencil Signage*** • *Stencil or label all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language to prevent dumping of improper materials into the urban runoff conveyance system.*
HYD/mm-1.2	*The Foundation shall ensure all structural and non-structural Best Management Practices (BMPs) are operated, monitored, and maintained for the life of the project pursuant to the following:* • *All structural BMPs shall be inspected, cleaned-out, and where necessary, repaired, at the following minimum frequencies: 1) prior to October 15th each year; 2) during each month between October 15th and April 15th of each year and, 3) at least twice during the dry season (between April 16th and October 14th of each year).* • *Debris and other water pollutants removed from structural BMPs during cleanout shall be contained and disposed of in a proper manner.* • *The drainage system, the associated structures, and BMPs shall be maintained according to manufacturer's specification to ensure maximum pollutant removal efficiencies.*

HYD Impact 1
Impacts Following Mitigation
Based on required compliance with state and local water quality protection requirements, construction impacts related to water quality standards or waste discharge requirements would be less than significant. *Implementation of HYD/mm-1.1 and 1.2 would reduce operational impacts related to water quality standards or waste discharge requirements to less than significant.*

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

CONSTRUCTION

As discussed in HYD Impact 1, dewatering operations are expected during construction only and appropriate compliance and contaminant measures would be implemented to avoid impacts associated with potential groundwater discharges. Due to the operation of temporary dewatering systems, local groundwater hydrology in the immediate vicinity of the project site would be minimally affected. As the groundwater pumping is localized and limited in duration during construction, regional impacts to groundwater flow and level are not considered to be significant. Additionally, no water supply wells are located at the project site or within 1 mile of the project site that could be impacted by construction, nor would the project include the construction of water supply wells. Therefore, the project would not substantially deplete groundwater supplies or affect groundwater recharge in a manner that would result in a net deficit in aquifer volume or permanent lowering of the local groundwater table during construction. Construction impacts would be *less than significant*.

OPERATION

Upon project implementation, the project would increase impervious surface area on the project site, which could reduce the amount of water percolating down into the underground aquifer that underlies the project site. However, the project includes design features that would maximize the percolation of rainfall into the groundwater basin, such as the three biofiltration systems and proposed permeable landscape areas. With implementation of these proposed components, buildout of the project would not adversely affect local groundwater recharge levels.

The project would not directly pump local groundwater to serve the project's water demand. Domestic water and water for fire protection would be supplied by LADWP (see Section 5.15, Utilities and Service Systems, for a discussion of water supply). Therefore, the project's operational impacts related to groundwater supplies and groundwater recharge would be *less than significant*.

HYD Impact 2
The project would not substantially decrease groundwater supplies or interfere with groundwater recharge. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold X. b)
Mitigation Measures
No mitigation is required.

HYD Impact 2
Impacts Following Mitigation
Not applicable. Impacts related to groundwater recharge and groundwater supply would be less than significant.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. Result in substantial erosion or siltation on- or off-site;

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. Impede or redirect flood flows?

CONSTRUCTION

Grading, excavation, and other earth-moving activities associated with project construction could have the potential to alter existing drainage patterns and flows within the project site. Construction activities would be temporary in nature and the drainage patterns would follow the proposed drainage plan as described in the following discussion. During construction, the previously described SWPPP required by the

General Construction Permit would prevent construction site runoff from affecting off-site drainage patterns, as described above in HYD Impact 1, and through the use of BMPs and erosion control measures to be used during construction to prevent erosion and off-site siltation. Compliance with the NPDES Municipal Permits and its MS4 BMP requirements implemented in the SQMP, along with city code requirements, would reduce the amount of pollutants in stormwater runoff through the use of BMPs such as managing surface water runoff, on-site infiltration, and connecting to the existing City stormwater drainage system. Adherence to the regulatory requirements and regulatory plans described above would decrease the potential for drainage pattern alteration and decrease erosion and sedimentation effects. Construction impacts would be *less than significant*.

OPERATION

Based on the calculations provided in the LID and Hydrology Report, implementation of the project would decrease the overall permeability of the project site (Appendix H). When looking at the hydrology study area, which includes both the project site and a portion of the adjacent streets, the overall permeability decreases from 59.3% to 51.9%.

The project's proposed grading and drainage plan for the site has been designed to use the existing topography of the site and maintain historic drainage patterns to the maximum extent feasible, with integration of additional water quality and drainage facilities to meet or exceed applicable LARWQCB Post-Construction Stormwater Management Requirements. The project proposes four drainage

management areas that correspond with the existing drainage outfalls, as described below and shown in Figure 5.9-5:

- Drainage Area 1: Northwestern portion of the project site and expansion of Page Museum (new museum). Runoff drains to Biofiltration Planter 1 and overflows to Oil Creek.
- Drainage Area 2: Parking lot, the Page Museum, and the area to the east of the Page Museum. Runoff drains to Biofiltration Planter 2 and overflows to West 6th Street.
- Drainage Area 3: Southern portion of the project site. Runoff drains to Biofiltration Planter 3 and overflows to the Lake Pit.
- Drainage Area 4: Public right-of way on Wilshire Boulevard. Runoff drains to existing storm drains on consists of runoff that drains to Wilshire Boulevard.

Three of the proposed drainage management areas would include biofiltration planters designed in accordance with LID requirements, as described in threshold a. In the northwestern portion of the site, Oil Creek is proposed to be restored as a bioswale. Runoff would be conveyed to the creek via sheet flow and existing or relocated underground pipes, filtered, and then conveyed to the existing downstream stormwater system. In the northeastern portion of the site, the larger planter within the proposed drop off would be constructed as a biofiltration planter. Runoff would be conveyed to the system via sheet flow, filtered, and then piped to the existing stormwater system. In the southeastern portion of the site, an in-ground biofiltration planter would be constructed. Runoff would be conveyed to the system via sheet flow, filtered, and then conveyed into public storm drain mains in either Wilshire Boulevard or South Curson Avenue.

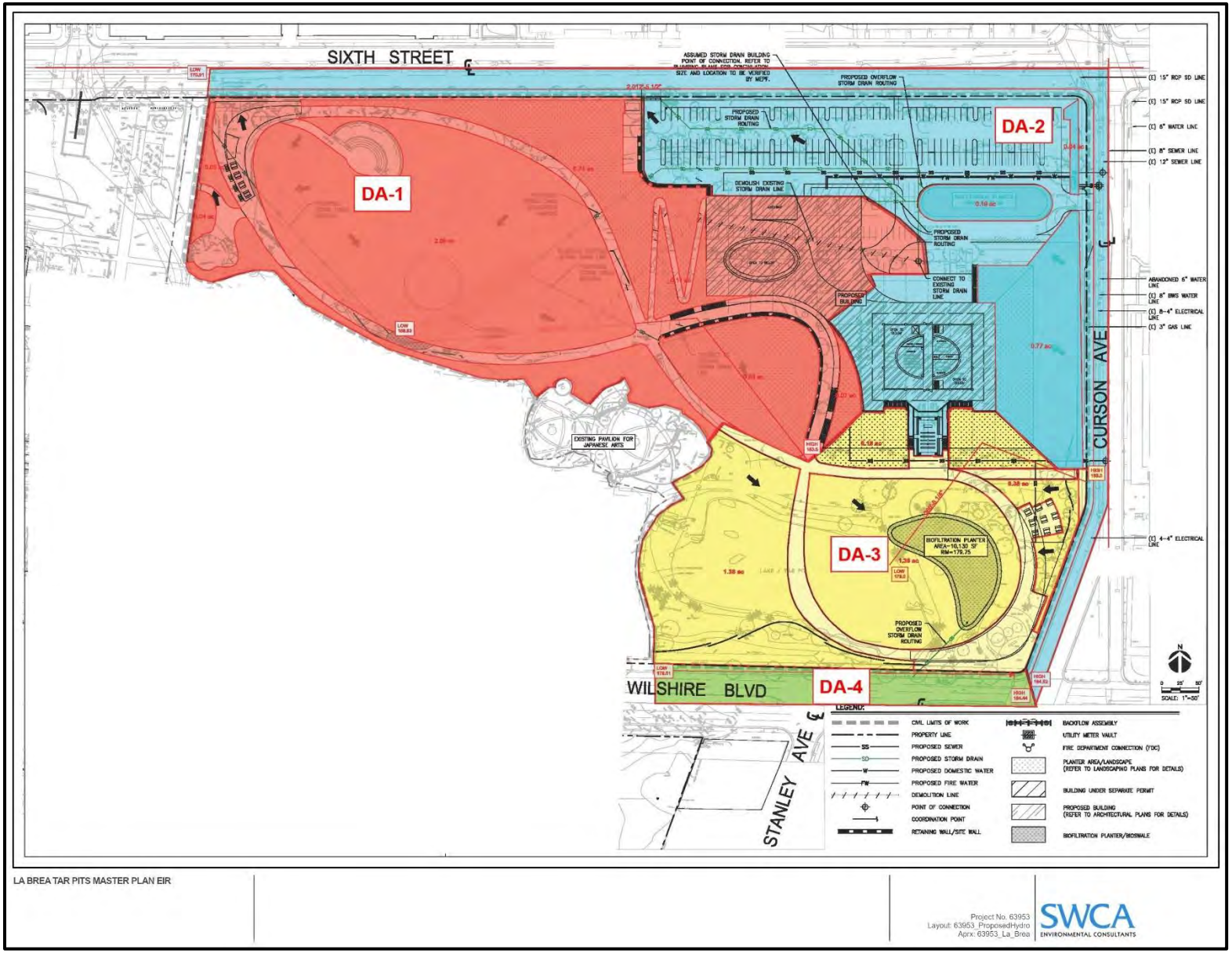


Figure 5.9-5. Proposed drainage plan.

Table 5.9-2 provides a comparison of the 25-year peak discharge flow rates and runoff volume, as well as permeability percentage by drainage area for the existing drainage patterns and the proposed drainage plan. For the purposes of the calculations shown in Table 5.9-2, it is important to note that the hydrology study area is defined as including both the project site and a portion of the adjacent streets (as shown in Figures 5.9.3 and 5.9.5).

Table 5.9-2. Existing and Proposed Drainage Comparison

Drainage Area (DA)	Existing	Proposed	Change
DA-1			
Percent (%) permeability	58.56%	67.04%	8.48%
Peak flow (cfs)	21.19	14.97	(6.22)
Volume (cu-ft)	73,086.58	52,243.53	(20,843.05)
DA-2			
Percent (%) permeability	49.00	17.57	(31.43)
Peak flow (cfs)	5.36	7.49	2.13
Volume (cu-ft)	43,826.33	79,014.93	35,188.60
DA-3			
Percent (%) permeability	85.79	81.55	(4.24)
Peak flow (cfs)	9.65	10.78	1.13
Volume (cu-ft)	17,673.44	21,982.98	4,309.54
DA-4			
Percent (%) permeability	0	0	0
Peak flow (cfs)	1.61	1.35	(0.26)
Volume (cu-ft)	11,350.44	9,566.80	(1,783.64)

Source: KPFF (2023b), provided in Appendix H.
Notes: cfs = cubic feet per second; cu-ft = cubic feet.

As shown in Table 5.9-2, peak flows and runoff volumes would decrease in DA-1 and DA-4, while increasing in DA-2 and DA-3 with implementation of the project. However, as described in the LID and Hydrology Report, the project's proposed runoff volumes are not anticipated to exceed the capacity of the existing storm drain conveyance system for any of the proposed drainage areas or for the project as a whole (Appendix H). Detailed explanations of the calculations shown in Table 5.9-2 are provided in Appendix H. The existing storm drainage infrastructure serving the project site has been designed by the City of Los Angeles to carry storm water flows per the Los Angeles County Hydrology Manual and the City of Los Angeles Department of Public Works Storm Drain Design Manual and is designed to carry the 50-year storm event per the Los Angeles County Hydrology Manual. No known deficiencies exist in the vicinity of the project. Furthermore, the project's proposed drainage plan would increase the water quality of discharged stormwater flows and reduce the peak discharge flow rates out of the site, thereby reducing the impact to downstream conveyance systems. Therefore, the project would be designed to capture, filter, and reduce the volume of any additional runoff from the project's proposed impervious surfaces in a way that mimics, as well as improves, existing drainage patterns. With adequate implementation and maintenance of SWPPPs, erosion and stormwater control plans, and drainage plans that would be required for the project site, the proposed project would not substantially alter the drainage pattern beyond the construction footprint and would not alter off-site drainage patterns. Operational impacts would be *less than significant*.

HYD Impact 3
The project would not substantially alter the existing drainage pattern of the site or increase surface water runoff in a manner that would result in substantial erosion or siltation, flooding, or an exceedance of stormwater drainage systems. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold X. c)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Construction and operational impacts related to drainage would be less than significant.

d) Would the project, in a flood hazard, tsunami, or seiche zone, risk release of pollutants due to project inundation?

The Pacific Ocean is located over 9 miles southwest of the project site; consequently, there is no potential for the project site to be impacted by a tsunami as tsunamis typically only reach up to a few miles inland. In addition, the project site is not mapped as a tsunami inundation area (California Department of Conservation 2019). While there are two bodies of standing water present on the project site (i.e., the Lake Pit and a small pond that includes Pit 91), the existing grades around these areas are several feet below the edge of the surrounding banks. Given the elevation differences, the potential for the project to result in a seiche from Lake Pit or the small pond near Pit 91 is low.

According to the Safety Element of the General Plan, the project site is located within the potential inundation area for the Hollywood Reservoir, which is held by the Mulholland Dam (DWR 2022). The Mulholland Dam is operated by the LADWP and located in the Hollywood Hills, approximately 6 miles northeast of the project site. Dam safety regulations are the primary means of reducing damage or injury due to inundation occurring from dam failure. The Mulholland Dam, as well as others in California, are continually monitored by various governmental agencies (such as the State of California DSOD and the USACE) to prevent dam failure. Specifically, the California DSOD regulates the siting, design, construction, and periodic review of all dams in the state. In addition, LADWP operates the dams in the Los Angeles area and mitigates the potential for overflow and seiche hazards through control of water levels and dam wall height. These measures include seismic retrofits and other related dam improvements completed under the requirements of the 1972 State Dam Safety Act. Given the oversight by the Division of Safety of Dams, including regular inspections, and the LADWP's emergency response program, the potential for substantial adverse impacts related to inundation at the project because of dam failure would be less than significant.

Additionally, as discussed above, the project would include new structural BMPs throughout the project site which would reduce the amount of pollutants entering the stormwater system and groundwater.

Based on the foregoing, the project site is not located within a flood hazard zone or tsunami zone and the risk of seiche is low. Therefore, there would be no release of pollutants due to project inundation by these hazards during project construction and operation. *No impact* would occur.

HYD Impact 4
The project site is not in a flood hazard zone or tsunami zone and the risk of seiche is low. Therefore, there would be no risk of release of pollutants due to project inundation by these hazards. No construction or operational impacts would occur. (CEQA Checklist Appendix G Threshold X. d)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. No construction or operational impacts would occur as the project site is not in a flood hazard zone, tsunami zone, or seiche zone.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Pursuant to Section 303(d) of the Clean Water Act, states are required to identify waterbodies that do not meet their water quality standards. Biennially, the LARWQCB prepares a list of impaired waterbodies in the region, referred to as the 303(d) list. The 303(d) list outlines the impaired waterbody and the specific pollutant(s) for which it is impaired. All waterbodies on the 303(d) list are subject to the development of a TMDL. The project site is located within the Ballona Creek Watershed. Constituents of concern listed for the Ballona Creek Watershed include PCBs, DDT, cadmium, zinc, chlordane, indicator bacteria, PAHs, copper, toxicity, lead, silver, trash, cyanide, and viruses (enteric).

The County of Los Angeles, the City of Los Angeles, and all other cities in the regional watershed are responsible for the implementation of watershed improvement plans or Enhanced Watershed Management Programs to improve water quality and assist in meeting the TMDL thresholds.
The objective of the EWMP Plan for the Ballona Creek is to determine the BMPs that will achieve required pollutant reductions while also providing multiple benefits to the community and leveraging sustainable green infrastructure practices. Compliance with the NPDES program would ensure that stormwater pollutants do not substantially degrade water quality during project construction and operation.

The project site is also located in the Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin (referred to as the Central Basin). As noted previously in response to Threshold “HYD-2,” implementation of the project would not result in substantial adverse effects on local groundwater supplies or groundwater recharge during project construction and operation.

Potential pollutants generated by the project would be those typical of museum- and park-related land uses and may include sediment, nutrients, pesticides, metals, pathogens, and oil and grease.
The implementation of BMPs required by the County’s LID Ordinance would target these pollutants to minimize pollutant loads in stormwater runoff. Implementation of the project’s LID BMPs (i.e., three biofiltration areas) as well as the project mitigation measure included in HYD Impact 1 outlining the required non-structural BMPs would result in improved surface water runoff quality as compared to existing conditions. Therefore, the project would not introduce new pollutants or an increase in pollutants that would conflict with or obstruct any water quality control plans for the Ballona Creek Watershed.

With compliance with existing applicable regulatory requirements and implementation of LID BMPs, the project would not conflict with or obstruct implementation of a water quality control plan or a sustainable groundwater management plan. Construction and operational impacts would be *less than significant*.

HYD Impact 5
The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Construction and operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold X. e)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Construction and operational impacts would be less than significant.

5.9.6 Cumulative Impact Analysis

Cumulative growth and related development projects in the vicinity of the project site are discussed in Chapter 4, Environmental Setting. The geographic area where projects have a potential to contribute to cumulative impacts varies depending on the environmental resource under consideration. The geographic scope of analysis for cumulative hydrology and water quality impacts on surface water hydrology is limited to the project site and its immediately adjacent area that would flow into the same drainage system. This is because impacts relative to hydrology and water quality are generally site-specific when the site is in a highly developed urban area with limited to no potential for flooding, dam failure, or other larger-scale event. Hydrology and water quality impacts could only be cumulative if two or more projects had impacts that spatially overlapped.

Significant cumulative impacts related to hydrology and water quality could occur if the incremental impacts of the project combined with the incremental impacts of one or more of the cumulative projects identified in Chapter 4 would substantially affect hydrology and water quality. The following cumulative projects would be geographically adjacent to and/or overlap with components of the project, and include activities that could affect hydrology and water quality:

- **Metro D (Purple) Line Extension:** Extension of underground light rail transit service infrastructure to parallel Wilshire Boulevard located directly adjacent to the project site along with seven new transit stations. This project is under construction with the first phase (Wilshire/ La Brea, Wilshire/Fairfax, and Wilshire/ La Cienega Stations) anticipated to be completed and in operation by 2024.
- **Los Angeles County Museum of Art Renovation:** Located directly adjacent to the project site (on parcels directly west and south across Wilshire Boulevard) at 5906 West Wilshire Boulevard. The project includes museum renovation and is under construction with an anticipated completion date of 2024.

The project would have no impact with respect to flood potential and impacts associated with inundation, by seiche or tsunami (threshold d). Therefore, the project would not contribute to cumulative impacts related to these topics and they are not discussed further.

Through compliance with existing regulations, the project would result in less than significant impacts related to groundwater supplies and groundwater recharge (threshold b), existing drainage patterns (threshold c) and conflicts with applicable water quality control plan or sustainable groundwater management plan (threshold e). Each of the related projects, as well as future development projects within the project vicinity would be subject to compliance with the requirements of the LARWQCB and the City or County, as applicable. In addition, discretionary development projects subject to review under CEQA would be evaluated for potential impacts associated with groundwater recharge, existing drainage patterns, and consistency with applicable water quality and groundwater management plans. Therefore, the project, in conjunction with the related projects, would not contribute to cumulative construction or operational impacts related to these issues.

Due to the existing built-out nature of the project site and the project vicinity, cumulative development would be expected to result in a minimal overall change to urban pollutant discharges to surface water runoff and groundwater percolation rates. However, construction activities could result in increased pollution levels of natural watercourses or underground aquifers. The types of pollutant discharges that could occur as a result of construction include accidental spillage of fuel and lubricants, discharge of excess concrete, and an increase in sediment runoff. Storm runoff concentrations of oil, grease, heavy metals, and debris typically increase as the amount of urban development increases in the watershed. Polluted runoff that may be generated during construction activities of cumulative development and projects considered in this analysis would be regulated by the SWRCB under NPDES Construction General Permits and would be minimized using standard construction BMPs. With adherence to these regulatory standards, the project's contribution to cumulative construction impacts would be *less than significant*.

As discussed in Section 5.9.5, threshold a), implementation of the project would increase impervious surfaces within the project site and project operation would have the potential to contribute to the degradation of surface or groundwater quality. If project mitigation were not to be implemented, it is conceivable that the project would contribute to cumulative impacts related to degradation of surface or groundwater quality. Therefore, cumulative operational impacts could be *significant*.

HYD Impact 6 (Cumulative)
Prior to consideration of the proposed mitigation measures, operation of the project could have the potential to contribute to the degradation of surface or groundwater quality. If unaddressed, potential contributions to cumulative impacts associated with degradation of surface or groundwater quality could be significant.
Mitigation Measures
Implement Mitigation Measures HYD/mm-1.1 and 1.2.
Impacts Following Mitigation
With implementation of Mitigation Measures HYD/mm-1.1 and 1.2, project's contribution to cumulative impacts related to the degradation of surface or groundwater quality would be less than significant.

5.10 LAND USE AND PLANNING

This section provides the existing land use and planning context for the project site and provides an analysis of the potential environmental impacts related to land use and planning that may result from implementation of the project. This section also includes a project consistency analysis with applicable land use policies and analysis of potential impacts that may result from conflicts with applicable land use policies.

While the project site is located within the boundaries of the city of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, this section includes consideration of related environmental policies within the County of Los Angeles (County) General Plan (2015), as well as the City of Los Angeles (City) General Plan (2001a), the Wilshire Community Plan (2001b), and the Southern California Association of Government's (SCAG's) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (2020).

5.10.1 Existing Conditions

5.10.1.1 Regional Setting

The project site is located at 5801 West Wilshire Boulevard within the jurisdictional boundaries of the City of Los Angeles, in Los Angeles County. Los Angeles County is one of the largest counties in the country, encompassing approximately 4,083 square miles, consisting of 88 incorporated cities, including the City of Los Angeles, with approximately 2,650 square miles of unincorporated areas (SCAG 2019). The unincorporated areas of Los Angeles County include large amounts of sparsely populated land, with more than half of the unincorporated area designated for natural resources. Land uses in the incorporated areas of Los Angeles County represent diverse urban, suburban, and rural land use patterns. Los Angeles is the second largest city in the nation and the largest city in California, encompassing approximately 470 square miles. Downtown Los Angeles, where the project site is located, is the largest urbanized center within Southern California (SCAG 2020).

The County of Los Angeles is one of six counties included in the Southern California Association of Governments. SCAG is the federally designated Metropolitan Planning Organization for six Southern California counties: Los Angeles, Riverside, San Bernardino, Orange, Imperial, and Ventura. SCAG is mandated to create regional plans that address transportation, growth management, hazardous waste management, and air quality.

5.10.1.2 Project Site Setting

The project site is located within the Mid-Wilshire corridor in the city of Los Angeles, approximately 5.5 miles west of downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. The project site includes 13 acres of Hancock Park and is bounded by West 6th Street to the north, South Curson Avenue to the east, Wilshire Boulevard to the south, and the Los Angeles County Museum of Art (LACMA) to the west. The area is known as the Miracle Mile neighborhood.

While the project site is owned by the County, it is not located within an unincorporated area of the County. Therefore, the County does not establish land use and zoning designations for the project site. Instead, the project site is located within the incorporated boundaries of the City of Los Angeles, and is identified in the City General Plan and the Wilshire Community Plan (City of Los Angeles 2001a, 2001b) with a land use designation of Public Facilities (PF) and an associated zoning designation of Public Facilities, Height District 1, Development Limitation (PF-1D) (Figures 5.10-1 and 5.10-2).

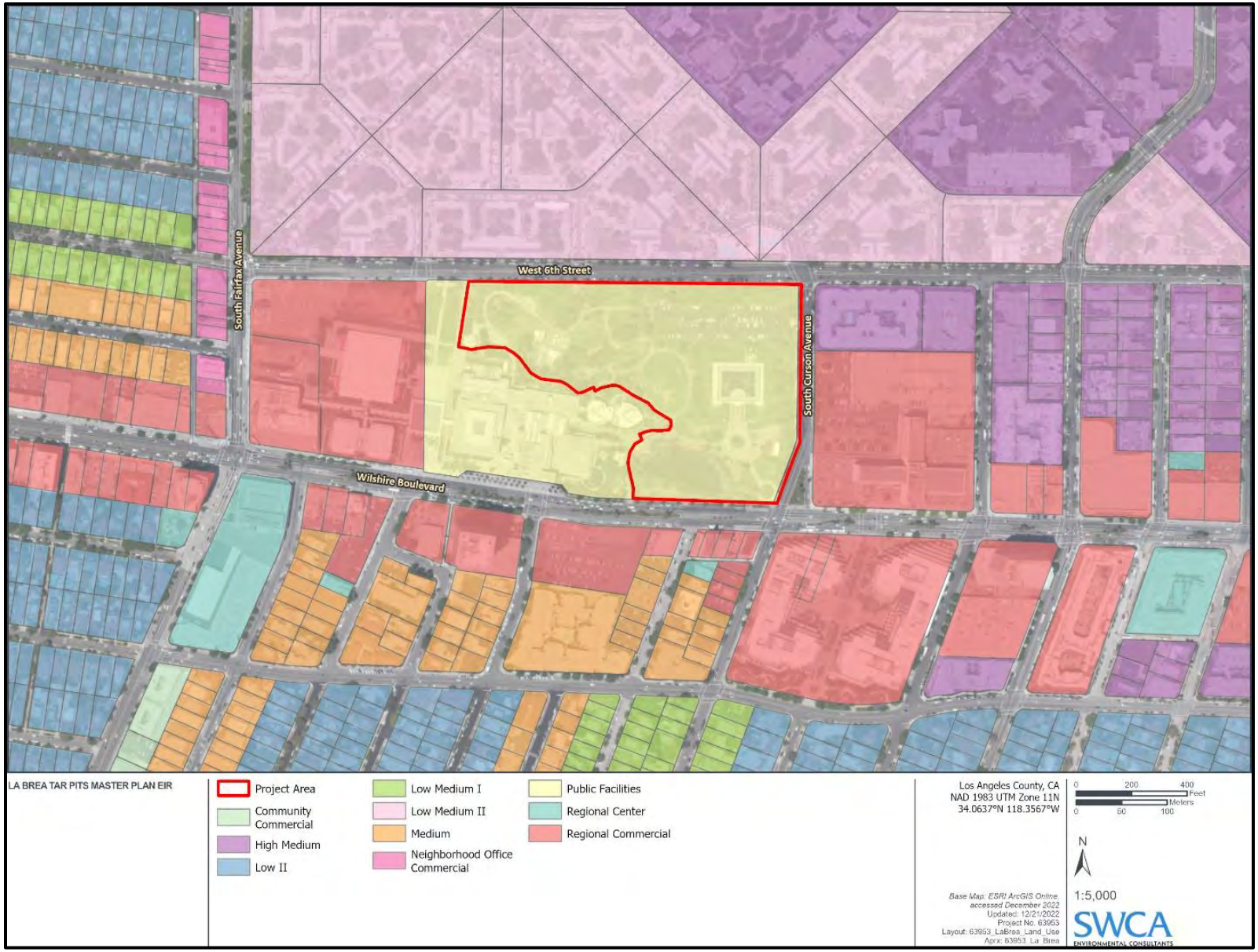


Figure 5.10-1. Existing City land use designations within the project vicinity.

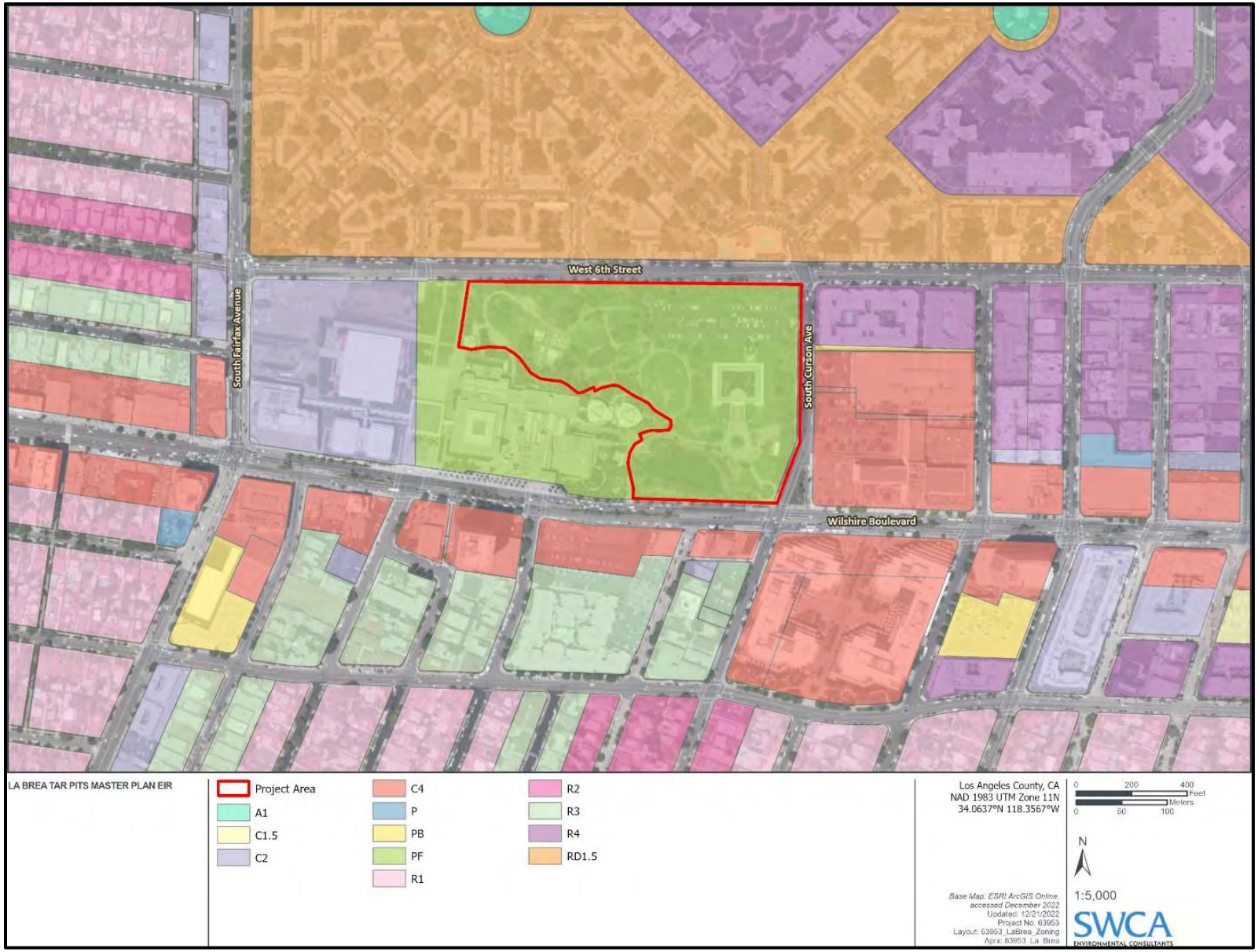


Figure 5.10-2. Existing City zoning designations within the project vicinity.

However, the regulations and guidelines set forth in the City's Zoning Ordinance do not apply to the project site, because it is owned and operated by the County. The guidelines of the City's PF zone are included here for informational purposes only. The PF zone permits a wide array of land uses, including farms and nurseries, public parking facilities, fire and police stations, government buildings, structures, offices and service facilities inducing maintenance yards, public libraries, post offices and facilities, public health facilities, public elementary and secondary schools, and any joint public and private development uses (City of Los Angeles 2022). The Height District 1 designation within the PF zone establishes no height limit and a maximum floor area ratio (FAR) of 3:1 (City of Los Angeles 2020).

5.10.1.3 Surrounding Land Uses

The project site is in a highly developed urban area characterized by a mix of commercial, office, and residential uses as well as neighboring museum-related uses and the open space provided within Hancock Park. The land uses surrounding the project site are designated and zoned by the City. Table 5.10-1 provides a summary of existing surrounding land uses in vicinity of the project site.

Table 5.10-1. Existing Surrounding Land Uses in the Project Vicinity

Location	Jurisdiction	Description of Existing Uses	Land Use Designation(s)*	Zoning Designation(s)†
North of the project site	City of Los Angeles; Wilshire Community Plan	Park La Brea; two-story garden apartments and pool	Low Medium II Residential	RD1.5-1-O
East of the project site	City of Los Angeles; Wilshire Community Plan	Commercial and residential uses	Regional Center Commercial; High Medium Residential	C4-2-CDO-SN PB-2 R4-2
South of the project site	City of Los Angeles; Wilshire Community Plan	LACMA facilities; Peterson Automotive facilities; commercial lot under construction by Los Angeles County Metropolitan Transportation Authority for Wilshire/Fairfax Station; office uses ranging from two to 31 stories.	Regional Center Commercial; Medium Residential	C4-2-CDO-SN R3-1
West of the project site	City of Los Angeles; Wilshire Community Plan	LACMA facilities including its Pavilion for Japanese Art and the future David Geffen Galleries; outdoor public art installation; and the Academy Museum of Motion Pictures	Regional Center Commercial	C2-2-CDO-SN

* Land use designations as identified in the City's Wilshire Community Plan (City of Los Angeles 2001b).

† Zoning designation definitions (City of Los Angeles 2020):

RD1.5-1-O: Restricted Density Multiple Dwelling Zone, Heigh District 1, Oil Drilling

C2-2-CDO-SN: Qualified Condition, Commercial, Community Design Overlay, Sign District

R3-1: Multiple Dwelling Zone, Height District 1

R4-2: Multiple Dwelling Zone, Height District 2

PB-2: Parking Building Zone, Height District 2

5.10.2 Regulatory Setting

5.10.2.1 Federal

There are no federal land use regulations applicable to the project.

5.10.2.2 State

CALIFORNIA GOVERNMENT CODE

California Government Code Section 65402(b) requires Counties proposing to construct public buildings or structures on land within the jurisdiction of a City with a general plan to submit the project to the planning agency of that City for a determination of conformity with the general plan. If the City does not provide a conformity determination within 40 days of submittal, the project is deemed to be in conformity with the general plan.

SENATE BILL 375

On September 30, 2008, Senate Bill (SB) 375 was instituted to help achieve Assembly Bill (AB) 32 goals through regulation of cars and light trucks. SB 375 aligns three policy areas of importance to local government: 1) regional long-range transportation plans and investments; 2) regional allocation of the obligation for Cities and Counties to zone for housing; and 3) achievement of greenhouse gas (GHG) emission reduction targets for the transportation sector set forth in AB 32. It establishes a process for the California Air Resource Board (CARB) to develop GHG emission reduction targets for each region (as opposed to individual local governments or households). SB 375 also requires Metropolitan Planning Organizations to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan (RTP) that guides growth while taking into account the transportation, housing, environmental, and economic needs of the region.

5.10.2.3 Regional

SOUTHERN CALIFORNIA ASSOCATION OF GOVERNMENTS REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

On September 3, 2020, the SCAG Regional Council adopted the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020-2045 RTP/SCS), also known as Connect SoCal. The 2020-2045 RTP/SCS presents a long-term transportation vision through the year 2045 for the six-county region of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. The 2020-2045 RTP/SCS contains baseline socioeconomic projections that are used as the basis for SCAG's transportation planning, and the provision of services by other regional agencies. SCAG's overarching strategy for achieving its goals is integrating land use and transportation. SCAG policies are directed toward the development of regional land use patterns that contribute to reductions in vehicle miles and improvements to the transportation system. Rooted in past RTP/SCS plans, Connect SoCal's "Core Vision" centers on maintaining and better managing the region's transportation network, expanding mobility choices by co-locating housing, jobs, and transit, and increasing investment in transit and complete streets. The plan's "Key Connections" augment the "Core Vision" to address challenges related to the intensification of core planning strategies and increasingly aggressive GHG reduction goals, and include, but are not limited to, Housing Supportive Infrastructure, Go Zones, and Shared Mobility.

Connect SoCal intends to create benefits for the SCAG region by achieving regional goals for sustainability, transportation equity, improved public health and safety, and enhancement of the region's overall quality of life. These benefits include a 5% reduction in vehicle miles traveled (VMT) per capita and 9% reduction in vehicle hours traveled, a 2% increase in work-related transit trips, creation of more than 264,500 new jobs, a 29% reduction in greenfield development, and (building off of the 2016-2040 RTP/SCS) a 6% increase in the share of new regional household growth occurring in high-quality transit

areas (HQTAs)[1] and a 15% increase in the share of new job growth in HQTAs. The project site is located in an HQTA as designated by the 2020-2045 RTP/SCS (SCAG 2020).

5.10.2.4 County of Los Angeles

COUNTY OF LOS ANGELES 2035 GENERAL PLAN

The County of Los Angeles 2035 General Plan (2035 General Plan) was adopted on October 6, 2015, and provides the policy framework and establishes the long-range vision for how and where the unincorporated areas will grow, and establishes goals, policies, and programs to foster healthy, livable, and sustainable communities. The General Plan contains the following 10 elements, each described below: land use, mobility, air quality, conservation and natural resources, parks and recreation, noise, safety, public services and facilities, economic development, and housing. Since the project would not involve removal of existing housing, construction of new housing, or zoning changes to or form residential zoning, no policies in the housing element would be applicable to the project. Table 5.10-2 provides a summary of the 2035 General Plan Elements.

Table 5.10-2. County of Los Angeles 2035 General Plan Element Summary

General Plan Element	Summary
Land Use Element	The Land Use Element provides strategies and planning tools to facilitate and guide future development and revitalization efforts. In accordance with the California Government Code, the Land Use Element designates the proposed general distribution and general location and extent of uses. The General Plan Land Use Policy Map and Land Use Legend serve as the "blueprint" for how land will be used to accommodate growth and change in the unincorporated areas.
Mobility Element	The Mobility Element provides an overview of the transportation infrastructure and strategies for developing an efficient and multimodal transportation network. It assesses the challenges and constraints of the Los Angeles County transportation system and offers policy guidance to reach the County's long-term mobility goals. Two sub-elements—the Highway Plan and Bicycle Master Plan—supplement the Mobility Element. These plans establish policies for the roadway and bikeway systems in the unincorporated areas, which are coordinated with the networks in the 88 cities in Los Angeles County. The Mobility Element also establishes a program to prepare community pedestrian plans, with guidelines and standards to promote walkability and connectivity throughout the unincorporated areas.
Air Quality Element	The Air Quality Element summarizes countywide and regional air quality issues and outlines the goals and policies that will improve air quality and reduce greenhouse gas emissions. One sub-element—the Community Climate Action Plan—supplements the Air Quality Element. This plan establishes actions for reaching the County's goals to reduce greenhouse gas emissions in the unincorporated areas.
Conservation and Natural Resources Element	The Conservation and Natural Resources Element guides the long-term conservation of natural resources and preservation of available open space areas in the county. It addresses the following conservation areas: Open Space Resources; Biological Resources; Local Water Resources; Agricultural Resources; Mineral and Energy Resources; Scenic Resources; and Historic, Cultural, and Paleontological Resources.
Parks and Recreation Element	The Parks and Recreation Element provides policy direction for the maintenance and expansion of the County's parks and recreation system. It aims to provide an integrated parks and recreation system that meets the needs of residents. The goals and policies set forth in the Parks and Recreation Element address the growing and diverse recreation needs of the communities served by the County. It is important to note that while the project site provides existing uses that benefit the public and passive recreational opportunities including open space, it is not designated as parkland and is not managed by the County Department of Parks and Recreation.
Noise Element	The purpose of the Noise Element is to reduce and limit the public's exposure to excessive noise levels. It sets the goals and policy direction for the management of noise in the unincorporated areas of the county.

[1] HQTAs are corridor-focused areas within 0.5 mile of an existing or planned transit stop or a bus transit corridor with a 15-minute or less service frequency during peak commuting hours.

General Plan Element	Summary
Safety Element	The purpose of the Safety Element is to reduce the potential risk of death, injuries, and economic damage resulting from natural and human-made hazards. The California Government Code requires the County General Plan to address "the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction, and other seismic hazards...; flooding; and wildland and urban fires." The Safety Element addresses only limited aspects of human-made disasters, such as hazardous waste and materials management.
Public Services and Facilities Element	The Public Services and Facilities Element promotes the orderly and efficient planning of public facilities and infrastructure in conjunction with land use development and growth. It focuses on services and facilities that are affected the most by growth and development: drinking water; sanitary sewers; solid waste; utilities; early care and education; and libraries. It also discusses the key role of collaboration among County agencies in efficient and effective service provision and facilities planning.
Economic Development Element	The Economic Development Element outlines the County's economic development goals and provides strategies that contribute to the economic well-being of Los Angeles County. The overall performance of the economy and economic development efforts strongly impacts land use and development patterns. Through the implementation of this element, the County is planning for the economic health and prosperity of its physical and social environments and planning strategically for the future economy.
Housing Element	The Housing Element determines the existing and projected housing needs within the unincorporated areas of the county and establishes goals, policies, and implementation programs that guide decision-making on housing needs.

Source: County of Los Angeles (2015)

LOS ANGELES COUNTY CODE

Title 22, Planning and Zoning, of the County of Los Angeles County Code regulates development of unincorporated areas of the County through land use designations and development standards regarding allowable uses, density, height, and design. The project site is not located within an unincorporated area of the county; therefore, the County does not establish the land use and zoning designations for the project site. However, since the project site is owned by the County, any structures constructed as part of the project would be built in accordance with the 2020 County of Los Angeles Building Code and other applicable Los Angeles County Code requirements for development.

5.10.2.5 City of Los Angeles

Although the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, consideration of the city-level regulatory framework fulfills the intended purpose of CEQA as disclosing all relevant information associated with the project. The City's land use policy standards are implemented at the community level via community plans. The project site is located within the City's Wilshire Community Plan area. As such, the Wilshire Community Plan constitutes the local land use policy standards under the City General Plan. As identified in the Wilshire Community Plan and City's General Plan (City of Los Angeles 2001a, 2001b), the project site has a land use designation of Public Facilities (PF) and a zoning designation of Public Facilities, Height District 1 (PF-1D). However, the regulations and guidelines set forth in the City of Los Angeles General Plan and the Wilshire Community Plan do not apply to the project site, because it is owned and operated by the County. The City of Los Angeles General Plan and the Wilshire Community Plan are discussed below for informational purposes only.

CITY OF LOS ANGELES GENERAL PLAN

The City of Los Angeles General Plan (City General Plan), originally adopted in 1974, is a comprehensive long-term document that provides principles, policies, and objectives to guide future development and to meet the existing and future needs of the City. A number of these principles, policies, and objectives serve to mitigate environmental effects. The City General Plan consists of a series of documents which includes the seven elements mandated by the State of California: Land Use, Circulation (implemented through the 2035 Mobility Plan), Noise, Safety, Housing, Open Space, and Conservation. In addition, the City General Plan includes elements addressing Air Quality, Infrastructure Systems, Public Facilities and Services, Health and Wellness, as well as the Citywide General Plan Framework Element (Framework Element). The Land Use Element for the City General Plan includes 35 local area plans known as Community Plans that guide land use at the local level. As previously noted, the project site is in the Wilshire Community Plan area. For the purposes of this EIR, the elements of the City General Plan that have been considered for the project include the City's Framework Element and the chapters therein, City's Mobility Plan 2035, and City's Conservation Element. Each is described in the sections below.

Framework Element

The Framework Element establishes the conceptual basis for the City General Plan that sets forth a Citywide comprehensive long-range growth strategy and establishes Citywide policies regarding land use, housing, urban form, neighborhood design, open space and conservation, economic development, transportation, infrastructure, and public services. This element provides guidelines for future updates of the City's community plans and does not supersede the more detailed community and specific plans. Table 5.10-3 provides a summary of the Framework Element and the chapters therein.

Table 5.10-3. City of Los Angeles General Plan Framework Element and Chapter Summary

Framework Element Chapter	Summary
Land Use Chapter	The Land Use Chapter designates Districts (i.e., Neighborhood Districts, Community Centers, Regional Centers, Downtown Center, and Mixed-Use Boulevards) that include standards and policies that shape the scale and intensity of proposed uses with the purpose of supporting the vitality of the City's residential neighborhoods and commercial districts. The establishment of the designated arrangement of land uses and development densities addresses an array of environmental issues, including, but not limited to reductions in VMT, reductions in noise impacts, improved efficiency in the use of energy, improved efficiency and thus greater service levels within the infrastructure systems, availability of open space, compatibility of land uses, support for alternative modes of transportation, and provision of an attractive pedestrian environment.
Housing Chapter	The overarching goal of the General Plan Framework Housing Chapter is to define the distribution of housing opportunities by type and cost for all residents of the city. The General Plan Framework Housing Chapter recognizes that the distribution of housing in proximity to transit can reduce vehicle trips and provide residents with the opportunity to walk between their home, job, and/or neighborhood services.
Urban Form and Neighborhood Design Chapter	The Urban Form and Neighborhood Design Chapter establishes the goal of creating a city that is attractive to future investment and a city of interconnected, diverse neighborhoods that builds on the strength of those neighborhoods and functions at both the neighborhood and citywide scales. The purpose of the Urban Form and Neighborhood Design Chapter is two-fold: first, to support the population distribution principles of the Framework Element through proper massing and design of buildings, and second, to enhance the physical character of neighborhoods and communities within the city. The Framework Element does not directly address the design of individual neighborhoods or communities but embodies general neighborhood design and implementation programs that guide local planning efforts and lay a foundation for community plan updates. The Urban Form and Neighborhood Design Chapter encourages growth in areas that have a sufficient base of both commercial and residential development to support transit service.

Framework Element Chapter	Summary
Open Space and Conservation Chapter	The Open Space and Conservation Chapter contains goals, objectives, and policies to guide the provision, management, and conservation of public open space resources; address the outdoor recreational needs of the City's residents; and guide amendments to the City General Plan Open Space Element and Conservation Element. This chapter also includes policies to resolve the City's open space issues. Specifically, this chapter contains open space goals, objectives, and policies regarding resource conservation and management, outdoor recreation, public safety, community stability, and resources development.
Economic Development Chapter	The Economic Development Chapter seeks to identify physical locations necessary to attract continued economic development and investment to targeted districts and centers. Goals, objectives, and policies focus on retaining commercial uses, particularly within walking distance of residential areas, and promoting business opportunities in areas where growth can be accommodated without encroaching on residential neighborhoods.
Transportation Chapter	The goals, objectives, policies, and related implementation programs of the Transportation Chapter are set forth in the Transportation Element of the City General Plan adopted by the City in September 1999. As an update to the prior Transportation Element of the City General Plan, the City Council initially adopted Mobility Plan 2035 (Mobility Plan) in August 2015. The Mobility Plan was readopted in January 2016 and amended in September 2016. Accordingly, the goals of the Transportation Chapter of the Framework Element are now implemented through the Mobility Plan, which is discussed further below.
Infrastructure and Public Services Chapter	The Infrastructure and Public Services Chapter addresses infrastructure and public service systems, including wastewater, stormwater, water supply, solid waste, police, fire, libraries, parks, power, schools, telecommunications, street lighting, and urban forests. For each of the public services and infrastructure systems, basic policies call for monitoring service demands and forecasting the future need for improvements, maintaining an adequate system/service to support the needs of population and employment growth, and implementing techniques that reduce demands on utility infrastructure or services. Generally, these techniques encompass a variety of conservation programs and attention is also placed on the establishment of procedures for the maintenance and/or restoration of service after emergencies, including earthquakes.

Source: City of Los Angeles (2001a)

Mobility Plan 2035

The overarching goal of the Mobility Plan 2035 is to achieve a transportation system that balances the needs of all road users. As an update to the City General Plan Transportation Element, the Mobility Plan incorporates "complete streets" principles. In 2008, the California State Legislature adopted AB 1358, The Complete Streets Act, which requires local jurisdictions to "plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, defined to include motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban or urban context." The Mobility Plan includes the following five main goals that define the City's high-level mobility priorities: Safety First; Access for All Angelenos; World Class Infrastructure; Collaboration, Communication, and Informed Choices; and Clean Environments and Healthy Communities. Each of the goals contains objectives and policies to support the achievement of those goals.

Conservation Element

The City General Plan includes a Conservation Element. The Conservation Element incorporates natural open space, agricultural, and other open space features of the State's General Plan requirements and references other city plans that address mandated subjects, including water supply and demand, which is addressed by city water plans and the Infrastructure Systems Element. The Conservation Element also addresses archaeological, paleontological, and mineral resources. The Conservation Element primarily addresses preservation, conservation, protection, and enhancement of the City's natural resources.

Section 3 of the Conservation Element recognizes the City's responsibility for identifying and protecting its archaeological and paleontological resources, and Section 5 recognizes the City's cultural and historical heritage. In these sections, the Conservation Element establishes objectives to protect important archaeological and paleontological resources, as well as its cultural and historical sites and resources for historical, cultural, research, and community educational purposes. It provides corresponding policies to continue to protect these resources potentially affected by proposed land development, demolition, or property modification activities.

WILSHIRE COMMUNITY PLAN

The Wilshire Community Plan was adopted originally adopted on September 19, 2001, and includes approximately 8,954 acres (about 14 square miles), totaling approximately 3% of the total land in the City of Los Angeles. The Wilshire Community Plan area is often spoken of as the Mid-city section of Los Angeles. The eastern edge of the approximately 2.5-mile-wide by 6-mile-long plan area is about 6 miles west of downtown Los Angeles, while the western edge abuts the City of Beverly Hills.

The Wilshire Community Plan establishes specific goals, objectives, policies, and programs to meet the existing and future needs of the Wilshire community. The Wilshire Community Plan aims to enhance the positive characteristics of residential neighborhoods while providing a variety of housing opportunities, improve the function, design, and economic vitality of the commercial areas, preserve and enhance the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks, and appearance, maximize the development opportunities around the existing and future transit systems while minimizing adverse impacts, preserve and strengthen commercial developments to provide a diverse job-producing economic base, and improve the quality of the built environment through design guidelines, streetscape improvements, and other physical improvements which enhance the appearance of the community.

The project site is located within the Wilshire Community Plan area and has a land use designation of Public Facilities (PF) (City of Los Angeles 2001b).

CITY OF LOS ANGELES MUNICIPAL CODE

Chapter I of the City of Los Angeles Municipal Code (LAMC) regulates development through zoning designations and development standards. Although the project site is located within the city of Los Angeles, the project site is owned by the County of Los Angeles; therefore, the project site is not subject to the City's Zoning Code. However, the project's consistency with the LAMC's zoning designations and development standards for the project site is evaluated for informational purposes.

As previously discussed, the project site is zoned Public Facilities, Height District 1 (PF-1D). In accordance with the LAMC, the PF zone permits a wide array of land uses including farms and nurseries; public parking facilities; fire and police stations; government buildings, structures, offices, and service facilities inducing maintenance yards; public libraries; post offices and facilities; public health facilities; public elementary and secondary schools; and any joint public and private development uses. The Height District 1 designation within the PF zone establishes no height limit and a maximum FAR of 3:1.

Implementation of the project would not include changes to the project site that would alter the nature of the current uses on-site or introduce new uses that would alter the intent of the PF zoning designation. In addition, the proposed renovations to the existing George C. Page Museum (Page Museum) and construction of the new museum building would result in maximum building heights of 30 feet.

Consistency with Applicable Plans and Policies

Table 5.10-4 through Table 5.10-7 list applicable plans and policies pertaining specifically to land use and planning that were adopted for the purpose of avoiding or mitigating an environmental effect and a preliminary evaluation of the project's consistency with the guidelines and requirements detailed therein. A conflict between a project and an applicable plan is not necessarily a significant impact under CEQA unless the inconsistency would result in an adverse physical change to the environment that is a "significant environmental effect" as defined by State CEQA Guidelines Section 15382.

A general overview of these policy documents is presented above in Section 5.10.2, Regulatory Setting. Policies with which the project may be inconsistent are discussed further in Section 5.10.5, Environmental Impact Analysis.

Table 5.10-4. Preliminary Project Policy Consistency Evaluation—County of Los Angeles General Plan

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Land Use Element	
Goal LU 5 Vibrant, livable, and healthy communities with a mix of land uses, services and amenities.	**Consistent**. The project would expand and improve existing public-serving uses on the project site. The project includes increased capacity to support research, exhibitions, amenities, programs, and community engagement at the museum. The new pedestrian path would connect the existing structures and would provide improved bicycle and pedestrian access throughout the site. The project also includes additional café and retail opportunities associated with the museum buildings. Improvements to the Central Green would further promote a destination community lawn that continues to encourage community activities and events within Hancock Park. In addition, the proposed infrastructure improvements and drivable path for food trucks would increase event and dining opportunities on-site.
Policy LU 5.2 Encourage a diversity of commercial and retail services, and public facilities at various scales to meet regional and local needs.	**Consistent.** Buildout of the project would increase the total museum square footage to 104,000 square feet and would include exhibit spaces, two theaters, and research and collections rooms. The existing Page Museum would be renovated to allow for enlarged exhibition space, and other amenities. The renovation would also allow much of the collection space to reorganized and enlarged to provide better display of the collections to the public.
Policy LU 5.3 Support a mix of land uses that promote bicycling and walking and reduce VMT.	**Consistent**. The project would reconfigure the existing pathways on-site into a continuous path, which would enhance walkability and accessibility to all the elements of the park. A walking path would be constructed with interpretive signage, as well as provide areas to sit and enjoy the scenery of Hancock Park. The project would include a new school drop-off area on South Curson Avenue that would lead to the education museum entrance.
Policy LU 6.2 Encourage land uses and developments that are compatible with the natural environment and landscape.	**Consistent.** The project includes the construction of a new museum building and renovations to the existing Page Museum, which would be compatible with existing uses within and surrounding the project site. The project also would enhance the Tar Pits site with new plazas, entrances, landscaping, and pedestrian paths that would be designed to integrate the renovations to the Page Museum, the new museum building, and existing uses within Hancock Park.
Goal LU 7 Compatible land uses that complement neighborhood character and the natural environment.	**Consistent**. The project includes renovation and upgrades throughout the Page Museum and the Tar Pits site to unify all elements of Hancock Park. The proposed pedestrian path connects the existing structures and enhances amenities for community and research. There would be greater visibility from Wilshire Boulevard and the surrounding context, which would further connect La Brea Tar Pits to the greater community of Los Angeles.
Goal LU 10 Well-designed and healthy places that support a diversity of built environments.	**Consistent**. See the consistency analysis for Goal LU 5.

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Policy LU 10.3 Consider the built environment of the surrounding area and location in the design and scale of new or remodeled buildings, architectural styles, and reflect appropriate features such as massing, color, detailing, or ornament.	**Consistent.** As discussed in Chapter 3, Project Description, the renovations to the Page Museum and construction of the new museum building have been designed to be consistent with the scale and diversity of the existing built environment and surrounding areas. Particular attention has been given to integrating the outdoor and indoor elements of La Brea Tar Pits and Hancock Park. Buildings and structures on-site, including the museum buildings and the gateway features at Wilshire and 6th Street, would be constructed at a maximum height of 30 feet when measured from the terrace level, which would be generally consistent with buildings in the area, which range in height from one to 31 stories.
Policy LU 10.4 Promote environmentally sensitive and sustainable design.	**Consistent**. The museum buildings would be designed to meet the County's Green Building Standards Code. A sloped green roof would be installed to the north of the Page Museum and curve to the west. The project would also add extensive sustainability features to the Page Museum, including enhanced daylighting, rainwater collection leading to bioswales, and rooftop solar photovoltaic panels. The numerous existing and future public transit options and pedestrian amenities within the project vicinity also promote sustainability by reducing VMT and air pollution associated with use of passenger vehicles. Furthermore, water conservation measures would include the use of drought-tolerant planting, a new Pleistocene Garden bioswale at the Lake Pit entry, which would support sustainable stormwater management, and a new biofiltration zone at Oil Creek, which would manage stormwater.
Policy LU 10.5 Encourage the use of distinctive landscaping, signage, and other features to define the unique character of districts, neighborhoods or communities, and engender community identity, pride and community interaction.	**Consistent.** The project would include public plazas, a garden, and pedestrian paths that would be designed to integrate the new building and existing uses within Hancock Park and provide for outdoor programming such as outdoor music and educational spaces. New identification signage would be provided as part of the project that would be consistent with the design of existing signage within Hancock Park.
Policy LU 10.6 Encourage pedestrian activity through the following: • Designing the main entrance of buildings to front the street; • Incorporating landscaping features; • Limiting masonry walls and parking lots along commercial corridors and other public spaces; • Incorporating street furniture, signage, and public events and activities; and • Using wayfinding strategies to highlight community points of interest.	**Consistent**. The project would enhance walkability and accessibility throughout La Brea Tar Pits by providing a continuous paved pedestrian path linking all the existing elements of the park. Pedestrian entrances would be provided leading into the central lobby from Central Green and from the parking lot to the new museum building. The proposed landscaping concept for Hancock Park would be divided into three distinct zones encircled by the looping path system. Each loop of the pedestrian path would have its own usage and distinguished theme representing different geologic epochs—Pleistocene in the southeastern loop, Holocene in the northwestern loop, and Anthropocene in the central loop. In addition, the woodland forest zone of the western loop would be extended along the park's peripheral edges to provide shade to the picnic areas and parking lot to the north, and therefore encourage pedestrian activity around Hancock Park.
Policy LU 10.7 Promote public spaces, such as plazas that enhance the pedestrian environment, and, where appropriate, continuity along commercial corridors with active transportation activities.	**Consistent**. The project would reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking all the existing elements of the project site. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza; this would provide orientation, spaces for gathering and queuing, and restrooms. A picnic area would also be located under the shaded canopy. Like the Wilshire Gateway, a canopy of shade trees would be installed at the 6th Street Gateway, which would allow for play areas, picnic areas, seating and interpretation zones at the protected tar seeps, the Dorothy Brown Amphitheater, Observation Pit, and Pit 91.
Goal LU 11 Development that utilizes sustainable design techniques.	**Consistent**. See the consistency analysis for Policy LU 10.4.
Policy LU 11.1 Encourage new development to employ sustainable energy practices, such as utilizing passive solar techniques and/or active solar technologies.	**Consistent.** See the consistency analysis for Policy LU 10.4.

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Policy LU 11.2 Support the design of developments that provide substantial tree canopy cover and utilize light-colored paving materials and energy-efficient roofing materials to reduce the urban heat island effect.	**Consistent**. The Master Plan's proposed planting strategy includes the introduction or relocation of at least 150 to 200 trees on-site.[2] Tree species selected for planting would be drought-tolerant and/or of a native tree species and would primarily require moist to dry soil conditions. The project's contribution to the urban heat island effect would be minimal due to the surrounding existing park and recreational areas, including Central Green, and the proposed site design and landscaping plan, which includes a canopy of shade trees for the entry plaza at Wilshire Gateway and 6th Street Gateway. Additionally, photovoltaic solar panels would be installed on the roof of the Page Museum along with sloped green roofs to reduce building heating during the day. In addition, refer to the consistency analysis for Policy LU 10.4.
Policy LU 11.3 Encourage development to optimize the solar orientation of buildings to maximize passive and active solar design techniques.	**Consistent**. The project would maximize solar design techniques by adding extensive sustainability features to the Page Museum, including a sloped green roof and rooftop solar photovoltaic panels.
Policy LU 11.7 Encourage the use of design techniques to conserve natural resource areas.	**Consistent.** See the consistency analysis for LU 11.2.
Mobility Element	
Goal M 2 Interconnected and safe bicycle- and pedestrian-friendly streets, sidewalks, paths and trails that promote active transportation and transit use.	**Consistent with Mitigation**. The project would include the implementation of a paved pedestrian path within the project site that would be accessible to members of the public during park operating hours. The project site is currently served by a complete network of sidewalks around the project site block and adjacent street network, with signalized intersections and crosswalks. The project would not involve changes to the existing bikeways or introduce features that would remove pedestrian facilities or increase pedestrian crossing distances. In addition, the project would implement Mitigation Measure TRA/mm-1.1, requiring development of a Transportation Demand Management (TDM) program to coordinate on multimodal improvements in the study area and to reduce employee and visitor vehicle trips and related effects on project access safety and circulation.
Policy M 2.6 Encourage the implementation of future designs concepts that promote active transportation, whenever available and feasible.	**Consistent**. See the consistency analysis for Goal M 2.
Air Quality Element	
Goal AQ 1 Protection from exposure to harmful air pollutants.	**Consistent with Mitigation**. Mitigation Measure AQ/mm-3.1 would ensure that the project would not result in harmful air pollutants that would exceed the localized South Coast Air Quality Management District (SCAQMD)-recommended localized significance thresholds during construction or operation. In addition, the project would also implement Mitigation Measure HAZ/mm-2.1 requiring additional controls to address the effects of subsurface hazardous materials that may be present, including methane.
Policy AQ 1.1 Minimize health risks to people from industrial toxic or hazardous air pollutant emissions, with an emphasis on local hot spots, such as existing point sources affecting immediate sensitive receptors.	**Consistent**. The project's construction activities would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards. In addition, the project would not result in operational impacts that would expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards, increase the cancer risk, increase the cancer burden, or create any carbon dioxide hot spots.
Policy AQ 1.2 Encourage the use of low or no volatile organic compound (VOC) emitting materials.	**Consistent with Mitigation**. Mitigation Measure AQ/mm-3.1 would require adherence to SCAQMD Rule 1113, which limits the VOC content of architectural coating and other emitting materials.

[2] The La Brea Tar Pits Master Plan does not provide an exact number of trees to be relocated versus new trees introduced to the site. The Los Angeles County Museum of Natural History Foundation will develop additional detail when the construction plans are more fully developed, likely after the CEQA process is complete.

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Policy AQ 1.3 Reduce particulate inorganic and biological emissions from construction, grading, excavation, and demolition to the maximum extent feasible.	**Consistent with Mitigation**. The project would implement Mitigation Measure AQ/mm-3.1 requiring all SCAQMD rules and regulations to serve as mitigation measures for the project during construction.
Goal AQ 3 Implementation of plans and programs to address the impacts of climate change.	**Consistent with Mitigation**. The project would not conflict with the GHG reduction policies, strategies, and regulations outlined in the following plans and programs addressing climate change: CARB's 2022 Climate Change Scoping Plan; SCAG's 2020-2045 RTP/SCS; the County of Los Angeles General Plan; Senate Bill 32 2030 GHG reduction target; and the Executive Order S-3-05 2050 GHG reduction goal. In addition, the project would implement Mitigation Measure GHG/mm-1.1 to ensure the project would not include the installation of natural gas infrastructure. In addition, implementation of Mitigation Measure GHG/mm-1.1 would ensure the project provides more electric vehicle charging stations than the mandatory requirements set forth in the Los Angeles County Code, Title 31, Green Building Standards (Code Section 5.106.5.3.3).
Policy AQ 3.5 Encourage energy conservation in new development and municipal operations.	**Consistent**. See the consistency analysis for Policy LU 10.4.
Policy AQ 3.6 Support rooftop solar facilities on new and existing buildings.	**Consistent**. See the consistency analysis for LU 11.3.
Conservation and Natural Resources Element	
Goal C/NR 3 Permanent, sustainable preservation of genetically and physically diverse biological resources and ecological systems including: habitat linkages, forests, coastal zone, riparian habitats, streambeds, wetlands, woodlands, alpine habitat, chaparral, shrublands, and Significant Ecological Areas (SEAs).	**Consistent with Mitigation**. The project site is not located in an SEA. The project site is dominated by a large lawn surrounding the museum consisting of primarily non-native planted trees and shrubs. It provides limited wildlife habitat due to the combination of high levels of human activity, the lack of surface water, and the low quantity of native plants. However, there are currently over 300 trees on-site, both non-native and native species, including the Coast live oak which is a species protected under the Los Angeles Oak Tree Ordinance. The Master Plan's proposed planting strategy includes the introduction or relocation of 150 to 200 trees on-site. Tree species selected for planting would be drought-tolerant and/or of a native tree species and would primarily require moist to dry soil conditions. The trees provide potential nesting habitat for birds as well as in the native plant area of Oil Creek. Oil Creek supports a community of hydrophytic and riparian vegetation. It is dominated by mowed grasses and non-native plants, with scattered native species. The project would implement the following mitigation measures to protect and preserve the biological resources on-site: BIO/mm-2.1 to protect sensitive and regulated resources at and along Oil Creek; BIO/mm-3.1 to protect sensitive and regulated resources at and around the Lake Pit; BIO/mm-4.1 and BIO/mm-4.2 to avoid impacts to nesting birds; BIO/mm-5.1 and BIO/mm-5.2 to avoid conflicts with the County of Los Angeles Oak Tree Ordinance.
Policy C/NR 3.1 Conserve and enhance the ecological function of diverse natural habitats and biological resources.	**Consistent with Mitigation**. See the consistency analysis for Goal C/NR 3.
Goal C/NR 5 Protected and useable local surface water resources.	**Consistent**. Surface water at the project site includes that from Oil Creek. The project would be required to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. In accordance with the requirements of the NPDES Construction General Permit, the project would prepare and implement a site-specific Stormwater Pollution Prevention Plan (SWPPP) that specifies best management practices (BMPs) to be used during construction to manage stormwater and non-stormwater discharges. BMPs would include, but would not be limited to, erosion control, sediment control, non-stormwater management, and materials management BMPs.

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Policy C/NR 5.1 Support the LID philosophy, which seeks to plan and design public and private development with hydrologic sensitivity, including limits to straightening and channelizing natural flow paths, removal of vegetative cover, compaction of soils, and distribution of naturalistic BMPs at regional, neighborhood, and parcel-level scales.	**Consistent**. The project would be subject to compliance with the Los Angeles County Department of Public Works' Low Impact Development (LID) design guidelines, which promote the use of natural infiltration systems, evapotranspiration, and the reuse of stormwater. Specifically, the project would be required to implement BMPs for managing stormwater runoff in accordance with the current Los Angeles County LID Standards Manual.
Policy C/NR 5.2 Require compliance by all County departments with adopted Municipal Separate Storm Sewer System (MS4), General Construction, and point source NPDES permits.	**Consistent**. See the consistency analysis for Goal C/NR 5**.**
Goal C/NR 6 Protected and usable local groundwater resources.	**Consistent**. The project includes design features that would maximize the percolation of rainfall into the groundwater basin, such as the three biofiltration systems and proposed permeable landscape areas**.** Dewatering operations are expected during construction only and appropriate compliance and contaminant measures would be implemented to avoid impacts associated with potential groundwater discharges. Due to the operation of temporary dewatering systems, local groundwater hydrology in the immediate vicinity of the project site would be minimally affected. As the groundwater pumping is localized and limited in duration during construction, regional impacts to groundwater flow and level are not considered to be significant.
Policy C/NR 6.1 Support the LID philosophy, which incorporates distributed, post-construction parcel-level stormwater infiltration as part of new development.	**Consistent**. The project would introduce three biofiltration areas within the project site in compliance with LID Design Guidelines to support sustainable stormwater management on-site.
Goal C/NR 7 Protected and healthy watersheds.	**Consistent**. See the consistency analysis for Goal C/NR 5.
Policy C/NR 7.1 Support the LID philosophy, which mimics the natural hydrologic cycle using undeveloped conditions as a base, in public and private land use planning and development design.	**Consistent**. See the consistency analysis for Policy C/NR 6.1.
Goal C/NR 14 Protected historic, cultural, and paleontological resources.	**Potentially Inconsistent**. The project's conceptual plan includes components to enhance the preservation of, and access to, existing cultural and paleontological resources on-site. This would include improvements to existing tar pit sites involving the construction of clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage. However, project implementation would result in significant physical changes, partial demolition, and new construction affecting the two designated historical resources within the project site: the La Brea Tar Pits Historic District and the Page Museum. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while keeping the primary elements of the Master Plan; therefore, residual impacts of the project would remain significant and unavoidable and would be potentially inconsistent with this goal.
Policy C/NR 14.1 Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.	**Potentially Inconsistent**. See the consistency analysis for Goal C/NR 14.

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Policy C/NR 14.2: Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.	**Potentially Inconsistent**. See the consistency analysis for Goal C/NR 14.
Policy C/NR 14.3 Support the preservation and rehabilitation of historic buildings.	**Potentially Inconsistent**. See the consistency analysis for Goal C/NR 14.
Policy C/NR 14.5 Promote public awareness of historic, cultural, and paleontological resources.	**Consistent**. The project's conceptual plan includes components to enhance the preservation of, and access to, existing cultural and paleontological resources on-site. This would include improvements to existing tar pit sites involving the construction of clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage. In addition, the project's proposed landscape concept would divide the project site into three distinct zones encircled by the looping path system. Each loop of the pedestrian path would have its own usage and distinguished theme representing different geologic epochs.
Policy C/NR 14.6 Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.	**Consistent with Mitigation**. The project would implement Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4 to address the archaeological sensitivity of the site and the potential to discover additional resources. In addition, the project has high paleontological sensitivity. The project would implement Mitigation Measures GEO/mm-6.1 through GEO/mm-6.5 which would ensure retention of a qualified project paleontologist, preparation of a paleontological resources management plan, paleontological resources sensitivity training, paleontological resources monitoring, and treatment and curation of discoveries, if encountered.
Parks and Recreation Element	
Goal P/R 1 Enhanced active and passive park and recreation opportunities for all users.	**Consistent**. The project would reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking the existing elements of the site: Lake Pit and Wilshire Gateway to the southeast, Central Green, museum, tar seeps, and 6th Street Gateway in the northwest. Each loop of the pathway would contain distinct themes and programming. The project would also provide enhanced dining opportunities on-site by improving the infrastructure to allow for a drivable path for food trucks to access Central Green. The proposed canopy and shade trees at Wilshire Gateway would create a new welcome pavilion for orientation, spaces for gathering and queuing, and restrooms. A picnic area would also be located under the shaded canopy. Another new canopy would be installed at 6th Street Gateway to welcome visitors in a shaded park space where community park and recreational needs are balanced with the research activities of La Brea Tar Pits. Vegetated berms around these recreation areas would create seating areas and elevated vantage points for visitors.
Policy P/R 1.2 Provide additional active and passive recreation opportunities based on a community's setting, and recreational needs and preferences.	**Consistent**. See the consistency analysis for Goal P/R 1.
Policy P/R 1.8 Enhance existing parks to offer balanced passive and active recreation opportunities through more efficient use of space and the addition of new amenities.	**Consistent**. See the consistency analysis for Goal P/R 1.
Policy P/R 1.11 Provide access to parks by creating pedestrian and bicycle-friendly paths and signage regarding park locations and distances.	**Consistent**. See the consistency analysis for Goal M 2.
Noise Element	
Goal N 1 The reduction of excessive noise impacts.	**Consistent with Mitigation.** The project would implement Mitigation Measure NOI/mm-1.1 to reduce construction-related noise impacts. Upon project completion, operation of the project would not generate operational noise above applicable thresholds.

Goals, Policies, Plans, Programs, and Standards	Preliminary Consistency Determination
Policy N 1.3 Minimize impacts to noise-sensitive land uses by ensuring adequate site design, acoustical construction, and use of barriers, berms, or additional engineering controls through Best Available Technologies (BAT).	**Consistent.** See the consistency analysis for Goal N 1.
Policy N 1.6 Ensure cumulative impacts related to noise do not exceed health-based safety margins.	**Consistent.** Cumulative noise impacts would be avoided through compliance with identified project-specific mitigation, and no additional mitigation is needed to avoid or minimize potential cumulative impacts. Related projects in the vicinity would be required to adhere to all noise-related ordinances and regulations of the LAMC.
Public Services and Facilities Element	
Policy PS/F 1.2 Ensure that adequate services and facilities are provided in conjunction with development through phasing or other mechanisms.	**Consistent.** The project would comply with applicable County Fire Code and Building Code requirements during construction and operation of the project. The project also would comply with recommendations from the County Fire Department and Los Angeles Fire Department, which would ensure adequate fire prevention features would be provided that would reduce any potential increased demand for fire protection and emergency medical services. Regarding police services, the project would implement comprehensive safety and security features to enhance public safety and reduce the demand for police services. In addition, because the project does not include any residential uses, the project would not directly affect the existing officer-to-resident ratio or the crimes-per-resident ratio. Regarding emergency access and response times during construction and operation, the project would maintain the existing circulation adjacent to the project site and would not include the permanent closure of any adjacent roads or install barriers along adjacent roads which could impede emergency access. The project does not involve the development of residential uses; therefore, the project would not result in a substantial increase in demand for schools, libraries, parks, and/or recreational facilities. Rather, the project would open new public outdoor space at Hancock Park, including Central Green, plazas/welcome pavilions, and a new shaded outdoor classroom.
Goal PS/F 4: Reliable sewer and urban runoff conveyance treatment systems.	**Consistent with Mitigation.** As detailed in Section 5.15 Utilities and Service Systems, Mitigation Measure UTL/mm-1.1 would require additional engineering analysis at the final project design phase to determine if additional sewer lines are necessary to covey project flows to a point in the sewer system with sufficient capacity. Ultimately, this sewage flow from the project would be conveyed to the Hyperion Water Reclamation Plant, which has sufficient capacity for the project. In addition, the project would be required to obtain coverage under the NPDES Construction General Permit. In accordance with the requirements of the NPDES Construction General Permit, the project would prepare and implement a site-specific SWPPP that specifies BMPs to be used during construction to manage stormwater and non-stormwater discharges. BMPs would include, but would not be limited to, erosion control, sediment control, non-stormwater management, and materials management BMPs.
Policy PS/F 5.5 Reduce the County's waste stream by minimizing waste generation and enhancing diversion.	**Consistent.** Construction of the project would make use of local, recycled, and renewable materials where possible and reuse construction materials such as grading debris within the project site. In addition, in accordance with the County's Green Building Standards Code, which sets forth recycling requirements for construction and demolition projects, the project would recycle a minimum of 65% of debris generated by weight. The project would also include clearly marked, source-sorted receptacles to facilitate recycling with a focus on items such as paper, cardboard, glass, aluminum, plastic, and cooking oils. The project would also provide for source-sorted receptacles for the recycling of organic waste and adequate areas for the collection, loading, and removal of recycled materials, including organic waste.
Policy PS/F 5.7 Encourage the recycling of construction and demolition debris generated by public and private projects.	**Consistent**. See the consistency analysis for Policy PD/F 5.5.

Table 5.10-5. Preliminary Project Policy Consistency Evaluation—City of Los Angeles General Plan (Framework Element Chapters, Conservation Element, and the Mobility Plan 2035)

Objective/Policy	Analysis of Project Consistency
Land Use Chapter	
Objective 3.1 Accommodate a diversity of uses that support the needs of the City's existing and future residents, businesses, and visitors.	**Consistent**. The project would result in increased capacity of the existing public museum facilities to support research, state-of-the-art exhibitions, amenities, programs, and community engagement at the museum to enrich the visitor experience and to support active educational programming. The project would include the redesign and renovation of the Hancock Park community park green space to increase the sustainable landscape and site design, support recreational uses, and enhance the paleontologically important resources on-site.
Policy 3.1.1 Identify area on the Long-Range Land Use Diagram and in the community plans sufficient for the development of a diversity of uses that serve the needs of existing and future residents (housing, employment, retail, entertainment, cultural/institutional, educational, health, services, recreation, and similar uses), provide job opportunities, and support visitors and tourism.	**Consistent**. The project site is identified in the City's General Plan and the Wilshire Community Plan as having a land use and zoning designation of Public Facilities. The project would support the intent of this designation as it would not modify the overall purpose and use of the site as one that provides uses that benefit the public. The project site would continue to support museum-related uses, including recreational uses, an educational center including two theaters, restaurant and retail uses, and other public programming that will continue to serve the needs of residents, provide employment opportunities, and support visitors and tourism.
Policy 3.1.3 Identify area for the establishment of new open space opportunities to serve the needs of existing and future residents. These opportunities may include a citywide linear network of parklands and trails, neighborhood parks, and urban open spaces.	**Consistent**. The project would open new public outdoor space at Hancock Park, including Central Green, a 28,000-square- foot destination community lawn, and plazas/welcome pavilions. The project would also create a continuous paved pedestrian path linking all the existing elements of the park to create an active site of visible research and play for existing and future residents.
Policy 3.1.4 Accommodate new development in accordance with land use and density provisions of the General Plan Framework Long-Ranged Land Use Diagram and Table 3-1.	**Consistent**. See the consistency analysis for Objective 3.1 and Policy 3.1.1. The new museum building would have a maximum height of 30 feet. Therefore, the project would result in new development in accordance with land use and density provisions of the Framework Element Long-Range Land Use Diagram and Table 3-1 (Land Use Standards and Typical Development Characteristics).
Objective 3.2 Provide for the spatial distribution of development that promotes an improved quality of life by facilitating a reduction of vehicular trips, vehicle miles traveled, and air pollution.	**Consistent with Mitigation**. The project would be in an area well-served by public transit provided by the Los Angeles County Metropolitan Transportation Authority (Metro), as well as several bus lines. In addition to the numerous existing and future public transit options, pedestrian amenities provided throughout the project site would also promote an improved quality of life by facilitating a reduction of vehicle trips, VMT, and air pollution. In addition, Mitigation Measure TRA/mm-1.1 would require the preparation and implementation of a Transportation Demand Management (TDM) program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare.
Policy 3.2.1 Provide a pattern of development consisting of distinct districts, centers, boulevards, and neighborhoods that are differentiated by their functional role, scale, and character. This shall be accomplished by considering factors such as the existing concentrations of use, community-oriented activity centers that currently or potentially service adjacent neighborhoods, and existing or potential public transit corridors and stations.	**Consistent.** The project includes the renovation of existing museum facilities and development of a new museum building, which would be consistent with the existing museum and parking uses on the project site. Therefore, the project would not change the functional role of the project site. In terms of scale and character, the new museum building would be two stories in height (maximum of 30 feet) and integrate with the surrounding urban development along Wilshire Boulevard and the park setting of Hancock Park. The purpose of the project is to renovate La Brea Tar Pits to enhance the presentation of its research collection and programmatic needs for its visitors today and into the future. Accordingly, the project would allow for the continued provision of community-oriented activity centers to serve adjacent neighborhoods and the City, while taking advantage of the project's location in an area well-served by numerous existing and future public transit options.

Objective/Policy	Analysis of Project Consistency
Policy 3.2.3 Provide for the development of land use patterns that emphasize pedestrian/bicycle access and use in appropriate locations.	**Consistent**. The project would reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking all the existing elements of the park. A walking path would be constructed with interpretive signage and explanations related to the former industrial heritage of the site. The project site is currently served by a complete network of sidewalks around the project site block and adjacent street network, with signalized intersections and crosswalks. Access to the project site is available through the gateways along Wilshire Boulevards and West 6th Street. There is currently one bikeway in the project site vicinity on Hauser Boulevard and several others are planned along each roadway bordering the project site.
Policy 3.2.4 Provide for the siting and design of new development that maintains the prevailing scale and character of the City's stable residential neighborhoods and enhances the character of commercial and industrial districts.	**Consistent.** The Wilshire Community Plan identifies the project site as being surrounded by the Miracle Mile corridor, which is characterized by numerous high-rise office buildings, neighborhood retail, well-known entertainment establishments, and the City's greatest concentration of museums on Wilshire Boulevard between Fairfax Avenue and Burnside Avenue. Overall, the scale and character of the project would be compatible with the scale and character of the surrounding neighborhood.
Objective 3.8 Reinforce existing and establish new neighborhood districts which accommodate a broad range of uses that serve the needs of adjacent residents, promote neighborhood activity, are compatibility with adjacent neighborhoods, and are developed as desirable places to work and visit.	**Consistent**. See the consistency analysis for Policy 3.2.1 and Policy 3.2.4.
Policy 3.8.4 Enhance pedestrian activity by the design and siting of structures.	**Consistent.** The Master Plan has been developed to encourage better pedestrian access and circulation to Hancock Park and increase the scenic quality of the site. The project includes two entrances to the park: one at Wilshire Boulevard, which is in proximity to the museum, and one on 6th Street, which is in proximity to the revamped Pit 91. In addition, the project would enhance pedestrian activity with a new pedestrian pathway providing access to all educational and recreational activities within La Brea Tar Pits. Furthermore, the numerous existing and future public transit options and pedestrian amenities within the project site and vicinity would also enhance pedestrian activity in the area.
Policy 3.8.6 Encourage outdoor areas within neighborhood districts to be lighted for night use, safety and comfort commensurate with their intended nighttime use.	**Consistent.** Project lighting would include low-level exterior lights adjacent to buildings and along pathways for security and wayfinding purposes. In addition, low-level landscaping elements would also be incorporated throughout the project site to allow for visibility throughout the site. Lighting would be provided within the parking lot and along access points throughout the parking lot, which would help increase personal safety of visitors. Project lighting has been designed to minimize light trespass from the proposed building and from the overall project site. The entirety of Hancock Park is enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when La Brea Tar Pits, the Page Museum, and LACMA are closed in the evenings.
Goal 3E Pedestrian-oriented, high activity, multi- and mixed-use centers that support and provide identity for Los Angeles' communities.	**Consistent.** See the consistency analysis for Policy 3.2.1 and Policy 3.2.4.
Objective 3.9 Reinforce existing and encourage new community centers, which accommodate a broad range of uses that serve the needs of adjacent residents, promote neighborhood and community activity, are compatible with adjacent neighborhoods, and are developed to be desirable places in which to live, work and visit, both in daytime and nighttime.	**Consistent.** See the consistency analysis for Policy 3.2.1 and Policy 3.2.4.
Policy 3.9.7 Provide for the development of public streetscape improvements, where appropriate.	**Consistent.** The project would include landscaping that would extend along the park's peripheral edges to provide shade to picnic areas and the parking lot to the north. The proposed landscaping plan would be compatible with the existing landscaping along the perimeter of Hancock Park.

Objective/Policy	Analysis of Project Consistency
Policy 3.9.8 Support the development of public and private recreation and small parks by incorporating pedestrian-oriented plazas, benches, other streetscape amenities and where appropriate, landscaped play areas.	**Consistent.** See the consistency analysis for Objective 3.1 and Policy 3.1.3.
Policy 3.9.9 Require that outdoor areas of developments, parks, and plazas located in community centers be lighted for night use, safety, and comfort commensurate with their intended nighttime use, where appropriate.	**Consistent.** See the consistency analysis for Policy 3.8.6.
Urban Form and Neighborhood Design Chapter	
Objective 5.4 Encourage the development of community facilities and improvements that are based on need within the centers and reinforce or define those centers and the neighborhoods they serve.	**Consistent**. See the consistency analysis for Objective 3.1.
Policy 5.4.4 Encourage the use of community facilities for nighttime activity through the use of appropriate roadway and pedestrian area lighting.	**Consistent.** See the consistency analysis for Policy 3.8.6. The project lighting provided along pathways would support the use of community facilities for nighttime activity.
Objective 5.5 Enhance the livability of all neighborhoods by upgrading the quality of development and improving the quality of the public realm.	**Consistent**. See the consistency analysis for Policy 3.1.3, Policy 3.2.1, and Policy 3.2.4.
Objective 5.8 Reinforce or encourage the establishment of a strong pedestrian orientation in designated neighborhood districts, community centers, and pedestrian-oriented subareas within regional centers, so that these districts and centers can serve as a focus of activity for the surrounding community and a focus for investment in the community.	**Consistent.** While the project site is not located within a designated neighborhood district, community center, or pedestrian-oriented subarea, the project would encourage pedestrian activity within and surrounding the project site. The proposed museum building, pedestrian walkways, landscaping, and other site improvements were designed to encourage better pedestrian access and circulation. In addition, the project would provide a variety of outdoor open spaces within the project site, including landscaped plazas, gardens, and pedestrian paths that would be designed to integrate the new museum building and existing uses within Hancock Park.
Policy 5.8.4 Encourage that signage be designed to be integrated with the architectural character of the buildings and convey a visually attracted character.	**Consistent.** New identification signage would be provided as part of the project. Proposed signage would be designed to be aesthetically compatible with the existing and proposed architecture within the project site and the surrounding area and would be architecturally integrated into the design of the new museum building.
Objective 5.9 Encourage proper design and effective use of the built environment to help increase personal safety at all times of the day.	**Consistent.** Project lighting would include low-level exterior lights adjacent to buildings and along pathways for security and wayfinding purposes. In addition, low-level landscaping elements would also be incorporated throughout the project site to allow for visibility throughout the site. Security on-site would be provided by both on-site personnel and technology/equipment (e.g., surveillance and monitoring equipment, adequate lighting, adequate signage for pedestrian orientation, etc.). With regard to the parking lot, proper lighting would be provided within the parking lot and along access points throughout the parking lot, which would help increase personal safety of visitors. The entirety of Hancock Park is enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when La Brea Tar Pits, the Page Museum, and LACMA are closed in the evenings.
Open Space and Conservation Chapter	
Policy 6.3.3 Utilize development standards to promote development of public open space that is visible, thereby helping to keep such spaces and facilities as safe as possible.	**Consistent**. See the consistency analysis for Objective 5.9.

Objective/Policy	Analysis of Project Consistency
Policy 6.4.8 Maximize the use of existing public open space resources at the neighborhood scale and seek new opportunities of private development to enhance the open space resources of the neighborhoods.	**Consistent**. See the consistency analysis for Policy 3.1.3.
Transportation Chapter	
Objective 2 Mitigate the impacts of traffic growth, reduce congestion and improve air quality by implementing a comprehensive program of multi-modal strategies that encourages physical and operational improvements, as well as demand management.	**Consistent with Mitigation**. The project would be in an area well-served by public transit provided by Metro, as well as several bus lines. In addition to the numerous existing and future public transit options, pedestrian amenities provided throughout the project site would also promote an improved quality of life by facilitating a reduction of vehicle trips, VMT, and air pollution. In addition, Mitigation Measure TRA/mm-1.1 would require the preparation and implementation of a TDM Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. Also see the consistency analysis for Objective 3.2.
Policy 3.13 Enhance pedestrian circulation in neighborhood districts, community centers, and appropriate locations in regional centers and along mixed-use boulevards; promote direct pedestrian linkages between transit portals/platforms and adjacent commercial development through facilities orientation and design.	**Consistent**. See the consistency analysis for Objective 3.1, Objective 3.2, and Policy 3.8.4.
Mobility Plan 2035 (as a Supplement to the Transportation Chapter of the Framework Element)	
Policy 1.6 Design detour facilities to provide safe passage for all modes of travel during times of construction.	**Consistent with Mitigation.** Mitigation Measure TRA/mm-4.1 would require the development and implementation of a detailed Construction Management Plan. The Construction Management Plan would include measures for pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways; scheduling of construction-related deliveries, haul trips, etc.; and safety precautions for pedestrians and bicyclists including but not limited to such measures as alternate routing and protection barriers as appropriate. The Construction Management Plan would formalize how construction would be carried out and identify specific actions that would be required to reduce effects on the surrounding community.
Policy 2.3 Recognize walking as a component of every trip and ensure high-quality pedestrian access in all site planning and public right-of-way modifications to provide a safe and comfortable walking environment.	**Consistent**. See the consistency analysis for Policy 3.8.4.
Policy 2.10 Facilitate the provision of adequate on and off-street loading areas.	**Consistent.** The project would include three loading and service entrances that would accommodate deliveries for laboratories, exhibition material, food service, events, and staff offices. Two of the entrances would be from the parking lot into the new museum building on the north side, and the third entrance would be from the parking lot into the Page Museum, also on the north side. The project also includes a new school drop-off area from South Curson Avenue, adjacent to Wilshire Gateway picnic area. School buses and other vehicles would also be able to access the parking lot from South Curson Avenue and drop off in the loading area in the parking lot.
Policy 2.16 Ensure that future modifications to any scenic highway do not impact the unique identity or characteristic of that scenic highway.	**Consistent.** The portion of Wilshire Boulevard between Fairfax Avenue and Sycamore Avenue, adjacent to the project site, is a City-designated scenic highway as described in the Mobility Plan 2035. The project would not impact the landscaped median along Wilshire Boulevard; the median is a primary feature that contributes to the scenic value of this portion of the roadway. The project would not be modifying Wilshire Boulevard and no earthwork along Wilshire Boulevard is proposed by the project. In addition, the project would not substantially damage or remove visually prominent or character-defining features of the project site. As such, the project would retain the unique identity and characteristics of the Wilshire Boulevard and would not substantially damage scenic resources within a designated scenic highway.

Objective/Policy	Analysis of Project Consistency
Policy 3.1 Recognize all modes of travel, including pedestrian, bicycle, transit, and vehicular modes – including goods movement – as integral components of the City's transportation system.	**Consistent.** See the consistency analysis for Objective 3.2.
Policy 3.3 Promote equitable land use decisions that result in fewer vehicle trips by providing greater proximity and access to jobs, destinations, and other neighborhood services.	**Consistent.** See the consistency analysis for Objective 3.2 and Policy 3.2.1.
Policy 3.4 Provide all residents, workers, and visitors with affordable, efficient, convenient, and attractive transit services.	**Consistent.** See the consistency analysis for Objective 3.2.
Infrastructure and Public Services Chapter	
Policy 9.3.1 Reduce the amount of hazardous substances and the total amount of flow entering the wastewater system.	**Consistent with Mitigation.** As evaluated in Section 5.9, Hydrology and Water Quality, during construction of the project, a SWPPP would be prepared and implemented, as required under the NPDES General Construction Permit. The SWPPP would require implementation of BMPs including erosion control measures, sediment control measures, non-stormwater management, and materials management measures, to minimize the discharge of pollutants in stormwater runoff into nearby receiving waters (in this case, Ballona Creek). The project would also be required to comply with the County's LID Standards Manual, which promotes the use of natural infiltration systems, evapotranspiration, and the reuse of stormwater. The project would retain stormwater through three proposed biofiltration areas to be captured in below grade cisterns, and used on-site for toilets, urinals, landscape irrigation, and cooling towers to reduce the amount of flow entering the wastewater system. In addition, as discussed in Section 5.8, Hazards and Hazardous Materials, the project would implement Mitigation Measures HAZ/mm-1.1 requiring the preparation of a Soils Management Plan to ensure any potentially contaminated soils would be excavated and transported off-site in accordance with all relevant and applicable federal, state, and local laws and regulations.
Policy 9.3.2 Consider the use of treated wastewater for irrigation, groundwater recharge, and other beneficial purposes.	**Consistent.** See the consistency analysis for Policy 9.3.1.
Objective 9.6 Pursue effective and efficient approaches to reducing stormwater runoff and protecting water quality.	**Consistent.** See the consistency analysis for Policy 9.3.1.
Objective 9.10 Ensure that water supply, storage, and delivery systems are adequate to support planned development.	**Consistent.** As concluded in Los Angeles Department of Water and Power's (LADWP's) 2020 Urban Water Master Plan, projected water demand for the City, where the project site is located, would be met by the available supplies during an average year, single-dry year, and multiple-dry year in each year from 2025 through 2045. In addition, projects that conform to the demographic projection from the RTP by SCAG and are currently located in the City's service area are considered to have been included in LADWP's water supply planning efforts; therefore, the projected water supplies would meet projected demands.

Objective/Policy	Analysis of Project Consistency
Objective 9.12 Support integrated solid waste management efforts.	**Consistent.** The project would be consistent with City and County policies that have been developed to reduce landfill waste streams as well as AB 939, AB 341, and AB 1826. Specifically, the project would include clearly marked, source-sorted receptacles to facilitate recycling with a focus on items such as paper, cardboard, glass, aluminum, plastic, and cooking oils. In addition, the project would provide for source-sorted receptacles for the recycling of organic waste. In accordance with AB 1327 and AB 1826, the project would also provide for adequate areas for the collection, loading, and removal of recycled materials, including organic waste. Furthermore, construction activities would also make use of local, recycled, and renewable materials where possible and reuse construction materials such as grading debris within the project site.
Goal 9L Sufficient and accessible parkland and recreation opportunities in every neighborhood of the City, which gives all residents the opportunity to enjoy green spaces, athletic activities, social activities, and passive recreation.	**Consistent.** The project would contribute to the achievement of this City goal through the establishment of multiple recreation zones throughout the park, including Central Green, gardens, plazas at Wilshire Gateway and 6th Street Gateway, and a pedestrian path that would be designed to integrate the new museum building and renovated Page Museum with existing uses within Hancock Park The project would also provide for outdoor programming, such as a new outdoor classroom with a shade canopy at Pit 91.
Goal 9P Appropriate lighting required to (1) provide for nighttime vision, visibility, and safety needs on streets, sidewalks, parking lots, transportation, recreation, security, ornamental, and other outdoor locations; (2) provide appropriate and desirable regulation of architectural and informational lighting such as building façade lighting or advertising lighting; and (3) protect and preserve the nighttime environment, views, driver visibility, and otherwise minimize or prevent light pollution, light trespass, and glare.	**Consistent with Mitigation.** Upon project completion, lighting within the project site would include interior and low-level exterior lights adjacent to the buildings and along pathways for security and wayfinding purposes. In addition, low-level lighting for accent signage, parking information, and architectural features would also be incorporated. The new museum building would introduce a new source of light including exterior lights adjacent to the building and for the second-floor outdoor amenities when in use. The current design of the project does not include electronic signage or signs with flash, mechanical, or strobe lights. However, given the conceptual nature of the project at this stage of design and development, the resulting lighting and design features cannot be determined with certainly and certain design details that could create light and potential glare may be introduced as the building plans are more fully developed. Mitigation Measure AES/mm-4.1 and Mitigation Measure AES/mm-4.2 would require lighting restrictions during project construction and implementation of project design features in accordance with Title 22 of the County Code.
Objective 9.40 Ensure efficient and effective energy management in providing appropriate levels of lighting for private outdoor lighting for private streets, parking areas, pedestrian areas, security lighting, and other forms of outdoor lighting and minimize or eliminate the adverse impact of lighting due to light pollution, light trespass, and glare.	**Consistent.** See the consistency analysis for Goal 9P.
Policy 9.40.1 Require lighting on private streets, pedestrian oriented areas and pedestrian walks to meet minimum City standards for street and sidewalk lighting.	**Consistent.** See the consistency analysis for Goal 9P.
Policy 9.40.2 Require parking lot lighting and related pedestrian lighting to meet recognized national standards.	**Consistent.** See the consistency analysis for Goal 9P.

Objective/Policy	Analysis of Project Consistency
Conservation Element	
Section 3 Archaeological and Paleontological Objective: Protect the city's archaeological and paleontological resources for historical, cultural, research and/or educational purposes.	**Consistent with Mitigation.** The Master Plan includes components to enhance the preservation of, and access to, existing cultural and paleontological resources on-site. The project would implement Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4 to address the archaeological sensitivity of the site and the potential to discover additional resources. In addition, the project has high paleontological sensitivity. The project would implement Mitigation Measures GEO/mm-6.1 through GEO/mm-6.5 which would ensure retention of a qualified project paleontologist, preparation of a paleontological resources management plan, paleontological resources sensitivity training, paleontological resources monitoring, and treatment and curation of discoveries, if encountered.
Section 3 Archaeological and Paleontological Policy: Continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities.	
Section 5 Cultural and Historical Objective: Protect important cultural and historical sites and resources for historical, cultural, research, and community educational purposes.	**Potentially Inconsistent**. The Master Plan includes components to enhance the preservation of, and access to, existing cultural and paleontological resources on-site. This would include improvements to existing tar pit sites involving the construction of clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage. However, project implementation would result in significant physical changes, partial demolition, and new construction affecting the two designated historical resources within the project site, which are the La Brea Tar Pits Historic District and the Page Museum. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while keeping the primary elements of the Master Plan; therefore, residual impacts of the project would remain significant and unavoidable and would be potentially inconsistent with this goal.
Cultural and Historical Policy: Continue to protect historic and cultural sites and/or resources potentially affected by proposed land development, demolition or property modification activities.	

Table 5.10-6. Preliminary Project Consistency Evaluation—Wilshire Community Plan

Goal/Objective/Policy	Analysis of Project Consistency
Residential	
Policy 1-3.2 Support historic preservation goals in neighborhoods of architectural merit and/or historic significance.	**Potentially Inconsistent.** Project implementation would result in significant physical changes, partial demolition, and new construction affecting the two designated historical resources within the project site, which are the La Brea Tar Pits Historic District and the Page Museum. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while keeping the primary elements of the Master Plan; therefore, residual impacts of the project would remain significant and unavoidable and would be potentially inconsistent with this goal.
Policy 1-3.4 Monitor the impact of new development on residential streets. Locate access to major development projects so as not to encourage spillover traffic on local streets.	**Consistent.** The project would implement Mitigation Measure TRA/mm-1.1, requiring development of a Transportation Demand Management (TDM) program to coordinate on multimodal improvements in the study area and to reduce employee and visitor vehicle trips and related effects on project access safety and circulation.

Goal/Objective/Policy	Analysis of Project Consistency
Commercial	
Policy 2-2.1 Encourage pedestrian-oriented design in designated areas and in new development.	**Consistent.** The project would reconfigure the existing pedestrian pathways on-site with a continuous pedestrian path linking all the existing elements of the site. Each loop would contain distinct themes and programming to immerse visitors into La Brea history. The design of the new museum building and Page Museum building have also been designed to improve pedestrian access and circulation. In addition, the new entrances to the museum buildings via Wilshire Gateway and 6th Street Gateway would open new public outdoor space for orientation, gathering and queuing, restrooms, a picnic area and play area, and seating and interpretation zones at the protected tar seeps.
Policy 2-2.3 Encourage the incorporation of retail, restaurant, and other neighborhood serving uses in the first floor street frontage of structures, including mixed use projects located in Neighborhood Districts.	**Consistent.** Although the project would not be in a Neighborhood District, the project would incorporate a ground-floor restaurant and retail spaces that are compatible with the surrounding commercial area.
Policy 2-3.1 Improve streetscape identity and character through appropriate controls of signs, landscaping, and streetscape improvements; and require that new development be compatible with the scale of adjacent neighborhoods.	**Consistent.** The project would include new identification signage that would be consistent and compatible with existing museum signage and other signage in the vicinity of the project site. The project would include landscaping along the pedestrian path with a distinguishing theme representing different geologic epochs and a variety of new landscaping along the perimeter of the western loop that would be extended along the park's peripheral edges. The new museum building would be a low-rise structure along Wilshire Boulevard.
Recreation and Park Facilities	
Goal 4 Provide adequate recreation and park facilities to meet the needs of residents in the Wilshire Community.	**Consistent**. The project would include improvements to the Central Green, a publicly accessible community lawn to promote activities and events that take place in Hancock Park. The improved Central Green would continue to support health and wellness programs, visiting school children, museum tour groups, and community members. The improved infrastructure and drivable path for food trucks would increase event and dining opportunities. The project would also implement a new canopy and shade trees at Wilshire Gateway to would allow for picnic areas, and the new canopy at 6th Street Gateway would welcome visitors to a shaded park space where community park and recreational needs are balanced with the research activities of La Brea. These recreation zones would create an active site of visible research and play.
Objective 4-1 Conserve, maintain and better utilize existing recreation and park facilities, which meet the recreational needs of the community.	**Consistent.** The project would redesign and renovate the Hancock Park community park green space to increase sustainable landscape and site design, to support passive recreational use, to increase the visibility of this important cultural destination, and to enhance connections to the Miracle Mile neighborhood. Specifically, the project would include improvements to the existing 28,000-square foot multi-purpose grass lawn, Central Green, which would provide a setting for community activities, recreation, events, and public gathering. The project would also install a new welcome pavilion with a canopy and shade trees at Wilshire Gateway, and a shaded welcome area at 6th Street Gateway. These new recreational areas would be designed to integrate the new museum building and existing uses within Hancock Park, which would enhance these existing facilities to meet the recreational needs of the community.
Policy 4-1.1 Preserve and improve the existing recreational facilities and park spaces.	**Consistent**. See the consistency analysis for Objective 4-1.
Policy 4-1.2 Encourage the shared use of other public facilities for recreational purposes.	**Consistent**. See the consistency analysis for Objective 4-1.

Goal/Objective/Policy	Analysis of Project Consistency
Objective 4-3 Ensure the accessibility, security and safety of parks by their users, particularly families with children and senior citizens.	**Consistent.** Lighting provided within the public outdoor space would include low-level exterior lights adjacent to buildings and along pathways for security and wayfinding purposes. In addition, low-level lighting to accent signage, architectural features, and landscaping elements would also be incorporated throughout the project site. Due to the transparency in building design, areas of concealment are minimized, which would help increase personal safety at all times of the day. In addition, security would be provided by both on-site personnel and technology/equipment (e.g., surveillance and monitoring equipment, adequate lighting, adequate signage for pedestrian orientation, etc.). Further, outdoor spaces would be clearly defined and landscaping on the project site would be used as natural barriers and shade in picnic areas. Lastly, the entirety of Hancock Park is enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when La Brea Tar Pits, the Page Museum, and LACMA are closed in the evenings. This perimeter fencing would remain as an existing safety feature with project implementation restricting access to the project site at night.
Policy 4-3.1 Ensure that parks are adequately policed, monitored, maintained and illuminated for safe use at night, as appropriate.	**Consistent**. See the consistency analysis for Objective 4-3.
Open Space	
Goal 5 Provide sufficient open space in balance with development to serve the recreational, environmental health and safety needs of the Wilshire Community, and to protect environment and aesthetic resources.	**Consistent**. See the consistency analysis for Policy 2-2.1, Policy 2-3.1, Objective 4-1, and Objective 4-3.
Objective 5-1 Preserve existing open space resources and where possible develop new open space.	**Consistent**. See the consistency analysis for Policy 2-2.1.
Policy 5-1.1 Encourage the retention of passive visual open space to provide a balance of urban development.	**Consistent**. See the consistency analysis for Objective 2-2.1 and Objective 4-1.
Policy 5-1.3 Convert and upgrade underutilized publicly owned property.	**Consistent.** The purpose of the Master Plan is to reimagine La Brea Tar Pits by renovating the Page Museum, constructing a new museum building, and redesigning the Hancock Park community park green space to enhance the presentation of the Tar Pits research collection and programmatic needs for its visitors today and into the future and enrich the existing Hancock Park. The existing museum structure would be expanded to address deferred maintenance of the building envelope and systems, meet modern seismic, electrical, and building code standards, and meet sustainability goals consistent with the County's Sustainability Plan. The new museum building would provide expanded fossil storage facilities that enable access for scientific research and preserve, expanded laboratory research facilities, and exhibition facilities.
Policy 5-1.4 Unused or underutilized public lands should be considered for open space and recreational purposes.	**Consistent**. See the consistency analysis for Objective 4-1 and Policy 5-1.3.
Transportation	
Goal 11 Encourage a system of safe, efficient and attractive bicycle and pedestrian routes.	**Consistent.** Primary pedestrian access to the project site would be provided from Wilshire Boulevard but would also be available from 6th Street. The two new entrances connect to the main pedestrian pathway that links all elements of the park, which provides an inviting Tar Pits experience. Low-level exterior lighting would be incorporated along the pedestrian pathway and entrances to ensure safety, especially during the nighttime for visitors.
Objective 11-2 Promote pedestrian mobility, safety, amenities, and access between employment centers, residential areas, recreational areas, schools, and transit centers.	**Consistent.** The project would provide new outdoor open spaces, including improvements to the existing 28,000-square foot multi-purpose lawn, Central Green, landscaped plazas, a garden, and a pedestrian path that would link project features and existing uses within Hancock Park. The project would also be located within an area that is well-served by public transit.

Goal/Objective/Policy	Analysis of Project Consistency
Goal 12 Encourage alternative modes of transportation to reduce single-occupancy vehicular trips.	**Consistent.** See the consistency analysis for Objective 11-2.
Policy 12-1.1 Encourage non-residential developments to provide employee incentives for using alternative to the automobile (carpools, vanpools, buses, shuttles, subways, bicycles, walking) and provide flexible work schedules.	**Consistent with Mitigation.** Mitigation Measure TRA/mm-1.1 would require development of a TDM program, which includes incentives for employees to use alternative forms of transportation, including strategies such as providing subsides for participation in the LA Metro vanpool and transit passes, as well as offering flexible work schedules and telecommuting, when feasible.
Goal 15 Provide a sufficient supply of well-designed and convenient off-street parking lots and facilities throughout the plan area.	**Consistent.** Development of the project includes an upgrade of the parking lot located to the north of the project site. The parking lot would be expanded from 63,000 square feet to 65,000 square feet and increase an approximately 5 to 15 parking spaces. New landscaping and vehicle access lanes would be added to the parking lot and a vehicle drop-off loop would be provided to facilitate vehicle circulation and visitor entry through a pedestrian entrance to the museum leading from the parking lot.
Historic and Cultural Resources	
Goal 17 Preserve and restore cultural resources, neighborhoods and landmarks, which have historical and/or cultural significance.	**Potentially Inconsistent**. The project's conceptual plan includes components to enhance the preservation of, and access to, existing cultural and paleontological resources on-site. This would include improvements to existing tar pit sites involving the construction of clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage. However, project implementation would result in significant physical changes, partial demolition, and new construction affecting the two designated historical resources within the project site, which are the La Brea Tar Pits Historic District and the Page Museum. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while keeping the primary elements of the Master Plan; therefore, residual impacts of the project would remain significant and unavoidable and would be potentially inconsistent with this goal.
Objective 17-1 Ensure that the Wilshire Community's historically significant resources are protected, preserved, and/or enhanced.	**Potentially Inconsistent**. See consistency analysis for Goal 17.
Policy 17-1.1 Encourage the preservation, maintenance, enhancement and reuse of existing historic buildings and the restoration of original facades.	**Potentially Inconsistent**. See consistency analysis for Goal 17.

Table 5.10-7. Preliminary Project Consistency Evaluation—SCAG 2020-2045 RTP/SCS

Goals and Principles	Analysis of Project Consistency
Goal 5. Reduce greenhouse gas emissions and improve air quality	**Consistent with Mitigation.** The project would not conflict with the GHG reduction policies strategies and regulations of this plan; however, to further reduce the project's potential GHG emissions, the project would implement Mitigation Measure TRA/mm-1.1 requiring development of a Transportation Demand Management (TDM) program with specific strategies aimed to reduce project employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and ridesharing. In addition, Mitigation Measure GHG/mm-1.1 would ensure the project would not include the installation of natural gas infrastructure. In addition, Mitigation Measure GHG/mm-1.1 would ensure the project provides more electric vehicle charging stations than the mandatory requirements set forth in the Los Angeles County Code, Title 31, Green Building Standards (Code Section 5.106.5.3.3). Further, Mitigation Measure AQ/mm-3.1 would require all SCAQMD rules and regulations to serve as mitigation measures for the project during construction. Operation of the project would not result in adverse impacts to air quality.
Goal 6. Support healthy and equitable communities	**Consistent.** The project would support the health of visitors by improving existing and creating new outdoor public spaces and improved landscaping that would support visitors and employees' mental health, encourage community interaction, and improve air quality. The project would also encourage pedestrian mobility via the proposed easily accessible paved pedestrian path linking the existing elements of the site. Each loop of the pathway would contain distinct themes and programming. The new museum building design would use sustainable design features such as enhanced daylighting, rainwater collection leading to bioswales, and a sloped green roof.
Goal 10. Promote conservation of natural and agricultural lands and restoration of habitats	**Consistent with Mitigation.** The project site is dominated by a large lawn surrounding the museum consisting of primarily non-native planted trees and shrubs. It provides limited wildlife habitat due to the combination of high levels of human activity, the lack of surface water, and the low quantity of native plants. However, there are currently over 300 trees on-site, both non-native and native species, including the Coast live oak which is a species protected under the Los Angeles Oak Tree Ordinance. The Master Plan's proposed planting strategy includes the introduction or relocation of 150 to 200 trees on-site. Tree species selected for planting would be drought-tolerant and/or of a native tree species and would primarily require moist to dry soil conditions. The trees provide potential nesting habitat for birds as well as in the native plant area of Oil Creek. Oil Creek supports a community of hydrophytic and riparian vegetation. The project would be required to implement the following mitigation measures to protect and preserve the biological resources on-site: BIO/mm-2.1 to protect sensitive and regulated resources at and along Oil Creek; BIO/mm-3.1 to protect sensitive and regulated resources at and around the Lake Pit; BIO/mm-4.1 and BIO/mm-4.2 to avoid impacts to nesting birds; and BIO/mm-5.1 and BIO/mm-5.2 to avoid conflicts with the County of Los Angeles Oak Tree Ordinance.

5.10.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project could result in significant adverse environmental impacts related to land use and planning if it would:

a) Physically divide an established community.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

5.10.4 Methodology

Sources used in the assessment of land use and planning impacts include the County's General Plan, the City's General Plan, the Wilshire Community Plan, and the 2020-2045 SCAG RTP/SCS. The project's potential consistency with relevant County and City General Plan policies are evaluated in Table 5.10-4 through Table 5.10-7. Only project elements that have the potential to conflict with an applicable goal,

policy, or program are evaluated further in this section. Based on State CEQA Guidelines, inconsistency with an adopted policy does not constitute an impact unless it may cause either a direct or indirect physical change in the environment, or a reasonably foreseeable physical change in the environment (Section 21065). Therefore, the analysis provided in this section focuses on the goals and policies with which the project may potentially be inconsistent, and the potential physical impacts on the environment that may result from those potential inconsistencies.

5.10.5 Environmental Impact Analysis

a) Would the project physically divide an established community?

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park, located within a highly urban area that includes a mix of commercial uses and residential uses. As shown in Figure 3-3 in Chapter 3, Project Description, the project components include either the renovation and expansion of existing facilities or reconfiguration of existing project site elements with the intent of enhancing the current uses and promoting connectivity throughout the project site. There are no existing residential uses on-site and no residential uses are proposed by the project.

CONSTRUCTION

As noted, there are no existing residential uses on the project site nor would the project introduce a residential component during construction that would be physically separated or otherwise disrupted by the project. Construction of the project would occur within the boundaries of the existing project site, which would not affect the continued functioning of, access to, or otherwise obstruct aspects of the physical linkages between surrounding land uses and this part of the community. Furthermore, construction of the project would not involve features such as a highway, aboveground infrastructure, or an easement through an established neighborhood having the potential to divide an established community. As such, construction of the project would not divide an established community. *No impact* would occur.

OPERATION

Following construction activities, implementation of the project would result in renovations to the Page Museum and construction of the new museum building intentionally designed to be consistent with the scale and diversity of the existing built environment and surrounding areas. Particular attention has been given to integrating the outdoor and indoor elements of La Brea Tar Pits and Hancock Park. Buildings and structures on-site, including the museum buildings and the gateway features at Wilshire and 6th Street would be constructed at a maximum height of 30 feet when measured from the terrace level.
The proposed pedestrian path and the gateway features would connect project site features and increase walkability and accessibility throughout the project site. Further, the proposed improvements to the passive recreation areas on-site (e.g., children's play area, picnic tables) would occur in existing areas intended for community gathering purposes and would not introduce features that would divide these established uses. While the project proposes the expansion and relocation of the existing parking lot to the north of its current location by approximately 50 to 70 feet, it would not introduce a new barrier or division to the project site.

In addition, the project operation would not require the permanent closure of any streets surrounding the project site which currently provide access to surrounding uses, nor would operation of the project require the construction of any new roadways or other mobility features that would result in a new barrier through the existing community. It should be noted that the entirety of Hancock Park is enclosed with an 8- to 10-foot-high metal fence that serves to secure the site by providing full closure of Hancock Park when

La Brea Tar Pits, the Page Museum, and LACMA are closed in the evenings. This perimeter fencing would remain as an existing feature with project implementation and while it does restrict access to the project site at night, it is an existing safety feature and would not be considered an element that would divide an established community.

Given the project includes the renovation and expansion of the existing Page Museum and associated facilities within the existing boundary of the project site and would not introduce features that would implement barriers or divide the established uses within the project site or within the greater area of Hancock Park and the surrounding neighborhood, the project operation would not physically divide an established community. *No impact* would occur.

LUP Impact 1
The project would not include features that would physically divide an established community during construction and operation. No impact would occur. (CEQA Checklist Appendix G Threshold XI. a)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. There would be no impacts associated with division of an established community.

b) Would the project cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The consistency analysis of the applicable land use plans, policies, and regulations considers the holistic impacts associated with implementation of the project and does not provide separate construction and operation analyses. This is because most policies broadly consider the appropriateness of types of land uses. Also, the analysis is organized by the chronological placement of the particular policies within the guidance or regulatory document. Based on the evaluation of the project's potential consistency with relevant plans and policies in Chapter 5, Environmental Impact Analysis, of this EIR, the project would have the potential to result in inconsistencies with applicable policies pertaining to the alteration of designated historical resources. The project would be potentially inconsistent with the policies identified in Table 5.10-8 and evaluated below.

Table 5.10-8. Applicable Plans and Policies with which the Project Would Be Potentially Inconsistent

Plan	Potentially Inconsistent Objective, Goal, and/or Policy
County of Los Angeles General Plan	**Goal C/NR 14** Protected historic, cultural, and paleontological resources.
	Policy C/NR 14.1 Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.
	Policy C/NR 14.2: Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.
	Policy C/NR 14.3 Support the preservation and rehabilitation of historic buildings.

Plan	Potentially Inconsistent Objective, Goal, and/or Policy
City of Los Angeles General Plan	**Cultural and Historical Objective**: Protect important cultural and historical sites and resources for historical, cultural, research, and community educational purposes.
	Cultural and Historical Policy: Continue to protect historic and cultural sites and/or resources potentially affected by proposed land development, demolition or property modification activities.
Wilshire Community Plan	**Policy 1-3.2** Support historic preservation goals in neighborhoods of architectural merit and/or historic significance.
	Goal 17 Preserve and restore cultural resources, neighborhoods and landmarks, which have historical and/or cultural significance.
	Objective 17-1 Ensure that the Wilshire Community's historically significant resources are protected, preserved, and/or enhanced.
	Policy 17-1.1 Encourage the preservation, maintenance, enhancement, and reuse of existing historic buildings and the restoration of original facades.

The project's conceptual plan includes components to enhance the preservation of, and access to, existing cultural and paleontological resources on-site. This would include improvements to existing tar pit sites involving the construction of clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage.

However, project implementation would result in significant physical changes, partial demolition, and new construction affecting the two designated historical resources within the project site, which are the La Brea Tar Pits Historic District and the Page Museum. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while meeting the project objectives and keeping the primary elements of the Master Plan; therefore, impacts of the project would remain significant and unavoidable after implementation of the recommendations, creating inconsistencies with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan. Given there is no feasible mitigation to reduce impacts of the project related to historical resources or the identified land use policy inconsistencies, related impacts would be *significant and unavoidable*.

LUP Impact 2
Implementation of the project would result in the alteration of designated historical resources and would be potentially inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's General Plan Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources. Impacts would be significant. (CEQA Checklist Appendix G Threshold XI. b)
Mitigation Measures
Implement Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5.
Impacts Following Mitigation
Upon implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5, impacts to historical resources from project implementation would remain significant and unavoidable; therefore, impacts related to land use policy conflicts would remain significant and unavoidable.

5.10.6 Cumulative Impacts

As stated in Section 5.10.5, the project would have no impact related to the physical division of an established community (threshold a) and would not contribute to cumulative impacts related to this issue.

The project site is located within a highly urban area that includes a mix of commercial uses and residential uses. Chapter 4, Environmental Setting, details the existing and reasonably foreseeable future development projects located within proximity to the project site. The related projects provided in Chapter 4 generally consist of infill development and redevelopment of existing uses, including mixed-use, residential, commercial, office, restaurant, retail, studio, museum, hotel, and combinations thereof. The project, in combination with the related projects provided in Chapter 4, could result in cumulative impacts if it would conflict with a land use plan, policy, or regulation, adopted for the purposes of mitigating an environmental effect (threshold b).

As discussed in LUP Impact 2, the project's significant and unavoidable impacts related to historic resources create inconsistencies with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan as identified in Table 5.10-8. While the project's Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would avoid, minimize, rectify, reduce, or compensate for the significance of the impacts to historical resources to the degree feasible, they would not mitigate impacts below the level of significance. As such, the identified land use policy inconsistencies would also be significant and unavoidable with no feasible mitigation to address the impact. When considered in combination with the impacts of these projects in the cumulative scenario, the project would contribute incrementally toward cumulative effects on historical resources associated with the project and related land use policies protecting these resources. The project's contribution to cumulative impacts related to conflicts with applicable land use plans and policies could be *significant*.

LUP Impact 3 (Cumulative Impacts)
The project would contribute incrementally toward cumulative effects on historical resources associated with the project and related land use policies protecting these resources (i.e., County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan). The potential inconsistencies are identified in Table 5.10-8. The project would contribute significantly to cumulative impacts to historic resources, which would be considered a significant impact.
Mitigation Measures
Implement Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5.
Impacts Following Mitigation
Upon implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5, impacts to historical resources would remain significant and unavoidable; therefore, the project's contribution to cumulative impacts related to land use policy conflicts focused on historic resources would remain significant and unavoidable.

5.11 NOISE AND VIBRATION

This section addresses the potential noise and vibration impacts associated with construction and operation of the project. It describes the existing noise levels at the project site, the regulatory setting, the impacts of the project, and feasible mitigation measures to reduce impacts, where applicable. The analysis in this section is based on the following noise report, included as Appendix I: *Noise and Ground Vibration Technical Report for the La Brea Tar Pits Master Plan* (SWCA 2022).

5.11.1 Existing Conditions

5.11.1.1 Noise Fundamentals

DEFINITION OF ACOUSTICAL TERMS

Noise is commonly defined as sound that is undesirable because it interferes with speech communication and hearing, causes sleep disturbance, or is otherwise annoying. The following acoustical terms are used throughout this analysis:

- Ambient sound level is defined as the composite of noise from all sources near and far (i.e., the normal or existing level of environmental noise at a given location).
- Decibel (dB) is the physical unit commonly used to measure sound levels. Technically, a dB is a unit of measurement that describes the amplitude of sound equal to 20 times the base 10 logarithm of the ratio of the reference pressure to the sound of pressure, which is 20 micropascals (μPa).
- Sound measurement is further refined by using a decibel "A-weighted" sound level (dBA) scale that more closely measures how a person perceives different frequencies of sound; the A-weighting reflects the sensitivity of the ear to low or moderate sound levels.
- Equivalent noise level (L_{eq}) is the energy average A-weighted noise level during the measurement period.
- The root-mean-squared maximum noise level (L_{max}) characterizes the maximum noise level as defined by the loudest single noise event over the measurement period.
- Day-night sound level (L_{dn}) is the A-weighted equivalent sound level for a 24-hour period with an additional 10-dB weighting imposed on the equivalent sound levels occurring during nighttime hours (10:00 p.m. to 7:00 a.m.).
- Community Noise Equivalent Level (CNEL) is a measure of the 24-hour average noise level that penalizes noise that occurs during the evening and nighttime hours, when noise is considered more disturbing. To account for this increase in disturbance, 5 dBA is added to the hourly L_{eq} during the evening hours (7:00 p.m. to 10:00 p.m.) and 10 dBA is added during the nighttime hours (10:00 p.m. to 7:00 a.m.).
- Percentile-exceeded sound level (L_{xx}) describes the sound level exceeded for a given percentage of a specific period.
- Noise-sensitive land use is defined as a location most likely to be adversely affected by excessive noise levels, or as a place where quiet is an essential element of their intended purpose.

SOUND LEVELS OF REPRESENTATIVE SOUNDS AND NOISES

The U.S. Environmental Protection Agency (EPA) has developed an index to assess noise impacts from a variety of sources. Noise levels in a quiet rural area at night are typically between 32 and 35 dBA. Quiet urban nighttime noise levels range from 40 to 50 dBA. Noise levels during the day in a noisy urban area are frequently as high as 70 to 80 dBA. Noise levels above 110 dBA become intolerable; levels higher than 80 dBA over continuous periods can result in hearing loss. Levels above 70 dBA tend to be associated with task interference. Levels between 50 and 55 dBA are associated with raised voices in a normal conversation (EPA 1974). In general, an average person perceives an increase of 3 dBA or less as barely perceptible. An increase of 10 dBA is perceived as a doubling of the sound. Table 5.11-1 provides criteria that has been used to estimate an individual's perception to increases in sound. Table 5.11-2 presents sound levels for some common noise sources and the human response to those decibel levels.

Table 5.11.1. Average Human Ability to Perceive Changes in Sound Levels

Increase in Sound Level (dBA)	Human Perception of Sound
2–3	Barely perceptible
5	Readily noticeable
10	Doubling of the sound
20	Dramatic change

Source: SWCA (2022)

NOISE ASSESSMENT COMPONENTS

A noise assessment is based on the following components: a sound-generating source, a medium through which the source transmits sounds, the pathways taken by these sounds, and an evaluation of the proximity to noise receptors. Soundscapes are affected by the following factors:

- **Source**. The sources of sound are any generators of small back-and-forth motions (i.e., motions that transfer their motional energy to the transmission path where it is propagated). The acoustic characteristics of the sources are very important. Sources must generate sound of sufficient strength, approximate pitch, and duration so that the sound may be perceived and can cause adverse effects, compared with the natural ambient sounds.
- **"Transmission path" or medium.** The "transmission path" or medium for sound or noise is most often the atmosphere (i.e., air). For the noise to be transmitted, the transmission path must support the free propagation of the small vibratory motions that make up the sound. Atmospheric conditions (e.g., wind speed and direction, temperature, humidity, precipitation) influence the attenuation of sound. Barriers and/or discontinuities (e.g., existing structures, topography, foliage, ground cover, etc.) that attenuate the flow of sound may compromise the path. For example, sound will travel very well across reflective surfaces such as water and pavement but can attenuate across rough surfaces (e.g., grass, loose soil).
- **Proximity to receptors.** A receptor is usually defined as a location where a state of quietness is a basis for use or where excessive noise interferes with the normal use of the location. Typical receptors include residential areas, monuments, schools, hospitals, churches, and libraries.

Table 5.11.2. Sound Levels of Representative Sounds and Noises

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: California Department of Transportation (2022)

5.11.1.2 Ground-borne Vibration Fundamentals

Ground-borne vibration is a small, rapidly fluctuating motion transmitted through the ground. When seismic waves can be felt, they are called "ground vibrations." The ground vibration from surface waves is measured as the velocity of motion, or how many inches per second (in/sec) the ground is moving. The motion of the ground particles (vibration) happens in three dimensions: radial, transverse, and vertical. During vibration, each particle has a velocity, and the maximum velocity is referred to as the peak particle velocity (PPV). The resulting vector of all three components (i.e., radial, transverse, and vertical) combined is referred to as peak vector sum (PVS).

GROUND VIBRATION TERMS

Ground vibration is described using the following terms:

- Acceleration is the rate at which particle velocity changes.
- Crest factor is the ratio of peak particle velocity to maximum root mean square amplitude in an oscillating signal.

- Displacement is the farthest distance that the ground moves before returning to its original position.
- Frequency is the number of oscillations per second that a particle makes when under the influence of seismic waves.
- Hertz (Hz) is the unit of acoustic or vibration frequency representing cycles per second.
- Peak particle velocity (PPV) is the greatest particle velocity associated with an event.
- Peak vector sum (PVS) is the square root of the sum of the squares of the individual PPV values in all three vector directions.
- Particle velocity is the velocity at which the ground moves.
- Propagation velocity is the speed at which a seismic wave travels away from the blast.
- Root Mean Square (RMS) is the square root of the mean-square value of an oscillating waveform, where the mean-square value is obtained by squaring the value of amplitudes at each instant of time and then averaging these values over the sample time.
- Vibration Velocity Level (LV) is 10 times the common logarithm of the ratio of the square of the amplitude of the RMS vibration velocity to the square of the amplitude of the reference RMS vibration velocity.

GROUND VIBRATION AND STRUCTURE DAMAGE

Ground vibrations can produce permanent changes in the relative positions of "particles" that make up structures, resulting in "damage". The larger the vibration (i.e., the higher the ground movement speed), the greater is the potential for these permanent shifts in particle positions in structures. While structural damage associated with ground vibration can occur, noticeable vibration damage is often seen as cracks in drywall or plaster and exterior surfaces such as grout and stucco. This may, or may not, be a sign of structural damage. Since such cosmetic damage can also be caused by settling, temperature changes, and normal aging; overall, a few hairline cracks found in a house does not necessarily indicate a vibrational cause.

GROUND VIBRATION AND HUMAN PERCEPTION

In addition to concerns about structural damage, under specific conditions, humans can be startled or annoyed by ground vibration. Human response to vibration is difficult to evaluate due to differences in individual perception. Humans may detect lower levels of ground vibration than those levels that could adversely impact structures. The human body can distinctively perceive ground vibration as low as 0.1 in/sec, with some people being able to perceive even lower levels.

Table 5.11-3 indicates the average human response to vibration that may be anticipated when the person is at rest, situated in a quiet surrounding.

Table 5.11.3. Human Response to Ground Vibration

Average Human Response	PPV (in/sec)
Barely to distinctly perceptible	0.020–0.10
Distinctly to strongly perceptible	0.10–0.50
Strongly perceptible to mildly unpleasant	0.50–1.00

Average Human Response	PPV (in/sec)
Mildly to distinctly unpleasant	1.00–2.00
Distinctly unpleasant to intolerable	2.00–10.00

Source: California Department of Transportation (2020)

Section 12.08.350 of the Los Angeles County Noise Control Ordinance defines "vibration" as the minimum ground or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observations of moving objects, and assumes a human perception threshold of 0.01 in/sec over the range of 1 to 100 hertz.

VIBRATION ASSESSMENT COMPONENTS

Vibration energy extends out as it travels through the ground, causing the vibration level to reduce with respect to the distance from the source. High-frequency vibration decreases much more rapidly than low frequencies, so that low frequencies tend to dominate the spectrum at large distances from the source. Geological factors that may influence the propagation of ground-borne vibration include the following:

- **Soil conditions.** The type of soil has a strong influence on the propagation of ground-borne vibration. Hard, dense, and compacted soil, stiff clay soil, and hard rock transfer vibration more efficiently than loose, soft soils, sand, or gravel.
- **Depth to bedrock.** Shallow depth to bedrock provides more efficient propagation of ground-borne vibration. Shallow bedrock concentrates the vibration energy near the surface, reflecting vibration waves back toward the surface that would otherwise continue to propagate farther down into the earth.
- **Soil strata.** Discontinuities in the soil layering can produce diffractions or channeling effects that impact the propagation of vibration over long distances.
- **Frost conditions.** Seismic waves typically propagate more efficiently in frozen soils than in unfrozen soils.
- **Water conditions.** The amount of moisture in the soil has an impact on vibration propagation. The depth of the water table in the path of the propagation also has substantial effects on ground-borne vibration levels.

Specific conditions at the source and receptor locations can also affect the vibration levels. For instance, how the source is connected to the ground (e.g., direct contact or via a structure) or when the source is underground versus on the surface will impact the amount of energy transmitted into the ground. At the receptor, vibration levels can be affected by variables such as the building construction and the foundation type.

5.11.1.3 Existing Land Use and Site Conditions

The project site is in an urbanized area surrounded by a variety of commercial uses, museums, and residential buildings. The project site is bounded by the Park La Brea Pool and multi-family residential uses to the north across West 6th Street; commercial and residential uses to the east across South Curson Avenue; the Craft Contemporary Museum and other museum and commercial uses to the south across Wilshire Boulevard; and museum and commercial uses to the west. The predominant noise sources in the vicinity of the project site include noise from vehicular traffic, commercial activities, park visitors, landscaping equipment, parking lot activities, and construction noise from projects that are being developed in the area.

The nearest noise-sensitive land uses to the project site include four off-site residential receptors, ranging between 50 to 150 feet from the project site. As part of the noise monitoring conducted for the project, these off-site residential receptors (referenced hereafter as monitoring locations ST2, ST3, ST5, and ST6) were selected to represent noise-sensitive uses in the project site. Four commercial receptors (referenced hereafter as monitoring locations ST7, ST8, ST9, and ST10) were also selected to evaluate potential noise and vibration impacts adjacent to the project site. Additionally, two long-term noise monitoring locations were selected to provide the existing ambient noise levels at the project's site. The long-term noise monitors (LT-1 and LT-2) were placed at the southeast and northwest corners of the proposed project site (Figure 5.11-1). Table 5.11-4 provides a description of noise monitoring locations. The results of noise monitoring are shown in Table 5.11-5 (see Appendix I for a detailed description of monitoring efforts).

Figure 5.11-1. Noise measurement locations.

Table 5.11.4. Noise Monitoring Locations

Monitoring Location	Description	Approximate Distance from Measuring Location to Nearest Project Site Boundary*	Nearest Noise Land Use(s)
LT1	Northeast corner of the Lake Pit.	–	–
LT2	Northeast corner of Pit 13.	–	–
ST2	Multi-family residence on the north side of West 6th Street, northwest of the project site.	160 feet	Multi-Family Residential
ST3	Multi-family residence on the north side of West 6th Street, northwest of the project site.	72 feet	Multi-Family Residential
ST5	Multi-family residence on the north side of West 6th Street, northeast of the project site.	90 feet	Multi-Family Residential
ST6	Multi-family residence on the east side of Curson Avenue, east of the project site.	59 feet	Multi-Family Residential
ST7	Mixed-use commercial building on the east side of Curson Avenue, east of the project site.	61 feet	Commercial
ST8	Office building on the south side of Wilshire Boulevard, southeast of the project site.	124 feet	Commercial
ST9	Commercial building on the south side of Wilshire Boulevard, south of the project site.	114 feet	Commercial
ST10	Commercial building on the south side of Wilshire Boulevard, southwest of the project site.	669 feet	Commercial

Source: SWCA (2022)

Table 5.11.5. Measured Existing Ambient Noise Levels

Monitoring Location	Measured Noise Levels (dBA)				Estimated Noise Levels (dBA)	
	Daytime Hours (7:00 a.m.–7:00 p.m.)	Evening Hours (7:00 p.m.–10:00 p.m.)	Nighttime Hours (10:00 p.m.–7:00 a.m.)	L_{90} (24-hour)	L_{dn}* (24-hour)	CNEL* (24-hour)
LT1	58.9	54.2	53.0	46.6	60.6	60.9
LT2	56.6	54.2	51.7	46.0	59.1	59.5
ST2	67.5	–	–	52.1	66.7	68.1
ST3	65.5	–	–	51.8	65.3	66.4
ST5	74.9	–	–	56.1	73.1	75.1
ST6	62.8	–	–	51.5	63.8	64.4
ST7	64.8	–	–	54.6	64.9	65.9
ST8	69.8	–	–	57.1	68.5	70.2
ST9	74.6	–	–	63.7	72.8	74.8
ST10	67.1	–	–	54.7	66.4	67.8

Source: SWCA (2022)

Note: L_{90} is the sound level exceeded 90% of the time of the measurement period. Ldn is the A-weighted equivalent sound level for a 24-hour period with an additional 10 dB weighting imposed on the equivalent sound levels occurring during nighttime hours (10:00 p.m. to 7:00 a.m.).

* Estimated from measured daytime noise levels and estimated nighttime levels based on the presented nighttime hours in the Presumed Ambient Noise Levels, City of Los Angeles Municipal Code, Section 111.03.

As shown in Table 5.11-5, the existing daytime noise levels in project vicinity range between 62.8 and 74.9 dBA L_{eq}. The two long-term noise measurements (LT1 and LT2) indicate that the average hourly noise levels during daytime hours ranged between 56.6 and 58.9 dBA L_{eq} and between 59.5 and 60.9 dBA CNEL at the project site.

5.11.1.4 Existing Traffic Noise

In addition to the noise measurements, the existing traffic noise on local roadways in the surrounding area was calculated to quantify the 24-hour CNEL noise levels in the project site. Thirteen roadway segments were selected to represent the existing noise conditions for the analysis. Traffic noise levels were calculated using a proprietary noise model (i.e., SoundPlan Essential v5.1) based on the Federal Highway Administration (FHWA) Traffic Noise Model Version 2.5 (FHWA 2004). The inputs used in the traffic noise modeling included hourly traffic volumes, assumed traffic mix and daily distribution (the percentage of automobiles versus medium trucks and heavy trucks during each hour of the day), and traffic speeds based on the posted speed limits (see Appendix I for a detailed description of modeling efforts).

Table 5.11-6 presents the estimated traffic noise levels for the analyzed roadway segments based on existing traffic volumes for both a weekday and weekend. The estimated existing CNEL due to roadway traffic ranges from 62.6 dBA to 71.7 dBA for weekdays, and between 60.8 dBA and 69.8 dBA during weekends (see Table 5.11-6).

Table 5.11.6. Existing Roadway Traffic Noise Levels

Roadway Segment		Adjacent Land Use	Calculated Traffic Noise Levels, CNEL*		Noise-Sensitive Land Uses?	Existing Noise Exposure Compatibility Category†
			Weekday (dBA)	Weekend (dBA)		
6th Street	Between Fairfax Avenue and Ogden Drive	Residential	71.3	69.8	Yes	Normally unacceptable
	Between Ogden Drive and Curson Avenue	Residential	71.7	67.7	Yes	Normally unacceptable
	East of Curson Avenue	Residential	71.0	67.7	Yes	Normally unacceptable
Ogden Drive	North of 6th Street	Residential	62.6	60.8	Yes	Conditionally acceptable
	South of Wilshire Boulevard	Commercial	62.9	60.8	No	Normally acceptable
Spaulding Avenue	South of Wilshire Boulevard	Commercial	64.9	63.2	No	Normally acceptable
Curson Avenue	North of 6th Street	Residential	67.3	64.8	Yes	Conditionally acceptable
	Between 6th Street and Wilshire Boulevard	Residential	68.1	67.6	Yes	Conditionally acceptable
	South of Wilshire Boulevard	Residential	71.0	69.1	Yes	Normally unacceptable

Roadway Segment		Adjacent Land Use	Calculated Traffic Noise Levels, CNEL*		Noise-Sensitive Land Uses?	Existing Noise Exposure Compatibility Category†
			Weekday (dBA)	Weekend (dBA)		
Wilshire Boulevard	Between Fairfax Avenue and Ogden Drive	Museum	68.3	66	No	Normally acceptable
	Between Ogden Drive and Spaulding Avenue	Commercial	67.2	65.1	No	Normally acceptable
	Between Spaulding Avenue and Curson Avenue	Museum	69.4	67.0	No	Normally acceptable
	East of Curson Avenue	Commercial	67.8	65.8	No	Normally acceptable

* Detailed calculation worksheets are included in Appendix B of the Noise and Vibration Technical Report (see Appendix I).

† Noise compatibility is based on the most stringent land use and the higher of the calculated CNEL during weekday and weekend days.
Normally Acceptable = Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Conditionally Acceptable = New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Normally Unacceptable = New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable = New construction or development should generally not be undertaken.

5.11.1.5 Existing Ground-Borne Vibration Conditions

The primary ground-borne vibration source at urban settings is vehicular traffic. It is unusual for vibration from traffic sources to be perceptible, as trucks and buses typically generate vibration velocity levels of approximately 63 vibration velocity decibels (VdB) at 50 feet (Federal Transit Administration [FTA] 2018). Normally, 75 VdB is defined as the dividing line between barely perceptible and distinctly perceptible (FTA 2018). Therefore, it is expected that the existing ground-borne vibration levels at the project vicinity would be below the perceptible level.

5.11.2 Regulatory Setting

5.11.2.1 Federal

There are no federal noise standards or regulations that directly regulate environmental noise related to the construction or operation of the proposed project.

As well, no standards or limits applicable to potential building damage from ground-borne vibration have been adopted by a federal agency. However, the FTA has guidelines available to assess potential impacts on buildings and structures due to ground-borne vibration. The FTA's *Transit Noise and Vibration Impacts Assessment Manual* provides impact criteria concerning building damage during construction activities (FTA 2018). Table 5.11-7 includes the FTA vibration criteria for construction activities.

Table 5.11.7. Construction Vibration Impact Criteria for Building Damage

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3

Building Category	PPV (in/sec)
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

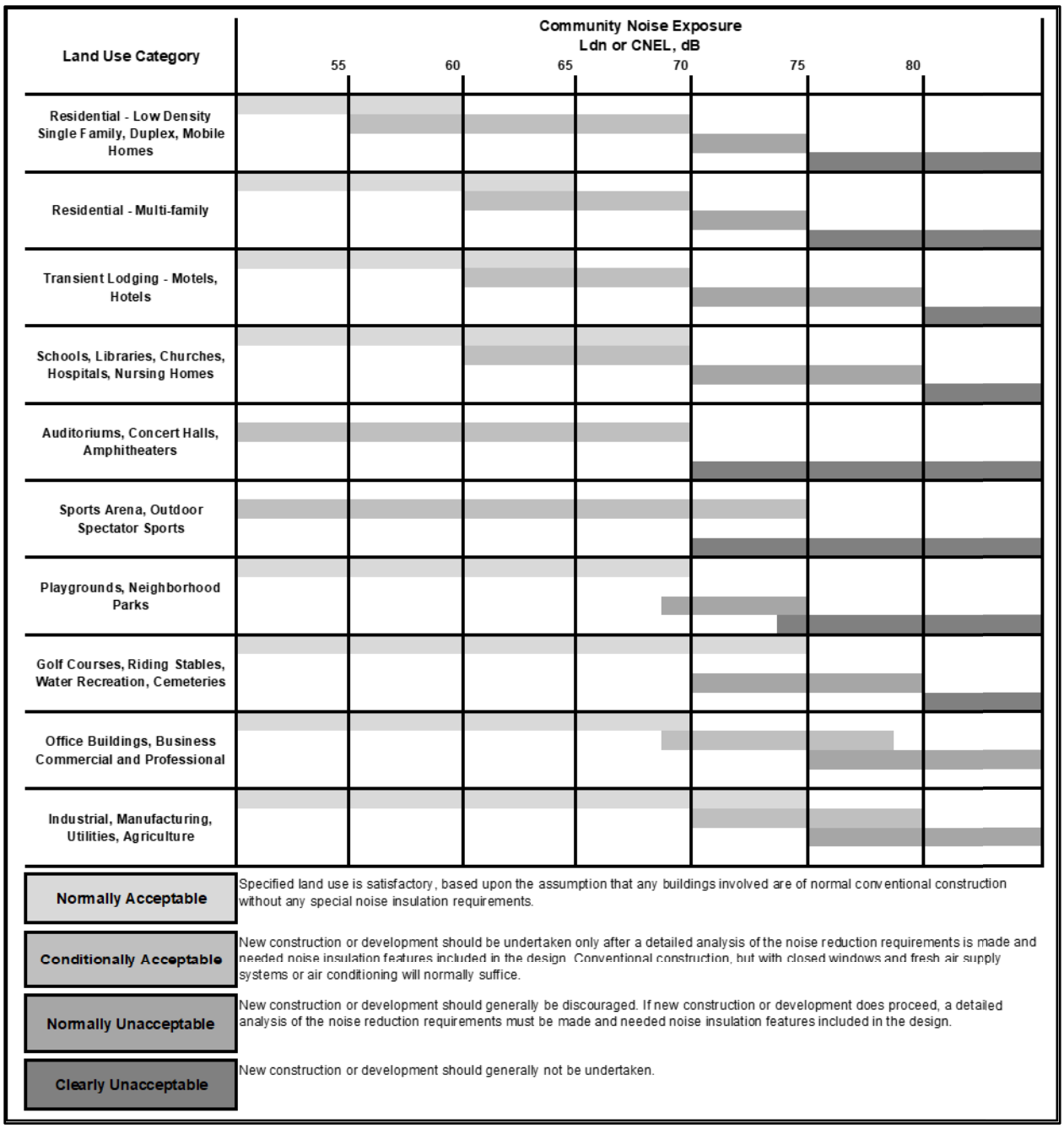
Source: FTA (2018)
PPV = peak particle velocity; in/sec = inch(es) per second

5.11.2.2 State

The State of California has not adopted statewide regulations or standards for noise. However, the *State of California General Plan Guidelines*, published and updated by the Governor's Office of Planning and Research (OPR), provides standards and the acceptable noise categories for different land uses (OPR 2017). Figure 5.11-2 provides the exterior noise standards associated with the different land uses evaluated by the State.

California also requires each local government entity to perform noise studies and implement a noise element as part of its general plan. The purpose of the noise element is to limit the exposure of the community to excessive noise levels; the noise element must be used to guide decisions concerning land use.

There are no state ground-borne vibration standards that directly apply to the project.



Source: OPR (2017)

Figure 5.11-2. Land use compatibility for exterior community noise exposure.

5.11.2.3 County of Los Angeles

COUNTY OF LOS ANGELES NOISE CONTROL ORDINANCE

The County of Los Angeles Noise Control Ordinance (Section 12.08 of the Los Angeles County Code [County Code]) identifies noise standards for exterior noise sources (Table 5.11-8). Regarding maximum exterior noise levels, County Code Section 12.08.390 states that exterior operational noise levels caused

by fixed noise sources shall not exceed the levels listed in Table 5.11-8, or the existing ambient noise level, whichever is greater (measured in dB).

Table 5.11.8. County of Los Angeles Exterior Operational Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45
		7:00 a.m. to 10:00 p.m. (daytime)	50
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime)	55
		7:00 a.m. to 10:00 p.m. (daytime)	60
IV	Industrial properties	Anytime	70

Source: Los Angeles County Code 12.08.390 - Exterior noise standards.

Section 12.08.390 of the County Code also states that no person shall operate or cause to be operated, any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated, to exceed any of the following exterior noise standards:

> **Standard No. 1** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level; or, if the ambient noise level exceeded for 50% of the time of the measurement duration (L_{50}) exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.
>
> **Standard No. 2** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level plus 5 dB; or, if the ambient noise level exceeded for 25% of the time of the measurement duration (L_{25}) exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.
>
> **Standard No. 3** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 5 minutes in any hour. Standard No. 3 shall be the applicable noise level plus 20 dB; or, if the ambient noise level exceeded for 8.3% of the time of the measurement duration ($L_{8.3}$) exceeds the foregoing level, then the ambient $L_{8.3}$ becomes the exterior noise level for Standard No. 3.
>
> **Standard No. 4** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 1 minute in any hour. Standard No. 4 shall be the applicable noise level plus 15 dB; or, if the ambient noise level exceeded for 1.7% of the time of the measurement duration ($L_{1.7}$) exceeds the foregoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.
>
> **Standard No. 5** shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level plus 20 dB; or, if the highest ambient noise level that occurred at the site (L_0) exceeds the foregoing level, then the ambient L_0 becomes the exterior noise level for Standard No. 5.

The County Noise Control Ordinance also identifies specific restrictions regarding construction noise. Construction noise limits are included in Chapter 12.08.440, Noise Control, of the Los Angeles County Code of Ordinances. Pursuant to the County Noise Control Ordinance, the operation of equipment used in construction, repair, alteration, drilling, or demolition work is prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and anytime on Sundays or legal holidays if such noise would create a noise disturbance across a residential or commercial real-property line. Table 5.11-9 identifies the maximum noise levels at the affected buildings allowed by the County Noise Control Ordinance.

Table 5.11.9. County of Los Angeles Construction Noise Limits

Time	Single-Family Residential	Multi-Family Residential	Semi-Residential/ Commercial
At Residential Structures			
Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m., and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA
Stationary Equipment. Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA
At Business Structures			
Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:			
Daily, including Sundays and legal holidays, all hours		85 dBA (All structures)	

Source: Los Angeles County Code 12.08.440 - Construction noise.
dBA = A-weighted decibel(s)

Section 12.08.560 of the County Noise Control Ordinance provides a ground-borne vibration limit as to not exceed the vibration human perception threshold of 0.01 in/sec (80 VdB).

5.11.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles (City). Nonetheless, the policy and regulatory documents of the City are provided herein.
As described in Section 5.11.4, because the areas surrounding the project site are within the jurisdiction of the City of Los Angeles, the noise analysis considers both City and County criteria and regulations, with the more restrictive provisions applied regardless of whether the provisions are requirements or only considered advisory given they are not explicitly required of the project by regulation or ordinance.

NOISE ELEMENT OF THE CITY OF LOS ANGELES GENERAL PLAN

The *Noise Element of the City of Los Angeles General Plan* (City of Los Angeles 1999) addresses noise sources and noise mitigation strategies and regulations and provides objectives and policies that ensure

that noise from various sources does not create an unacceptable noise environment. The goal, objectives, and policies of the Noise Element that are relevant to the project are provided below for informational purposes and are used to inform the criteria by which the noise impacts of the proposed La Brea Tar Pits Master Plan are considered.

Goal – A city where noise does not reduce the quality of urban life.

Objectives and Policies –

> ***Objective 2 (Non-airport) -*** Reduce or eliminate non-airport-related intrusive noise, especially relative to noise-sensitive uses.
>
> > ***Policy 2.2.*** Enforce and/or implement applicable city, state, and federal regulations intended to mitigate proposed noise-producing activities, reduce intrusive noise, and alleviate noise that is deemed a public nuisance.
>
> ***Objective 3 (Land Use Development) -*** Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.
>
> > ***Policy 3.1.*** Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts.

The City's noise compatibility guidelines are based on the State's *General Plan Guidelines* (OPR 2017).

CITY OF LOS ANGELES MUNICIPAL CODE

Section 41.40(a) of the Los Angeles Municipal Code (LAMC) prohibits the use, operation, repair, or servicing of construction equipment, as well as job-site delivery of construction materials, between the hours of 9:00 p.m. and 7:00 a.m., where such activities would disturb "persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence." In addition, Section 41.40(c) prohibits construction, grading, and related job-site deliveries on or within 500 feet of land developed with residential structures before 8:00 a.m. or after 6:00 p.m. on any Saturday or national holiday or at any time on Sunday.

Section 112.05 of the LAMC places a noise level limit of 75 dBA at 50 feet for powered equipment or tools, which includes construction equipment in, or within 500 feet of, any residential zone between the hours of 7:00 a.m. and 10:00 p.m. Under the code, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment.

Chapter XI of the LAMC (Noise Regulation) regulates noise from non-transportation noise sources such as commercial or industrial operations, mechanical equipment, or residential activities. These regulations do not apply to vehicles operating on public rights-of-way but do apply to noise generated by vehicles on private property, such as in parking lots or parking structures. The allowable noise levels are determined relative to the existing ambient noise levels at the affected location. Section 111.01(a) of the LAMC defines ambient noise as "the composite of noise from all sources near and far in a given environment, exclusive of occasional and transient intrusive noise sources and the particular noise source or sources to be measured. Ambient noise shall be averaged over a period of at least 15 minutes."

The Noise Regulation indicates that in cases where the actual ambient conditions are not measured, the City's presumed daytime and nighttime ambient noise levels, as defined in the LAMC Section 111.03, should be used (Table 5.11-10).

Table 5.11.10. City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime (7:00 a.m. to 10:00 p.m.), L_{eq}	Nighttime (10:00 p.m. to 7:00 a.m.), L_{eq}
	dBA	dBA
Residential, school, hospitals, hotels	50	40
Commercial	60	55
Manufacturing (M1, MR1, MR2)	60	55
Heavy manufacturing (M2, M3)	65	65

Source: City of Los Angeles Municipal Code, Section 111.03
L_{eq} = equivalent noise level

Section 111.02 states that under conditions where noise alleged to be offending occurs for more than 5 minutes but less than 15 minutes in any 1-hour period between the hours of 7:00 a.m. and 10:00 p.m. of any day, a 5-dBA allowance should be provided to the noise source. Additionally, under conditions where the offending noise occurs for 5 minutes or less in any 1-hour period between the hours of 7:00 a.m. and 10:00 p.m. of any day, an additional 5-dBA allowance can be provided to the noise source. Section 114.02 of the LAMC also provides noise regulations with respect to vehicle-related noise and prohibits the operation of any motor-driven vehicles upon any property within the city in a manner that would exceed the ambient noise level by more than 5 dBA.

CITY OF LOS ANGELES CEQA THRESHOLDS GUIDE

The *L.A. CEQA Thresholds Guide: Your Resource for Preparing CEQA Analyses in Los Angeles* (City of L.A. Thresholds Guide; City of Los Angeles 2006) is a guidance document that draws together practical information useful to City staff, project proponents, and the public involved in the environmental review of projects in the city of Los Angeles subject to CEQA.

The City of L.A. Thresholds Guide defines "noise sensitive" as residences, transient lodgings, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks. The City of L.A. Thresholds Guide includes a set of criteria to evaluate project impacts. The significance thresholds assist in determining whether a project's impacts would be presumed significant under normal circumstances and, therefore, require mitigation to be identified.

A project under CEQA would normally have a significance impact on noise levels from construction if:

- Construction activities lasting more than 1 day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a 3-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

A project would normally have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, or any 5-dBA or greater noise increase (see Figure 5.11-2).

5.11.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to noise if it would:

- Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Result in generation of excessive groundborne vibration or groundborne noise levels.
- Be located within the vicinity of a private airstrip or within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and if so, the project would expose people residing or working in the project area to excessive noise levels.

5.11.4 Impact Assessment Methodology

The following impact analysis is based, in part, on the *Noise and Ground Vibration Technical Report for the La Brea Tar Pits Master Plan* (SWCA 2022; see Appendix I).

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles; however, the areas surrounding the project site are within the City's jurisdiction. As such, the following analysis considers both City and County criteria and regulations, with the more restrictive provisions applied.

The following analysis evaluates the potential change in the existing noise levels at the project site and surrounding area due to an increase in noise and ground-borne vibration during both construction and operation of the project. The evaluation of potential impacts is based on the following criteria.

SHORT-TERM CONSTRUCTION NOISE CRITERIA

The County Noise Control Ordinance (Section 12.08.440 of the County Code) identifies noise standards for construction activities. The County's construction noise limit is 65 dBA for multi-family residential uses and 85 dBA for business structures. Similarly, the LAMC limit for construction noise lasting more than 10 days is 5 dBA above ambient levels. The following significance criteria are applied to the project, as set forth in the LAMC, the City of L.A. Thresholds Guide, and the County of Los Angeles Ordinance, with the more restrictive provisions applied:

- Construction activities would exceed the ambient noise level by 5 dBA (L_{eq}) or more at a noise-sensitive use.

SHORT-TERM CONSTRUCTION VIBRATION CRITERIA

Because there are currently no local regulatory standards for ground-borne vibration that are applicable to the project, then, based on FTA impacts with respect to building damage (see Table 5.11-7), ground-borne vibration would be considered significant if

- Ground-borne vibration levels from construction activities exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building; or
- Ground-borne vibration levels from construction activities exceed 0.3 PPV at the nearest off-site engineered concrete building; or
- Ground-borne vibration levels from construction activities exceed 0.2 PPV at the nearest off-site non-engineered timber and masonry building; or
- Ground-borne vibration levels from construction activities exceed 0.12 PPV at buildings extremely susceptible to vibration damage (e.g., historic buildings).

With respect to human annoyance, Section 12.08.560 of the Los Angeles County Noise Control Ordinance presents a threshold of 0.01 in/sec (80 VdB). Therefore, construction vibration impacts associated with human perception would be significant if:

- Ground-borne vibration levels from construction activities exceed 80 VdB at the off-site receptor.

LONG-TERM OPERATIONAL NOISE CRITERIA

Per Chapter XI of the LAMC, a noise level increase of 5 dBA over the ambient noise level at an adjacent property line is considered a noise violation for most operational noise sources. The Los Angeles County Noise Control Ordinance states that the exterior operational noise level caused by project-related on-site fixed sources shall not exceed the levels presented in Table 5.11-8 or the ambient noise level, whichever is greater. Therefore, project-related operational on-site (i.e., non-roadway) noise sources, such as outdoor building mechanical/electrical equipment, outdoor activities, or parking facilities, would be significant if

- Operational on-site activities would exceed the ambient noise level by 5 dBA (L_{eq}) or more at a noise-sensitive use.

TRAFFIC NOISE CRITERIA

Relating to roadway noise, a 24-hour average noise level metric (i.e., dBA CNEL) was used to assess noise impacts associated with the project based on the City's land use/noise compatibility guidelines and the City of L.A. Thresholds Guide (City of Los Angeles 2006). An increase of 3 dBA CNEL at noise-sensitive uses with ambient noise levels within the "normally unacceptable" or "clearly unacceptable" category (see Figure 5.11-2), or any 5-dBA or greater noise increase if the ambient noise level at the affected sensitive land use is within the "normally acceptable" or "conditionally acceptable" category, would be considered significant.

5.11.5 Environmental Impact Analysis

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

CONSTRUCTION NOISE

Worker vehicles and haul trucks transporting equipment and materials to and from the project site during construction would increase noise levels on the local roads in the project site. It is expected that construction trucks would typically access the project site from the nearby Interstate (I-) 10, taking the La Brea Avenue exit from the westbound I-10. Trucks would travel northbound to Wilshire Boulevard, continue westbound on Wilshire Boulevard, then northbound on Curson Avenue to the project site. The construction worker vehicles would not be restricted to travel exclusively on this haul route and instead are allowed to access the project site via other routes. However, to perform a conservative traffic noise analysis, all traffic for the project (i.e., worker and truck trips) is assumed to travel on this haul route.

The grading phase would be the peak period of construction with the highest number of construction trucks. There would be a maximum of 127 construction trucks (e.g., vendor, hauling), totaling 254 trips per day. The hourly truck trips were estimated based on 8-hour workdays and assuming a uniform distribution of trips. The hourly worker trips were estimated, assuming half of the workers would arrive in 1 hour, resulting in 38 worker trips per hour. The estimated roadway noise levels resulting from the addition of the project's construction-related traffic on these roadway segments are shown in Table 5.11-11. As shown in Table 5.11-11, the estimated noise levels generated by off-site construction traffic would be below the existing daytime ambient noise level at the noise-sensitive receptors along the haul routes.

Table 5.11.11. Off-site Construction Traffic Noise Levels

Construction Phase	Estimated Off-Site Construction Noise Levels along the Project Haul Routes, L_{eq} (Wilshire Boulevard / La Brea Avenue / Curson Avenue)
	dBA
Demolition	57.1
Site preparation	51.4
Grading	64.5
Building construction	59.6
Paving	52.8
Architectural coating	55.9
Existing ambient noise levels along the project haul routes, L_{eq}*	72.4 / 73.3 / 68.6
Significance threshold, L_{eq}†	68.6

Source: SWCA (2022)
* La Brea Avenue noise levels were taken from County of Los Angeles (2017:Table IV.I-14).
† Significance thresholds are equivalent to the existing daytime noise levels.

During project construction, noise from construction activities may intermittently dominate the noise environment in the immediate project site. Table 5.11-12 shows the noise levels from standard construction equipment at 50 feet from the source.

Table 5.11.12. Noise Levels for Common Construction Equipment

Equipment Description	Typical Maximum Noise Levels at 50 Feet (dBA)
Auger drill rig	85
Backhoe	80
Chain saw	85
Compressor (air)	80
Concrete saw	90
Crane	85
Dozer	85
Drill rig truck	84
Drum mixer	80
Dump truck	84
Excavator	85
Flat-bed truck	84
Front-end loader	80
Generator	82
Grader	85
Impact pile driver	95
Jackhammer	85
Man lift	85
Paver	85
Pickup truck	55
Pneumatic tools	85
Pumps	77
Rock drill	85
Roller	85
Scraper	85
Tractor	84
Trencher	82
Vibratory concrete mixer	80
Vibratory pile driver	95
Welder/torch	73

Source: FHWA (2011)

Construction activities associated with the project were assessed to last approximately 4 years, with completion anticipated in 2027. This is the most conservative analysis from a noise perspective given the most equipment would be on the site at one time if the project was implemented during one phase. During this time, noise from equipment use and activities on-site would vary throughout the project site, depending on various stages of construction. The predicted noise from construction activity is presented as a worst-case (highest noise level) scenario, where it is assumed that all equipment is present and operating simultaneously on-site for each stage of construction. Table 5.11-13 shows the highest construction noise levels at each of the analyzed monitoring locations. As shown in Table 5.11-13, the

estimated construction noise levels at off-site receptors ST2, ST5, ST8, ST9, and ST10 would be below the significance threshold. However, the estimated noise levels at receptors ST3, ST6, and ST7 would exceed the significance threshold by 2.7 dBA at ST3, 4.6 at ST6, and 3.9 dBA at ST7. As a result, noise impacts resulting from project construction could be *significant*.

Table 5.11.13. Estimated Construction Noise Levels at Nearby Sensitive Receptors

Receptor	Measured Daytime Ambient Noise Levels, L_{eq}	Estimated Construction Noise Levels by Construction Phases (Ambient plus Construction), L_{eq}						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	68.8	69.2	70.5	67.8	67.5	67.6	72.5
ST3	65.5	67.2	**70.8**	**73.2**	66.6	65.7	65.8	70.5
ST5	74.9	75.2	75.4	75.8	75.0	75.0	74.9	79.9
ST6	62.8	**68.8**	**70.0**	**72.4**	65.9	64	63.4	67.8
ST7	64.8	68.3	**71.2**	**73.7**	65.9	65.1	65	69.8
ST8	69.8	70.9	71.4	72.5	70.0	69.8	69.8	74.8
ST9	74.6	75.1	75.4	76.0	74.7	74.6	74.6	79.6
ST10	67.1	67.7	67.6	68.0	67.3	67.1	67.1	72.1

Source: SWCA (2022)

Note: Values in **bold** exceed the significance threshold for that receptor.

* Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

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During project construction, the project could generate a substantial increase (5 dBA Leq) in ambient noise levels in the vicinity of the project, which could affect noise-sensitive land uses. As a result, the project could result in generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of established standards. Therefore, noise impacts resulting from project construction could be significant.

(CEQA Checklist Appendix G Threshold XIII. a)

Mitigation Measures

NOI/mm-1.1 The following measures shall be implemented to reduce construction-related noise impacts:

a. Operation of equipment used in construction, alteration, drilling, or demolition work shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and any time on Sundays or legal holidays.

b. A temporary barrier shall be erected around active construction areas. The placement and height of the barrier shall be adjusted based on the specific location of construction activities within the site, ensuring that the barriers are positioned as close as feasible to the work area and are sufficiently tall to maximize effectiveness in minimizing direct noise transmission to surrounding areas, such that a sound reduction of 10 dBA is achieved at the property lines on the east side of Curson Avenue and north side of 6th Street. Prior to the commencement of each construction phase, a phase-specific acoustic analysis shall be conducted to determine the optimal placement and configuration of noise barriers. In consultation with an acoustical engineer, the barrier configuration may be modified to address the specific conditions of phased construction, provided that the adjustments achieve an equivalent noise reduction outcome. ~~and impermeable 12-foot-high temporary barrier designed to provide a 10-dBA noise reduction, shall be erected along the eastern~~

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~~and northern sides of the project site boundary. This barrier shall be constructed in one of the following ways:~~ • *~~from acoustical blankets hung over or from a supporting frame, or~~* • *~~from commercially available acoustical panels lined with sound-absorbing material, or~~* • *~~from common construction materials such as plywood, provided that the barrier is designed with overlapping material at the seams to ensure that no gaps exist between the panels.~~* *c. Noise levels from powered equipment or powered hand tools at a distance of 50 feet from the noise source or within 500 feet of a residential zone will be limited to 75 dBA, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment.* *d. All construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise-suppression devices.* *e. Pneumatic tools used at the site shall be equipped with an exhaust muffler on the compressed air exhaust to minimize noise levels.* *f. Stationary noise sources shall be located as far from adjacent sensitive receptors as possible and shall be muffled and enclosed within temporary sheds or insulated barriers when possible.* *g. Prior to commencement of construction, a designated project contact person will directly notify the management of any surrounding residential properties located within 100 feet of the project site about the construction schedule and activities and provide a contact number to address any noise-related complaints during construction.* *h. A designated point of contact shall be identified to address noise-related complaints during construction. The noise disturbance coordinator will be responsible for responding to any local complaints about construction noise.*
Impacts Following Mitigation
With implementation of NOI/mm-1.1, construction impacts would be less than significant as demonstrated by the analysis conducted to calculate the effectiveness of the mitigation measures, shown in Table 5.11-14.

Table 5.11-14 shows the highest construction noise levels at each of the analyzed monitoring locations after implementation of Mitigation Measure NOI/mm-1.1. As shown in Table 5.11-14, implementation of the recommended mitigation measures would reduce construction-related noise to less than the significance threshold at the off-site sensitive uses.

Table 5.11.14. Estimated Construction Noise Levels at Nearby Sensitive Receptors after Mitigation

Receptor	Measured Daytime Ambient Noise Levels, L_{eq}	Estimated Construction Noise Levels by Construction Phases (Ambient plus Construction), L_{eq} †						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	67.6	67.7	67.9	67.5	67.5	67.5	72.5
ST3	65.5	65.7	66.4	67.2	65.6	65.5	65.5	70.5
ST5	74.9	74.9	75.0	75.0	74.9	74.9	74.9	79.9

Receptor	Measured Daytime Ambient Noise Levels, L_{eq}	Estimated Construction Noise Levels by Construction Phases (Ambient plus Construction), L_{eq} †						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST6	62.8	63.9	64.3	65.4	63.2	62.9	62.9	67.8
ST7	64.8	65.7	66.1	67.0	64.9	64.8	64.8	69.8
ST8	69.8	70.9	71.4	72.5	70.0	69.9	69.8	74.8
ST9	74.6	75.1	75.4	76.0	74.7	74.6	74.6	79.6
ST10	67.1	67.7	67.6	68.0	67.3	67.1	67.1	72.1

Source: SWCA (2022)

* Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

† Assumes an estimated noise reduction of 10 dBA due to noise barrier~~/wall~~.

OPERATIONAL NOISE

Once operational, the project would establish stationary on-site noise sources at the project site as well as contribute to off-site roadway traffic noise. New stationary noise sources would include the parking facilities, mechanical equipment (i.e., dry coolers and emergency generators), loading and waste compacting activities, and activities associated with the use of outdoor spaces (e.g., outdoor café located on the center terrace on the west side of the George C. Page Museum [Page Museum]; and Pit 91 outdoor classroom), and roadway traffic noise sources.

On-Site Stationary Noise Sources

Mechanical Equipment

As part of the project, noise-generating mechanical equipment at the project site would include numerous heating, ventilation, and air-conditioning (HVAC) equipment located in mechanical rooms throughout the Page Museum building, the new museum building, and the support building, rooftop dry coolers, and emergency generators. All mechanical rooms within the project buildings would be outfitted with sound attenuation measures to reduce noise levels at neighboring properties. The mechanical equipment that may be audible at nearby sensitive receptors would be the dry coolers (located on the rooftops of the buildings) and three emergency generators (located on the ground floor of each building). Table 5.11-15 shows the estimated noise levels at the evaluated off-site receptors from the operation of the proposed mechanical noise sources. As shown in Table 5.11-15, the estimated noise levels from the operation of the mechanical equipment would fall below the significance threshold of existing daytime ambient noise levels plus 5 dBA.

Table 5.11.15. Estimated Noise Levels from Mechanical Equipment

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Mechanical Equipment, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	50.1	67.6	72.5
ST3	65.5	59.2	66.4	70.5
ST5	74.9	53.1	74.9	79.9
ST6	62.8	57.2	63.9	67.8

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Mechanical Equipment, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST7	64.8	56.4	65.4	69.8
ST8	69.8	52.1	69.9	74.8
ST9	74.6	52.0	74.6	79.6
ST10	67.1	47.3	67.1	72.1

Source: SWCA (2022)

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

Parking Noise

The existing parking lot would be expanded from 63,000 square feet to 65,000 square feet and shifted to the northeast corner of the site. The parking lot would hold approximately 170 vehicle parking spaces, an increase of approximately 15 spaces. Sources of noise within the parking lot would primarily include car movements, doors opening and closing, people talking, and car alarms. Table 5.11-16 shows the estimated noise levels from parking activities at the off-site sensitive receptors. As shown in Table 5.11-16, the estimated noise levels at all off-site locations would be below the project significance threshold (i.e., an increase of 5 dBA Leq over existing ambient noise levels).

Table 5.11.16. Estimated Noise Levels from Parking Activities

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Parking Activities, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	29.0	67.5	72.5
ST3	65.5	37.1	65.5	70.5
ST5	74.9	42.2	74.9	79.9
ST6	62.8	43.8	62.9	67.8
ST7	64.8	33.4	64.8	69.8
ST8	69.8	26.2	69.8	74.8
ST9	74.6	28.2	74.6	79.6
ST10	67.1	24.5	67.1	72.1

Source: SWCA (2022)

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

Loading and Trash Compactor Activities

Two loading and service areas would accommodate deliveries for laboratories, exhibition material, food service, events, and staff offices. One of the loading areas would be located at the new museum building on the north side, and the second loading area would be located at the Page Museum, also on the north side. The project would include one waste compactor at each of the proposed loading areas. Table 5.11-17 shows the estimated noise levels from loading and trash compactor activities at the off-site sensitive receptors. As shown in Table 5.11-17, the estimated noise levels from the operation of the loading docks and the trash compactors would fall below the significance threshold of ambient noise levels plus 5 dBA L_{eq}.

Table 5.11.17. Estimated Noise Levels from Loading and Trash Compactor Operations

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Loading and Trash Compactor Operations, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	48.8	67.6	72.5
ST3	65.5	54.4	65.8	70.5
ST5	74.9	57.2	75.0	79.9
ST6	62.8	59.2	64.4	67.8
ST7	64.8	55.1	65.2	69.8
ST8	69.8	51.9	69.9	74.8
ST9	74.6	52.3	74.6	79.6
ST10	67.1	48.1	67.2	72.1

Source: SWCA (2022)

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

Outdoor Areas

Outdoor areas (e.g., outdoor café located on the center terrace on the west side of the Page Museum; and Pit 91 outdoor classroom) would consist primarily of people congregating and conversing in those areas. Pit 91 would continue to be a key research and interpretation destination in the park. The project would demolish the current viewing station overlooking Pit 91 and construct a shaded outdoor classroom with canopy (2,880 square feet). The second floor of the Page Museum would contain two classrooms and a multipurpose space. An outdoor café would be located next to these spaces on the center terrace on the west side of the Page Museum (8,234 square feet). It should be noted that an outdoor sound system is not currently used at the Tar Pits site and the project would not include implementation of a sound system. However, consistent with existing conditions, a tour guide microphone and sound pack could be used during classroom activities and/or tours of the second-floor multipurpose space as needed.

Table 5.11-18 shows the estimated noise levels resulting from the use of outdoor areas at the off-site sensitive receptors. As shown in Table 5.11-18, the estimated noise levels at all analyzed receptors would not exceed the significance threshold of ambient noise levels plus 5 dBA L_{eq}.

Table 5.11.18. Estimated Noise Levels from Outdoor Uses

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Outdoor Uses, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	42.7	67.5	72.5
ST3	65.5	46.9	65.6	70.5
ST5	74.9	47.9	74.9	79.9
ST6	62.8	51.8	63.1	67.8
ST7	64.8	50.7	65.0	69.8
ST8	69.8	46.4	69.8	74.8
ST9	74.6	46.7	74.6	79.6
ST10	67.1	42.0	67.1	72.1

Source: SWCA (2022)

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

Off-Site Traffic Noise

The project would generate new vehicle trips that would incrementally add to the existing traffic levels on surrounding streets and could result in an increase in the associated traffic noise levels. Based on the transportation assessment prepared for the project (Appendix J), the project would generate an estimated 1,293 new trips during the weekdays and 1,679 net new trips during the weekend.[1]

Based on the traffic noise modeling conducted for the project, the project would result in a maximum CNEL increase of 0.3 dBA during a weekday, and an estimated increase of 0.4 dBA during the weekend, between 6th Street and Wilshire Boulevard in comparison to existing traffic conditions. Therefore, the estimated off-site traffic noise level increase would be below the 3-dBA CNEL significance threshold based on the City's land use/noise compatibility guidelines and the City of L.A. Thresholds Guide.

Further analysis was prepared to determine the potential noise impacts associated with the project operation compared to the future noise conditions. Based on the traffic noise modeling conducted for the project, the project would result in a maximum CNEL increase of 0.4 dBA during weekdays along the road segment between Fairfax Avenue and Ogden Drive, and an estimated increase of 0.4 dBA during the weekend between 6th Street and Wilshire Boulevard in comparison to projected future traffic conditions. Therefore, the estimated off-site traffic noise level increase would be below the City of L.A. Thresholds Guide.

Composite Noise Levels

In addition to considering the project's operational off-site and on-site noise generation, the composite noise levels (i.e., noise levels from all on-site and off-site noise sources combined) experienced by surrounding sensitive receptors due to the project's operational noise sources occurring concurrently with existing noise sources are also evaluated to assess the potential overall increase in ambient noise levels at the analyzed monitoring locations. These off-site monitoring locations would experience noise levels generated by the project's mechanical equipment, outdoor areas, parking facilities, off-site traffic, and loading operations in addition to ambient noise levels generated by surrounding land uses and roadways. The analysis of the composite operational noise levels in the project vicinity was evaluated using the CNEL noise metric and is conducted using the following assumptions for each noise source:

- **Mechanical Noise:** Noise levels generated by the noise-generating mechanical equipment at the project site would occur continuously between 6:00 a.m. and 10:00 p.m.
- **Parking Facility:** Noise levels that would be generated at the project parking lot by peak-hour vehicle trips are assumed to occur continuously throughout the hours of 6:00 a.m. to 10:00 p.m.
- **Outdoor Activities:** Noise levels that would be generated at the outdoor areas are assumed to occur continuously throughout the hours of 7:00 a.m. to 7:00 p.m.
- **Off-Site Traffic:** Noise levels generated by off-site traffic are assumed to occur continuously for 24 hours per day.
- **Loading Area/Waste Compactor:** Noise levels generated by the project's loading areas and the waste compactors are assumed to occur for 3 hours between 7:00 a.m. and 10:00 p.m.

Table 5.11-19 presents the estimated composite noise levels in terms of CNEL at the off-site receptors. As shown in Table 5.11-19, the project would have a maximum increase of 1.9 dBA CNEL (at receptor ST6) during project operation. Therefore, the composite noise levels due to the project operations would remain below the 3-dBA CNEL significance threshold set forth in the City of L.A. Thresholds Guide and

[1] All trips are one-way.

the City's Noise Regulations for noise-sensitive uses within the "normally unacceptable" or "clearly unacceptable" category. Based on this analysis, the project would not generate operational noise above the thresholds used for this analysis. Therefore, impacts related to operational noise would be *less than significant*.

Table 5.11.19. Composite Operational Noise Impacts

Off-Site Monitoring Location	Estimated Noise Levels								
	Existing Ambient	Off-Site Traffic	Mechanical	Parking	Trash Compactor and Loading	Outdoor Activities	Project Composite	Ambient plus Project	Increase
	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST2	68.1	52.9	51.3	30.2	46.0	39.7	55.8	68.3	0.2
ST3	66.4	43.9	60.4	38.3	51.6	43.9	61.1	67.5	1.1
ST5	75.1	50.8	54.3	43.4	54.4	44.9	58.5	75.2	0.1
ST6	64.4	54.1	58.4	45.0	56.4	48.8	61.7	66.3	1.9
ST7	65.9	54.7	57.6	34.6	52.3	47.7	60.4	67.0	1.1
ST8	70.2	54.7	53.3	27.4	49.1	43.4	57.8	70.4	0.2
ST9	74.8	53.9	53.2	29.4	49.5	43.7	57.5	74.9	0.1
ST10	67.8	52.3	48.5	25.7	45.3	39.0	54.5	68.0	0.2

NOI Impact 2
During project operation, the project would not generate a substantial increase in ambient noise in excess of applicable standards or thresholds; noise impacts during project operation would be less than significant. (CEQA Checklist Appendix G Threshold XIII. a)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Noise impacts related to project operation would be less than significant.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

CONSTRUCTION

The operation of heavy construction equipment at the project site would generate ground-borne vibration that could affect structures immediately adjacent to the project site or could also cause an annoyance to people at those locations. Based on the reference vibration levels for the different pieces of equipment and the distances from the primary project construction activities, construction vibration velocity levels were estimated at the different receptors. Table 5.11-20 shows the estimated PPVs at the off-site receptors and the estimated vibration impacts on buildings. Further, Table 5.11-21 shows the comparison between the estimated ground-vibration levels and the human annoyance threshold.

Table 5.11-20. Construction Vibration Impacts – Building Damage

Off-Site Receptor	Building Category	Estimated Vibration Velocity Levels at the Off-Site Receptors (PPV)						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
		in/sec	in/sec	in/sec	in/sec	in/sec	in/sec	in/sec
ST2	Non-engineered timber and masonry buildings	0.0051	0.0051	0.0051	0.0009	0.0016	0.0000	0.2
ST3	Non-engineered timber and masonry buildings	0.0021	0.0119	0.0119	0.0025	0.0038	0.0000	0.2
ST5	Non-engineered timber and masonry buildings	0.0029	0.0062	0.0062	0.0013	0.0095	0.0000	0.2
ST6	Engineered concrete and masonry buildings	0.0069	0.0107	0.0107	0.0025	0.0092	0.0000	0.3
ST7	Engineered concrete and masonry buildings	0.0070	0.0140	0.0140	0.0013	0.0043	0.0000	0.3
ST8	Engineered concrete and masonry buildings	0.0072	0.0072	0.0072	0.0006	0.0024	0.0000	0.3
ST9	Engineered concrete and masonry buildings	0.0088	0.0088	0.0088	0.0006	0.0025	0.0000	0.3
ST10	Engineered concrete and masonry buildings	0.0013	0.0013	0.0013	0.0006	0.0013	0.0000	0.3

Source: SWCA (2022)

* FTA construction vibration impact criteria for building damage (FTA 2018).

Table 5.11-21. Construction Vibration Impacts – Human Annoyance

Off-Site Receptor	Building Category	Estimated Vibration Velocity Levels at the Off-Site Receptors						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
		VdB	VdB	VdB	VdB	VdB	VdB	VdB
ST2	Non-engineered timber and masonry buildings	62	62	62	47	52	0	80
ST3	Non-engineered timber and masonry buildings	54	69	69	56	60	0	80
ST5	Non-engineered timber and masonry buildings	57	64	64	50	68	0	80
ST6	Engineered concrete and masonry buildings	65	69	69	56	67	0	80
ST7	Engineered concrete and masonry buildings	65	71	71	51	61	0	80

Off-Site Receptor	Building Category	Estimated Vibration Velocity Levels at the Off-Site Receptors						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
		VdB	VdB	VdB	VdB	VdB	VdB	VdB
ST8	Engineered concrete and masonry buildings	65	65	65	44	56	0	80
ST9	Engineered concrete and masonry buildings	67	67	67	44	56	0	80
ST10	Engineered concrete and masonry buildings	50	50	50	44	50	0	80

* FTA ground-borne vibration impact criteria for residences and buildings where people normally sleep for infrequent vibration events (FTA 2018).

As shown in Tables 5.11-20 and 5.11-21, vibration levels generated by the construction equipment at the project site during project construction would not exceed the vibration thresholds established for building damage or human annoyance at the surrounding structures. Therefore, construction impacts related to groundborne vibration would be *less than significant*.

OPERATION

During project operation, no anticipated uses of the project site would generate groundborne vibration or noise. Therefore, operational impacts related to groundborne vibration would be *less than significant*.

NOI Impact 3
The project would not generate excessive groundborne vibration or groundborne noise levels either during project construction or operation; impacts related to groundborne vibration and noise levels would be less than significant. (CEQA Checklist Appendix G Threshold XIII. b)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to groundborne noise would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project site is not located within 2 miles of a private airstrip or public airport and is not within an airport land use plan. The nearest airport is Santa Monica Airport, located approximately 6 miles southwest of the project site. The project site does not include residential uses and therefore, no one resides on the project site. The project would not expose people working in the project site to excessive aircraft-related noise levels during either project construction or operation; therefore, *no impact* would occur.

NOI Impact 4
Because the project is not located in the vicinity of an airstrip or airport, the project would not expose people residing or working in the project site to excessive noise levels related to aircraft during either project construction or operation. No impact would occur. (CEQA Checklist Appendix G Threshold XIII. c)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. No impact would occur.

5.11.6 Cumulative Impact Analysis

Cumulative noise or vibration impacts can occur when more than one project is under construction simultaneously or when a project is expected to generate operational noise or vibration at the same time. The potential for cumulative noise impacts to occur is specific to the distance between the related projects and their stationary sources.

ON-SITE CONSTRUCTION NOISE

Related projects in the vicinity of the proposed project considered in this analysis include construction activities that could occur simultaneously with the construction of the project. Construction-related noise levels from the related projects would be short-term and intermittent. Further, it is assumed that the projects within the incorporated area of the City of Los Angeles would be required to comply with the City's Noise Ordinance No. 144,331 and No. 161,574. In addition, each of the related projects would be subject to Section 41.40 of the LAMC, which limits the hours of allowable construction activities, and Section 112.05 of the LAMC, which prohibits any powered equipment or powered hand tool from producing noise levels that exceed 75 dBA at a distance of 50 feet from the noise source within 500 feet of a residential zone. Noise resulting from cumulative construction activities would be reduced to the extent reasonably and technically feasible through mitigation measures proposed for each project and compliance with locally enforced noise ordinances. Therefore, with the related projects also complying with City requirements regarding construction noise impacts, the proposed project construction-related noise would be less than cumulatively considerable and would be *less than significant*.

OFF-SITE CONSTRUCTION-RELATED NOISE

In addition to the cumulative impacts of on-site construction activities, off-site construction trucks and worker trucks for the project would potentially result in cumulative impacts if the trucks for the related projects use the same haul route. To exceed the ambient noise levels, the total truck trips from related projects would need to increase by an approximate factor of 2.6 (i.e., increase from 69 trips per hour to 179 trips per hour). Based on the proposed project's limited contribution of construction traffic trips and the limited number of anticipated future development projects that would use the same or a similar haul route, traffic associated with the construction of the project and other related projects would not cumulatively add up to 179 or more hourly trips along Wilshire Boulevard and La Brea Avenue. Therefore, cumulative noise impacts from off-site construction would not be cumulatively considerable and would be *less than significant*.

ON-SITE CONSTRUCTION-RELATED VIBRATION

Ground-borne vibration impacts due to construction activities are generally limited to buildings located close to the construction site. The closest related project is the Los Angeles County Museum of Art (LACMA) renovation project, which is located adjacent to the project site. While the LACMA project may complete construction before the La Brea Tar Pits Master Plan is implemented, a conservative assumption is that construction could be occurring concurrently. The LACMA Building for the Permanent Collection Draft Environmental Impact Report (County of Los Angeles 2017) indicates that the estimated vibration velocity levels (from all construction equipment) would be below the significance thresholds at all off-site building structures. Therefore, due to the rapid attenuation of the ground-borne vibration, no cumulative impact concerning ground-borne vibration would occur; these cumulative impacts would be *less than significant*.

OFF-SITE CONSTRUCTION-RELATED VIBRATION

Based on FTA data, the vibration generated by a typical truck would be approximately 63 VdB (0.006 PPV) at 50 feet (FTA 2018). The shortest distance between the haul route and the receptor is approximately 25 feet. Ground-borne vibration generated by a haul truck at this distance would be approximately 0.016 PPV, which is well below the most stringent building damage threshold of 0.12 PPV. Additionally, the estimated vibration levels along the haul route would be approximately 72 VdB, below the human annoyance threshold of 80 VdB. Trucks from related projects are expected to produce similar vibration levels as the project. Thus, the ground-borne vibration levels from haul trucks would be below the 0.12 PPV threshold. Therefore, potential cumulative vibration impacts from off-site construction would be *less than significant*.

ON-SITE STATIONARY NOISE SOURCES

The LAMC limits stationary source noise from mechanical equipment; therefore, potential noise levels from these sources are expected to be less than significant for each related project. Based on the distance of the related projects from the project site, cumulative stationary source noise impacts associated with the operation of the project and neighboring related projects would be *less than significant*.

OFF-SITE MOBILE NOISE SOURCES

Traffic volumes would be generated by the project and other related projects and would produce roadway noise. Cumulative noise impacts due to mobile sources were analyzed by comparing the projected increase in traffic noise levels from the Existing Conditions to Future Cumulative Conditions. According to the traffic noise modeling conducted for the project, cumulative traffic volumes would result in a maximum increase of 2.5 dBA during a typical weekday, and 2.5 dBA during a typical weekend (SWCA 2022). Therefore, the cumulative noise impacts due to mobile (off-site) noise sources associated with the project, future growth, and related projects would be *less than significant*.

NOI Impact 5 (Cumulative Impacts)
The project would not contribute considerably to cumulative noise and/or vibration impacts.
Mitigation Measures
No mitigation is required.

NOI Impact 5 (Cumulative Impacts)
Impacts Following Mitigation
Not applicable. Impacts would be less than significant.

5.12 RECREATION

This section of the EIR identifies existing park and recreational facilities in the project vicinity and evaluates potential environmental impacts to nearby parks and recreational facilities that would occur with project implementation. For the purposes of the information and analysis provided in this section, it is important to note that while the project site provides existing uses that benefit the public and passive recreational opportunities including open space and parkland, it is not managed by the respective parks and/or recreation departments of either the County or the City of Los Angeles (City).

5.12.1 Existing Conditions

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as La Brea Tar Pits. Among the museum-related facilities on-site, the project site also provides open space and parkland that supports passive recreational use by the public.
The Central Green and open space areas within the greater Hancock Park are the only public green spaces within 1.5 miles of the project site. Existing visitation at the George C. Page Museum (Page Museum) was estimated by using attendance counts from July 2017 (see Appendix J for more detail). Based on this approach, it is estimated that a typical summer visitation is around 2,000 visitors on an average weekday and 2,600 daily visitors on Saturdays. Most people visiting the Page Museum also visit and use the surrounding parkland. Additional visitors may use the park without visiting the museum. However, there is no quantification of this existing parkland use.

Within Los Angeles County, the Los Angeles County Department of Parks and Recreation (LA County Parks) manages most parkland. As noted above, while the project site provides passive recreational opportunities and parkland, it is not managed by LA County Parks. LA County Parks manages 73,214 acres of parkland, spread over 182 parks with over 475 sports amenities. LA County Parks operates a network of 9 regional parks, 19 community regional parks, 20 community parks, 38 neighborhood parks, 15 wildlife sanctuaries, 10 nature centers, 36 public swimming pools, more than 200 miles of multi-use trails for hiking, biking, and horseback riding, and the largest municipal golf system in the nation, consisting of 20 golf courses (LA County Parks 2021).

As outlined in the Parks and Recreation Needs Assessment, the County maintains 98,977 acres of regional open space, which includes facilities that are more than 5 acres and generally contain only passive amenities such as visitor centers, trails, picnic shelters, or restrooms (LA County Parks 2016). The County maintains 15,723 acres of local parks, which are defined as under 100 acres and contain active amenities such as athletic courts and fields, playgrounds, and swimming pools. The County maintains 18, 248 acres of regional recreation parks which are defined as over 100 acres and contain active amenities such as athletic courts and fields, playgrounds, and swimming pools. The County also maintains 768,699 acres of natural areas.

The City of Los Angeles Department of Recreation and Parks (City RAP) is responsible for the establishment, operation, and maintenance of all City-owned public parks and recreational facilities in the city. These recreational facilities include parks, swimming pools, public golf courses, recreation centers, museums, youth camps, tennis courts, sports programs, and programs for senior citizens. The City RAP also supervises construction of new facilities and improvements to existing ones. Currently, the City RAP maintains over 16,000 acres of parkland within 444 regional, community, and neighborhood parks; 422 playgrounds; 321 tennis courts; 184 recreational centers; 72 fitness areas; 62 swimming pools and aquatic centers; 30 senior centers; 26 skate parks; 13 golf courses; 12 museums, 9 dog parks; 187 summer youth camps; and helps support the Summer Night Lights gang reduction and community intervention program (City of Los Angeles 2022). The City RAP supports the city's urban wilderness and open spaces

by maintaining and caring for the park urban tree canopy, 13 lakes, and 92 miles of hiking trails. The City RAP oversees Griffith Park and operates Venice Beach, the Cabrillo Marine Aquarium, and 12 museums.

According to the City RAP Community Needs Assessment, city parks are classified as mini, neighborhood, community, or regional. A mini park is less than 1 acre in size and a neighborhood park ranges in size from 1 to 10 acres, with a service area of a 0.5 mile. The city contains 51 total acres of mini parks and 774 acres of neighborhood parks. A community park ranges in size from 10 to 50 acres and regional parks are generally more than 50 acres in size and serve the city and region. The city contains 2,966 acres of community parks and 32,289 acres of regional and large urban parks (City RAP 2009).

Based on these inventories, the current service level for all park land is 9.231 acres per 1,000 persons; however, this number is drastically skewed by the large number of regional/large urban park land (89.5% of all acreage falls into the regional/large urban park classification). Current service levels for all four park classifications used in the Community Needs Assessment are:

- Mini parks: 0.013 acre per 1,000 persons
- Neighborhood parks: 0.198 acre per 1,000 persons
- Community parks: 0.759 acre per 1,000 persons
- Regional and large urban parks: 8.261 acres per 1,000 persons
- Total parks: 9.231 acres per 1,000 persons

The project site is located within the Wilshire Community Plan area. The City RAP operates 20 public parks and recreational facilities in the Wilshire Community Plan area. The Wilshire Community Plan designates approximately 191 acres of park land, including about 100 acres within a private golf course (Wilshire Country Club).

5.12.1.1 Surrounding Parks and Recreational Facilities

There are several parks and recreational facilities located close to the project site. Table 5.12-1 lists the type of park, amenities, and the approximate walking distance from the project site for these public parks and recreational facilities.

Beyond the project site itself, there are no large open-space areas or parks contiguous or adjacent to the project site. The Kenneth Hahn State Recreation Area is located approximately 5 miles south of the site and Griffith Park, a City of Los Angeles park, is about 5.5 miles to the northeast.

Table 5.12-1. Parks and Recreational Facilities Surrounding the Project Site

Name	Address	Distance to Project Site (miles)	Amenities	Acreage
Wilshire Green Park	799 Courtyard Pace Los Angeles, CA 90036	0.15 mile	Benches, small gazebo	<0.5 acre
Carthay Circle Park	6313 South San Vicente Boulevard Los Angeles, CA 90048	0.80 mile	Benches	0.97 acre
Mansfield Avenue Park	698-690 S. Mansfield Avenue Los Angeles, CA 90036	0.86 mile	Tables and seats	<0.5 acre

Name	Address	Distance to Project Site (miles)	Amenities	Acreage
Pan Pacific Park	7600 Beverly Boulevard Los Angeles, CA 90036	0.94 mile	Pan Pacific Pool Barbecue pits, baseball diamond (lighted), basketball courts (lighted / indoor), children's play area, picnic tables, restroom(s), amphitheater, jogging path, kitchen, multipurpose sports field, outdoor fitness equipment, stage, basketball courts (unlighted / outdoor)	28 acres
La Cienega Park, Community Center, and Tennis Center*	8400 Gregory Way Beverly Hills, CA 90211	1.44 miles	Community Center, three baseball diamonds, playground, BBQ and picnic tables, outdoor fitness equipment, Tennis Center, and tennis courts	17 acres
Hamel Mini Park*	214 S. Hamel Drive Beverly Hills, CA 90211	1.74 miles	Children's playground, picnic tables	<0.5 acre
LA High Memorial Park	4625 W. Olympic Boulevard Los Angeles, CA 90019	1.81 miles	Children's playground	2.51 acres

Source: City of Beverly Hills (2022); City of Los Angeles (2022).

* Managed by the City of Beverly Hills. All other parks listed are managed by the City of Los Angeles.

5.12.2 Regulatory Setting

5.12.2.1 Federal

There are no federal recreation regulations applicable to the project.

5.12.2.2 State

There are no state recreation regulations applicable to the project.

5.12.2.3 County of Los Angeles

COUNTY OF LOS ANGELES 2035 GENERAL PLAN

The County's General Plan (County of Los Angeles 2015) includes Open Space Resource Areas, which refer to public and private lands and waters that are preserved in perpetuity or for long-term open space and recreational uses. Existing open space in the unincorporated areas include County parks and beaches, conservancy lands, state parklands, and federal lands. Open spaces can also include deed-restricted open space parcels and easements. Table 5.12-2 provides goals and policies within the County's General Plan that are relevant to the project and the Tar Pits site.

Table 5.12-2. County of Los Angeles General Plan, Relevant Policies and Objectives

Goal/Policy	Goal/Policy Description
Conservation and Natural Resource Element	
Goal C/NR 1	Open space areas that meet the diverse needs of Los Angeles County
Policy C/NR 1.2	Protect and conserve natural resources, natural areas, and available open spaces.

Goal/Policy	Goal/Policy Description
Goal C/NR 2	Effective collaboration in open space resource preservation.
Policy C/NR 2.2	Encourage the development of multi-benefit dedicated open spaces.
Policy C/NR 2.4	Collaborate with public, non-profit, and private organizations to acquire and preserve available land for open space.
Policy C/NR 2.3	Improve understanding and appreciation for natural areas through preservation programs, stewardship, and educational facilities.
Parks and Recreation Element	
Goal P/R 1	Enhanced active and passive park and recreation opportunities for all users.
Policy P/R 1.1	Provide opportunities for public participation in designing and planning parks and recreation programs.
Policy P/R 1.2	Provide additional active and passive recreation opportunities based on a community's setting, and recreational needs and preferences.
Policy P/R 1.5	Ensure that County parks and recreational facilities are clean, safe, inviting, usable and accessible.
Policy P/R 1.8	Enhance existing parks to offer balanced passive and active recreation opportunities through more efficient use of space and the addition of new amenities.
Policy P/R 1.11	Provide access to parks by creating pedestrian and bicycle-friendly paths and signage regarding park locations and distances.
Goal P/R 2	Enhanced multi-agency collaboration to leverage resources.
Policy P/R 2.5	Support the development of multi-benefit parks and open spaces through collaborative efforts among entities such as cities, the County, state, and federal agencies, private groups, schools, private landowners, and other organizations.
Goal P/R 5	Protection of historical and natural resources on County park properties.
Policy P/R 5.5	Preserve and develop facilities that serve as educational resources that improve community understanding of and appreciation for natural areas, including watersheds.
Policy P/R 5.6	Promote the use of County parks and recreational facilities for educational purposes, including a variety of classes and after school programs.

5.12.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles. Nonetheless, regulatory and planning documents of the City of Los Angeles that are most relevant to the project as they relate to parks and recreational facilities are provided herein for informational purposes.

CITY OF LOS ANGELES GENERAL PLAN

Table 5.12-3 provides goals and policies within the City's General Plan that are most relevant to the project.

Table 5.12-3. City of Los Angeles General Plan, Relevant Policies and Objectives

Goal/Policy	Goal/Policy Description
Framework Element	
Policy 6.4.1	Encourage and seek to provide for usable open space and recreational facilities that are distributed throughout the city.
Policy 6.4.5	Provide public open space in a manner that is responsive to the needs and wishes of the residents of the city's neighborhoods through the involvement of local residents in the selection and design of local parks. In addition to publicly owned and operated open space, management mechanisms may take the form of locally run private/nonprofit management groups, and should allow for the private acquisition of land with a commitment for maintenance and public access.
Policy 6.4.8	Maximize the use of existing public open space resources at the neighborhood scale and seek new opportunities for private development to enhance the open space resources of the neighborhoods. • Encourage the improvement of open space, both on public and private property, as opportunities arise. Such places may include the dedication of "unbuildable" areas or sites that may serve as green space, or pathways and connections that may be improved to serve as neighborhood landscape and recreation amenities.
Policy 6.4.4	Consider open space as an integral ingredient of neighborhood character, especially in targeted growth areas, in order that open space resources contribute positively to the city's neighborhoods and urban centers as highly desirable places to live.

CITY OF LOS ANGELES PUBLIC RECREATION PLAN

The Public Recreation Plan, a component of the City's General Plan, establishes policies and standards related to parks and recreational facilities in the city. The Public Recreation Plan was adopted in 1980 by the Los Angeles City Council and amended by City Council resolution in March 2016 (City of Los Angeles 1980, 2016). The plan also addresses the need for publicly accessible neighborhood, community, and regional recreational sites and facilities across the city. The Public Recreation Plan focuses on recreational site and facility planning in underserved neighborhoods with the fewest existing resources and the greatest number of potential users (i.e., where existing residential development generates the greatest demand), as well as areas where new subdivisions, intensification of existing residential development, or redevelopment of "blighted" residential areas creates new demand.

WILSHIRE COMMUNITY PLAN

The Wilshire Community Plan establishes specific goals, objectives, policies, and programs to meet the existing and future needs of the Wilshire community (City of Los Angeles 2001). The Wilshire Community Plan aims to enhance the positive characteristics of residential neighborhoods while providing a variety of housing opportunities; improve the function, design, and economic vitality of the commercial areas; preserve and enhance the positive characteristics of existing uses which provide the foundation for community identity, such as scale, height, bulk, setbacks, and appearance; maximize the development opportunities around the existing and future transit systems while minimizing adverse impacts; preserve and strengthen commercial developments to provide a diverse job-producing economic base; and improve the quality of the built environment through design guidelines, streetscape improvements, and other physical improvements which enhance the appearance of the community. Table 5.12-4 provides goals and policies within the Wilshire Community Plan that are most relevant to the project.

Table 5.12-4. Wilshire Community Plan Objectives and Policies Relevant to the Proposed Project

Objective/Policy	Objective/Policy Description
Parks and Recreation	
Goal 4	Provide adequate recreation and park facilities to meet the needs of residents in the Wilshire Community Plan area.
Objective 4-1	Conserve, maintain and better utilize existing recreation and park facilities which meet the recreational needs of the community.
Policy 4-1.1	Preserve and improve the existing recreational facilities and park spaces. • Program: Maintain all open space designations within the Wilshire Community Plan. Designate open space parkland as acquired by the Department of Recreation and Parks.
Open Space	
Objective 5-1	Preserve existing open space resources and where possible develop new open space.
Policy 5-1.3	Convert and upgrade underutilized publicly owned property. • Program: Improve available rights-of-way throughout the Wilshire Community Plan area with landscaping, benches, picnic sites, walkways, for low-intensity recreational uses. Encourage this improvement separately, and in combination with transit center or busway improvements, currently under study by the Metropolitan Transportation Authority.

CITYWIDE COMMUNITY NEEDS ASSESSMENT

In 2009, the City RAP commissioned an update of the last Recreation and Parks Needs Assessment from 1999 as a preliminary step in developing a citywide park master plan and 5-year capital improvement plan. The Citywide Community Needs Assessment provides an inventory of existing facilities, defines geographic areas of need and recommended facilities to serve specific populations, and identifies priorities for additional parks and recreation facilities. The report provides a more current assessment of conditions and future needs compared to the Public Recreation Plan, while the Public Recreation Plan recommends the ratios of park acreage per person used in the analysis. Following the Community Needs Assessment, the City RAP began the 50 Parks Initiative, which is intended to substantially increase the number of parks and facilities across the city, with a specific focus on densely populated neighborhoods and communities that lack sufficient open space and recreational facilities.

5.12.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to public services (parks) and recreation if it would:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; and/or

b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

5.12.4 Impact Assessment Methodology

The impact assessment was based on a desktop review of the existing parks and recreational facilities in the vicinity of the project site and qualitatively evaluating the demand for increased use of these parks and recreational facilities upon project implementation. In addition, the project's proposed improvements to the passive recreational areas within the project site were evaluated for their potential to result in adverse impacts other than those addressed throughout this EIR.

5.12.5 Environmental Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The project site includes 13 acres of Hancock Park and supports passive recreational use by the public. In addition to the publicly accessible recreational areas and open space provided within the project site, there are also a number of existing parks and recreational facilities located close to the project site (see Table 5.12-1). The project would have a significant environmental impact if implementation of the project were to result in a significant change to the existing environment in a manner that would physically deteriorate existing neighborhood and regional parks or other recreational facilities or result in other physical effects to the environment. Typically, a project's potential to result in physical deterioration is determined by evaluating how an increase in population generated by the project would affect existing recreational facilities. However, the project would not result in an increase in a residing population since there are no residential uses on the project site and the project does not propose to add residential uses. Rather, the project site is a cultural destination offering museum uses and open space areas for passive recreational use. As such, this analysis qualitatively considers the project's potential to impact the use of existing neighborhood and regional parks or other recreational facilities by construction workers, employees, and visitors to the project site during project construction and operation.

CONSTRUCTION

During project construction, portions of the 13-acre project site would be used to accommodate earthwork and construction activities as well as provide staging areas for equipment and materials. Access to portions of the passive recreational areas provided at the project site may be temporarily limited to the museum employees and visitors, and the public during construction, but would not be fully closed for access. As such, there is a potential for construction workers, museum employees and visitors, as well as members of the public to use parks and recreational facilities located near the project site during project construction. The nearest public park to the project site is Wilshire Green Park which is approximately 0.15 mile southeast of the project site and can be accessed at several locations along West 8th Street and Courtyard Place. This park is not located along major streets that would provide access to the project site during construction. The distance of this park from the construction activity and the intervening development would avoid potential noise or conflict with construction activities. A small number of construction workers may visit this park during or after a workday. However, construction workers are temporary employees with high turnover associated with the various phases of construction, so such park use would be intermittent and short-term in nature. Museum employees and visitors, as well as the public may also use nearby park and recreation facilities during construction, but this use would also be temporary and intermittent over the project's construction period. Therefore, construction of the project would not result in increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Construction impacts would be *less than significant*.

OPERATION

The project would not include residential uses that would introduce a new or permanent population that would use the site for recreation or increase the use of nearby parks or recreational facilities. As described in Chapter 3, Project Description, the project would result in an increase of approximately 20 new employees; however, this increase in employees is not expected to significantly increase recreational demand. New employment opportunities generated by the project may be filled, in part, by employees already residing in the project vicinity who already use existing parks and recreational facilities. Given

the nature of the project, it is likely that new employees would primarily remain on-site due to work obligations and the amount of time it would take for employees to access these off-site areas. While they may use nearby parks and recreational facilities within the project vicinity, it would not be in such a capacity that substantial physical deterioration of any one facility would occur or be accelerated. As stated in Section 5.13, Transportation and the Transportation Assessment (see Appendix J), the project would result in an increase in visitor trips to the project site upon project implementation. Estimated increases in visitors to the Page Museum resulting from the project have been estimated linearly related to the increase in square footage (67%). Based on these estimates, the increase in visitors on weekdays would be 1,350 people, and on Saturdays the increase would be approximately 1,750 people.[1] Additional visitors may use the park without visiting the museum. These visitors are primarily traveling to the project site to visit the museum and associated passive recreational amenities, including the open space areas, provided on-site. While visitors to the project site may use other nearby parks and recreational facilities, it would not be in such a way that would cause substantial physical deterioration as the proposed enhancements to the project site would offer the beneficial continued access to park and recreational space in an urban area where park and open space availability is somewhat limited.

Given the project would not result in a new or permanent population that would use the site for recreation or increase the use of nearby parks or recreational facilities and would continue to provide publicly accessible open space areas within the project site, implementation of the project would not result in an associated increase in the use of nearby existing parks and recreational facilities such that substantial physical deterioration of any existing recreational facilities would occur or be accelerated. Impacts would be *less than significant*.

REC Impact 1
The project would not result in substantial physical deterioration of existing parks and recreation facilities during either project construction or operation. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XVI. a)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to increased use of existing neighborhood and regional parks, or other recreational facilities would be less than significant.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

As described in Chapter 3, Project Description, the project would result in modifications to existing structures and enhancements to the passive recreational areas and outdoor open spaces within the 13-acre project site. While the project would not expand or increase the amount of area dedicated to existing passive recreational uses, it would include improvements to the existing recreational areas and outdoor open spaces through modification to the existing pedestrian pathways into a continuous paved pedestrian path linking the existing elements of the site, including the Central Green. The project would also add a

[1] Existing visitation at the George C. Page Museum was estimated by using attendance counts from July 2017 (See Appendix J for more detail). Based on this approach, it is estimated that a typical summer visitation is around 2,000 visitors on an average weekday and 2,600 daily visitors on Saturdays.

children's play area, picnic areas, and other new passive recreational amenities, such as seating areas and viewing points.

CONSTRUCTION

As described above, construction of the project would include improvements to existing passive recreational areas within the project site. These improvements are considered as part of the overall project design and no other recreational facilities besides the improvements proposed by the project would be implemented. Construction activities associated with improvements to the existing recreational areas within the project site could include grading and other ground-disturbing activities, landscaping modifications, as well as the use of construction equipment throughout the construction duration of the project. The potential for adverse physical effects on the environment during project construction are evaluated throughout the environmental topic areas presented in Chapter 5, Environmental Impact Analysis, of this EIR. These construction activities would result in a temporary increase in noise and an increase in air quality construction-related emissions, and could also have impacts on or related to aesthetics, biological resources, archaeological resources, geology and soils, and hazards and hazardous materials. Construction impacts related to the enhancement of on-site passive recreational facilities could be significant.

OPERATION

Upon project implementation, operation of the project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Operational impacts would be *less than significant*.

REC Impact 2
Construction of the project would include enhancements and modifications to existing recreational facilities within the 13-acre project site. These activities could have an adverse physical effect on the environment. Construction impacts could be significant. Operation of the project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold XVI. b)
Mitigation Measures
Implement construction-related Mitigation Measures AES/mm-4.1, AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, and BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, and GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 and1.2, and HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4.
Impacts Following Mitigation
Implementation of the project's construction-related mitigation measures referenced above would reduce construction impacts associated with enhancement of on-site passive recreational facilities to less than significant. Operational impacts would be less than significant.

5.12.6 Cumulative Impact Analysis

The geographic context for the cumulative impact analysis of parks and recreational facilities considers facilities within a 2-mile distance of the project site (see Table 5.12-1). These include facilities within the City's jurisdictional boundaries as well as the neighboring jurisdiction of the City of Beverly Hills.

As provided in Chapter 4, Environmental Setting, a list of cumulative development projects in the vicinity of the project site also details nearby related projects, which consist of a variety of land uses, including residential, institutional, commercial, office, and mixed use. These related projects occur primarily as urban infill within the existing land use setting of the downtown Los Angeles area.

The project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated, as described in REC Impact 1. Further, the project site would continue to provide passive open space and recreational amenities for public use during project construction and operation in a downtown urban area where access to recreational spaces is limited. The demand and use of the existing parks and recreational facilities within the project vicinity would likely continue to increase with implementation of related development projects, many of which include residential uses which directly drive population growth and subsequently, the use of park and recreational facilities. As with the project, related projects and other future development projects would undergo discretionary review on a case-by-case basis and would be expected to coordinate with all requirements of the applicable plans, governing regulations, and municipal codes. The County, the City, and the neighboring jurisdictions all require payment of impact fees by development projects in accordance with each jurisdiction's applicable municipal ordinances to reduce impacts on local recreational and park resources due to the increased use and resulting physical deterioration of these facilities. Therefore, with the payment of fees by the related projects and any other future residential development within the city as well as the neighboring jurisdictions, and the provision of passive open space and recreational amenities on-site, construction and operation of the project, in conjunction with the related development, would not cumulatively contribute to impacts related to the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. Cumulative impacts during project construction and operation would be *less than significant*.

As described in REC Impact 2, construction of the project includes enhancements and modifications to existing recreational facilities which could have an adverse physical effect on the environment. Because construction of the project could result in these direct impacts, the potential exists for the project to also contribute significantly to cumulative impacts. If mitigation were not to be implemented, it is conceivable that the project would significantly contribute to these impacts. Therefore, the project's contribution could be cumulatively considerable; impacts could be *significant*.

Project mitigation measures have been identified and included to address the project's adverse physical effect on the environment, as identified in REC Impact 2. The identified mitigation measures would address the direct impacts associated with the project itself as well as the project's potential contribution to cumulatively considerable and significant construction impacts related to the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

REC Impact 3
Prior to the application of proposed project mitigation measures, the project could contribute to cumulative impacts associated with adverse physical effects on the environment. Cumulative construction impacts could be significant. Operation of the project would not contribute to cumulative impacts.
Mitigation Measures
Implement construction-related Mitigation Measures AES/mm-4.1, AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, and BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, and GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.3, and HAZ/mm-2.1; NOI/mm-1.1; TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4.

REC Impact 3
Impacts Following Mitigation
With implementation of the project's construction-related mitigation measures referenced above, the project's contribution to cumulative construction impacts would be less than significant.

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5.13 TRANSPORTATION

This section describes the existing environmental and regulatory settings related to traffic and transportation, including a description of roadways in the area and the existing traffic conditions. This section also discusses potential impacts on transportation and traffic that would result from implementation of the project and provides mitigation measures to reduce these impacts, where necessary.

The information and analysis in this section is based on the *La Brea Tar Pits Master Plan Final Transportation Assessment* (Transportation Assessment) prepared by Kittelson and Associates (Appendix J). While the project site is owned by the County of Los Angeles (County), the street system surrounding the project site is within the jurisdiction of the City of Los Angeles (City). As such, the Transportation Assessment was prepared pursuant to the City of Los Angeles Department of Transportation's (LADOT's) Transportation Assessment Guidelines (TAG) and the approved Memorandum of Understanding between the City and the County of Los Angeles Museum of Natural History (Museum of Natural History), dated May 2, 2022.

The Transportation Assessment includes additional analysis and project recommendations beyond the purview of a CEQA analysis. The report can be found in its entirety in Appendix J of this EIR.

5.13.1 Existing Conditions

For the purposes of this transportation analysis, the project site and the area surrounding the project site are collectively referred to as the transportation study area (Figure 5.13-1).

5.13.1.1 Roadway Network

The roadway system in the transportation study area consists of avenue, collector, and local streets that serve local and regional traffic demand. The roadways in the transportation study area are discussed below. Classifications are illustrated in Figure 5.13-2; modal priorities are illustrated in Figure 5.13-3. The classifications presented below are defined in the City's *Mobility Plan 2035.*

AVENUE I AND AVENUE II STREETS

Avenue I and Avenue II streets are major thoroughfares that are designed to have 100 feet of right-of-way and 70 feet of roadway width for Avenue I streets, and 86 feet of right-of-way and 56 feet of roadway width for Avenue II streets.

Wilshire Boulevard is an Avenue I street on the southern border of the project site. The road has a four-lane cross section with a center median that has eastbound left-turn lanes at intersection approaches. Both eastbound and westbound directions have a joint parking lane/bus lane along the curb that allow for vehicle parking except during weekday a.m. and p.m. peak periods, where buses and right-turning vehicles have exclusive access to these lanes. The curb-to-curb roadway width is approximately 76 feet and the posted speed limit is 35 miles per hour (mph). Wilshire Boulevard has multiple modal priorities; it is on the Transit Enhanced Network (Comprehensive Transit Enhanced Street), Bicycle Lane Network (Tier 2 Bicycle Lane), and Pedestrian Analysis Network. Wilshire Boulevard (east of Fairfax Avenue) is on the City's Vision Zero High-Injury Network.

Figure 5.13-1. Transportation study area.

Figure 5.13-2. Roadway classifications near the project site.

Figure 5.13-3. Modal priorities near the project site.

Fairfax Avenue is an Avenue II street on the western border of the block that includes the project site as well as the Los Angeles County Museum of Art (LACMA) and the Academy Museum of Motion Pictures. The road has a four-lane cross section with a center median that allows for left-turning vehicles at intersections. There are also designated right-turn lanes on the northbound approach to West 6th Street and the southbound approach to Wilshire Boulevard. There is limited street parking on the west side of the street. The curb-to-curb roadway width is approximately 60 to 68 feet (depending on the presence of parking and right-turn lanes), and the posted speed limit is 35 mph. Fairfax Avenue has multiple modal priorities; it is on the Transit Enhanced Network (Moderate Transit Enhanced Street), Bicycle Lane Network (Tier 3 Bicycle Lane), and Pedestrian Analysis Network.

6th Street is an Avenue II street on the northern border of the project site. The road has a three-lane cross section (two westbound lanes and one eastbound lane) with a center median that allows for left-turning vehicles at intersections. There are designated right-turn lanes at the eastbound approach to the Fairfax Avenue intersection and at the westbound approaches to the LACMA parking garage and Curson Avenue intersections. Street parking is available along most of the north side of the street, except for at the eastbound turn lane at South Fairfax Avenue, while parking on the south side of the street is provided for portions of the street east of the LACMA parking garage driveway. The curb-to-curb roadway width is approximately 58 feet, and the posted speed limit is 35 mph. 6th Street has multiple modal priorities; it is on the Neighborhood Enhanced Network (Neighborhood Network west of Wilshire Boulevard), Bicycle Enhanced Network (Tier 1 Protected Bicycle Lanes), and Pedestrian Analysis Network. 6th Street (east of Ogden Drive) is on the City's Vision Zero High-Injury Network.

COLLECTOR STREETS

Collector streets are lower-volume roadways (compared to Avenue I/II streets) that are designed to have 66 feet of right-of-way and 40 feet of roadway width.

Curson Avenue is a Collector street on the eastern edge of the project site. The road has a two-lane cross section and a northbound left-turn lane at the West 6th Street intersection. There is no on-street parking allowed on either side of the road. The west side of Curson Avenue fronting the project site between the site driveway and the bend in Curson Avenue is a dedicated loading zone for buses. The curb-to-curb roadway width is approximately 36 to 40 feet (depending on the presence of the northbound left-turn lane), and there is no posted speed limit. Curson Avenue south of 8th Street is on the Neighborhood Enhanced Network.

8th Street is a Collector street south of the project site. The road has a two-lane cross section. Between Fairfax Avenue and Curson Avenue, there is diagonal and parallel parking on the north side of the street, and parallel parking on the south side of the street. The curb-to-curb roadway width is approximately 40 to 55 feet (depending on the presence of diagonal parking), and there is no posted speed limit.

LOCAL STREETS

Local streets are low-volume roadways that are designed to have 60 feet of right-of-way and 36 feet of roadway width.

Ogden Drive is a Local street to the south of the project site that intersects with Wilshire Boulevard (Ogden Drive also intersects with West 6th Street on the north side of the project site, but this is a private roadway with gated access). The road has a two-lane cross section with no marked centerline beyond the immediate intersection area with Wilshire Boulevard, and there are separate northbound left- and right-turn lanes as the street terminates at Wilshire Boulevard. Street parking is allowed on both sides of the street. The curb-to-curb roadway width is approximately 38 to 48 feet (depending on the presence of turn lanes at Wilshire Boulevard), and there is no posted speed limit.

Spaulding Avenue is a Local street to the south of the project site that intersects with Wilshire Boulevard. The road has a two-lane cross section with no marked centerline beyond the immediate intersection area with Wilshire Boulevard. Street parking is allowed on both sides of the street. The curb-to-curb roadway width is approximately 38 feet, and there is no posted speed limit.

Orange Grove Avenue is a Local street south of the project site that intersects with Wilshire Boulevard and with 8th Street. It is a two-lane roadway with no marked centerline. On-street parking is allowed. North of 8th Street, the curb-to-curb width is approximately 35 feet. There is no posted speed limit.

Stanley Avenue is a Local street south of the project site that intersects with Wilshire Boulevard and with 8th Street. It is a two-lane roadway with no marked centerline. On-street parking is allowed. North of 8th Street, the curb-to-curb width is approximately 28 feet. There is no posted speed limit.

5.13.1.2 Existing Vehicle Volumes

Weekday and weekend multimodal (vehicle, bicycle, and pedestrian) counts were collected within the transportation study area in May 2022 to establish the existing transportation context. The study intersections and roadway segments are shown in Figure 5.13-1 and Figure 5.13-2 and additional information on the count data is provided in Appendix J.

Because of the ongoing changes to travel patterns since the start of the COVID-19 pandemic in spring 2020, as well as construction on Wilshire Boulevard during the weekday morning and midday periods, the weekday counts were generally lower than historical counts. Counts collected for the project were compared to historical intersection data from various years to create adjustments for existing intersection volumes. Adjustment methodology was verified and approved by City staff as part of the Transportation Assessment (see Appendix J).

EXISTING INTERSECTION VOLUMES

Automobile turning movement counts were collected at the five intersections shown in Table 5.13-1. Traffic counts were collected on Thursday, May 12, 2022, during the weekday morning (7:00 a.m. to 9:00 a.m.), midday (12:00 p.m. to 2:00 p.m.), and evening (4:00 p.m. to 6:00 p.m.) peak periods. Traffic counts were also collected on Saturday, May 14, 2022, during the Saturday midday (12:00 p.m. to 2:00 p.m.) peak period.

Table 5.13-1. Study Intersections

ID	Intersection	Traffic Control
1	Ogden Drive/Parking Garage/West 6th Street	Signalized
2	Curson Avenue/West 6th Street	Signalized
3	Ogden Drive/Wilshire Boulevard	Signalized
4	Spaulding Avenue/Wilshire Boulevard	Signalized
5	Curson Avenue/Wilshire Boulevard	Signalized

The May 2022 study intersection counts were compared to data collected between 2012 and 2015. It was found that the weekday a.m. peak hour counts were an average of 51% higher in previous years compared

to 2022; weekday midday counts were 35% higher, weekday p.m. counts were 28% higher, and Saturday midday counts were 70% higher. Therefore, it was concluded that:

- 51% growth would be applied uniformly to the May 2022 weekday a.m. peak hour intersection volumes to obtain the adjusted existing conditions volumes.
- 35% growth would be applied uniformly to the May 2022 weekday midday peak hour intersection volumes to obtain the adjusted existing conditions volumes. The exception is the Curson Avenue/West 6th Street intersection, where May 2022 counts would be used for the weekday midday peak hour since those were higher than historical counts.
- 28% growth would be applied uniformly to the May 2022 weekday p.m. peak hour intersection volumes to obtain the adjusted existing conditions volumes.
- 70% growth would be applied uniformly to the May 2022 Saturday midday peak hour intersection volumes to obtain the adjusted existing conditions volumes. The exception is the Curson Avenue/West 6th Street intersection, where May 2022 counts would be used for the Saturday midday peak hour since those were higher than historical counts.

EXISTING ROADWAY SEGMENT VOLUMES

Table 5.13-2 identifies the seven roadway segments where 24-hour bidirectional vehicle volumes were collected on Thursday, May 12, 2022, and Saturday, May 14, 2022. Figure 5.13-1 shows the location of these roadway segments.

Table 5.13-2. Study Roadway Segments

Roadway	Extent
8th Street	between Fairfax Avenue and Orange Grove Avenue
Orange Grove Avenue	between Wilshire Boulevard and 8th Street
Ogden Drive	between Wilshire Boulevard and 8th Street
Spaulding Avenue	between Wilshire Boulevard and 8th Street
Stanley Avenue	between Wilshire Boulevard and 8th Street
Curson Avenue	between Wilshire Boulevard and 8th Street
8th Street	between Stanley Avenue and Curson Avenue

The May 2022 roadway segment weekday data were compared to data collected between 2014 and 2016. It was found that the weekday daily volumes along these roadway segments were approximately 36% higher in previous years compared to 2022. Therefore, it was concluded that:

- A 36% growth rate would be applied to the May 2022 weekday daily volumes at locations where historical volumes were higher.
- Since historical weekend counts were not available, the ratio of volumes between weekday and weekend from the 2022 counts was applied to the adjusted weekday volumes.

Table 5.13-3 provides the adjusted weekday and Saturday daily volumes at the identified roadway segments.

Table 5.13-3. Existing 2022 (Adjusted) Daily Segment Volumes

Roadway	Extent	Weekday Daily Volume	Weekend Daily Volume
8th Street	between Fairfax Avenue and Orange Grove Avenue	7,343	4,780
Orange Grove Avenue	between Wilshire Boulevard and 8th Street	9,262	4,633
Ogden Drive	between Wilshire Boulevard and 8th Street	787	1,154
Spaulding Avenue	between Wilshire Boulevard and 8th Street	536	931
Stanley Avenue	between Wilshire Boulevard and 8th Street	2,006	1,372
Curson Avenue	between Wilshire Boulevard and 8th Street	1,216	784
8th Street	between Stanley Avenue and Curson Avenue	7,013	4,972

Source: Kittelson and Associates (2022); National Data and Surveying Services (2022).

5.13.1.3 Public Transit Facilities and Service

The transit system in the transportation study area consists of local bus service, as well as planned heavy rail service.

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY BUS SERVICE

There are three Los Angeles County Metropolitan Transportation Authority (Metro) bus routes that run on roads that parallel the project site.

- **Line 20 (Downtown Los Angeles – Westwood/Santa Monica via Wilshire Boulevard)** runs between Downtown Los Angeles and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs 7 days a week; the bus runs 24 hours, with 15-minute headways during daylight hours and 30-minute headways during overnight every day of the week. Stops near the project site are located at Wilshire/Spaulding and Wilshire/Curson for both directions of travel. As part of its NextGen Bus Plan, LA Metro proposes to merge Line 20 and 720 between Downtown Santa Monica and Downtown Los Angeles. The new Line 20 would have 5-minute headways during weekday peak periods. Bus stop consolidation includes the removal of the Wilshire/Masselin bus stops approximately 750 feet east of the project site.
- **Line 217 (Hollywood/Vine Station – La Cienega Station via Hollywood Boulevard-Fairfax Avenue)** runs between Los Angeles' Los Feliz and Baldwin Hills neighborhoods, on Vermont Avenue, Hollywood Boulevard, and Fairfax Avenue along the west side of the project site. Service runs 7days a week; the bus runs on 12- to 15-minute headways for the majority of the day every day of the week, with longer headways at the beginning and end of service. Stops near the project site are located at Fairfax/West 6th and Fairfax/Wilshire for both directions of travel. As part of its NextGen Bus Plan, LA Metro proposes to merge Lines 180, 181, 217, and 780; Line 217 would be discontinued south of La Cienega/Jefferson Station to Howard Hughes Center. The new Line 180 would have 7.5-minute headways during weekday peak periods. Bus stop consolidation is not proposed for this route.
- **Line 720 (Santa Monica – Downtown Los Angeles via Wilshire Boulevard)** runs between Downtown Los Angeles and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs 7days a week; the bus runs on 5- to 10-minute headways for the majority of the day, with 15-minute headways during overnight hours of service. This is an express bus with limited stops, so the closest bus stops to the project site are at Wilshire/Cloverdale and at Wilshire/Crescent Heights. As part of its NextGen Bus Plan, LA

Metro proposes to merge Line 20 and 720 between Downtown Santa Monica and Downtown Los Angeles. The new Line 720 would continue to operate weekday peak periods with 10-minute headways, serving only between Downtown Los Angeles and Westwood.

LOS ANGELES DEPARTMENT OF TRANSPORTATION DASH BUS SERVICE

The Los Angeles Department of Transportation (LADOT) runs DASH Fairfax service on Wilshire Boulevard and Fairfax Avenue, connecting to Melrose Avenue and the Cedars-Sinai Medical Center. Service runs 7 days a week on 30-minute headways. Weekday service operates from 6:00 a.m. to 7:30 p.m., and weekend service operates from 9:00 a.m. to 7:00 p.m. DASH Fairfax services only westbound on Wilshire Boulevard and northbound on Fairfax Avenue. Stops near the project site are located at Wilshire/Curson, Wilshire/Ogden, Wilshire/Fairfax, and Fairfax/West 6th.

ANTELOPE VALLEY TRANSIT AUTHORITY

The Antelope Valley Transit Authority, based in the Lancaster and Palmdale area within Los Angeles County's Antelope Valley, provides commuter bus service from Lancaster and Palmdale into Los Angeles. Route 786 (Century City/West Los Angeles) provides four runs from Lancaster and Palmdale into Los Angeles during the morning commute time period, and four runs from Los Angeles to Palmdale and Lancaster during the evening commute time period. The closest stop to the project site is located at Wilshire/La Cienega to the west.

EXISTING BUS STOPS

The Transportation Assessment identifies existing bus stops in the transportation study area. Bus stops are provided in regular succession along Wilshire Boulevard. The closest bus stop to the project site is located at the northwest corner of the Curson Avenue/Wilshire Boulevard intersection, on the north side of Wilshire Boulevard 65 feet west of the intersection. This stop serves Metro Route 20 and LADOT DASH Fairfax service. Passenger amenities consist of a bench, trash can, and shade structure, as well as nearby wayfinding for Hancock Park. Bus stop amenities along Wilshire Boulevard in the transportation study area generally include benches, trash cans, and enhanced crosswalks, but lack shelters, pedestrian-oriented wayfinding, and pedestrian-oriented lighting.

FUTURE HEAVY RAIL SERVICE

Metro's D Line subway (also known as the Purple Line) is under construction to extend service west along Wilshire Boulevard, with service eventually connecting to the University of California, Los Angeles (UCLA) campus. The project includes tunnels within the Wilshire Boulevard right-of-way, adjacent to the project site. When completed, the D Line would operate peak service as often as every 6 minutes in both directions. Trains may operate 24 hours a day, 7 days a week. The first phase of the D Line extension, which is slated to open in 2024, would include a new stop at Ogden Drive and Wilshire Boulevard (branded as the Wilshire/Fairfax stop). This subway stop would be located directly to the southeast of the project site and would be accessible via sidewalks and crosswalks along Wilshire Boulevard. In addition, Metro's Purple (D Line) Extension First Last Mile Plan includes recommendations to enhance bus stops along Wilshire Boulevard.

5.13.1.4 Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities are provided within the transportation study area and offer additional options for travel to and from the project site.

Bikeways are categorized into four types, as described below:

- **Class I Bikeway (Bike Path):** Also known as a shared path or multi-use path, a bike path is a paved right-of-way for bicycle travel that is completely separate from any street or highway (e.g., along a creek or channel).
- **Class II Bikeway (Bike Lane):** A striped and stenciled lane for one-way bicycle travel on a street or highway. This facility could include a buffered space between the bike lane and vehicle lane (referred to as a buffered bike lane) and the bike lane could be adjacent to on-street parking.
- **Class III Bikeway (Bike Route):** A signed route along a street where the bicyclist shares the right-of-way with motor vehicles. This facility can also be augmented using shared-lane markings (also known as "sharrows"). An enhanced bike route, known as a bicycle boulevard, can include traffic-calming treatments to slow down vehicles.
- **Class IV Bikeway (Separated Bike Lane):** Also known as a cycle track or a protected bike lane, this is a bikeway for the exclusive use of bicycles including a separation between the bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking. A cycle track can be one-way or two-way.

There is currently one bikeway in the transportation study area: parking-adjacent Class II bike lanes on Hauser Boulevard north of West 6th Street. There are several bike racks at the project site, on the same block as the project site, or within a short distance of the project site:

- four inverted-U bike racks on the north side of Wilshire Boulevard between Curson Avenue and Fairfax Avenue;
- three inverted-U bike racks on the south side of Wilshire Boulevard between Stanley Avenue and Curson Avenue; and
- two post-and-ring bike racks on the east side of Curson Avenue north of Wilshire Boulevard.

The sidewalk network on the project site's block and adjacent streets is complete with a mixture of curb-tight and buffered sidewalks around the site. All signalized intersections that touch a portion of the project site's block have a complete set of crosswalks, except for the south leg of the Fairfax Avenue/West 6th Street intersection, where pedestrian crossing is prohibited. There is a midblock crossing with a continental crosswalk and a pedestrian hybrid beacon on West 6th Avenue between Ogden Drive and Curson Avenue that aligns with an existing entrance to the project site on the south side of the road. There is also a signalized midblock pedestrian crossing with a continental crosswalk on Wilshire Boulevard west of Fairfax Avenue. The sidewalk network is built out in this area of Los Angeles, including adjacent to the immediate site area. Crosswalks in the transportation study area are generally high-visibility continental crosswalks. However, all four crosswalks at the Curson Avenue/Wilshire Boulevard intersection are standard crosswalks. High-visibility curb ramps with tactile domes are provided at some (but not all) crosswalks in the transportation study area.

Details on bicycle and pedestrian trips within the transportation study area are provided in the Traffic Assessment (see Appendix J).

5.13.2 Regulatory Setting

This section provides a summary of federal, state, regional and local regulations, plans, and policies that are applicable and provide regulatory context for consideration of the project. Compliance with the codes and regulations in this section is required. The consistency analysis for the plans and policies that are necessary in a CEQA transportation analysis is provided in Section 5.13.5, TRA Impact 1. In addition,

refer to Section 5.10, Land Use and Planning, for additional discussion of the project's consistency with City and County transportation plans and policies.

5.13.2.1 Federal

AMERICANS WITH DISABILITIES ACT OF 1990

Titles I, II, III, and V of the Americans with Disabilities Act (ADA) have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III discrimination based on disability in "places of public accommodation" (businesses and non-profit agencies that serve the public) and "commercial facilities" (other businesses). The regulation includes Appendix A through Part 36 (Standards for Accessible Design), establishing minimum standards for ensuring accessibility when designing and constructing a new facility or altering an existing facility. Examples of key guidelines include detectable warnings for pedestrians entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travelway, and a vibration-free zone for pedestrians. The project would be required to meet ADA regulatory requirements.

5.13.2.2 State

ASSEMBLY BILL 32 AND SENATE BILL 375

With the passage of Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, the State of California committed itself to reducing statewide greenhouse gas (GHG) emissions to 1990 levels by 2020. The California Air Resources Board (CARB) is coordinating the response to comply with AB 32. On December 11, 2008, CARB adopted its Scoping Plan for AB 32. This scoping plan included the approval of Senate Bill (SB) 375 as the means for achieving regional transportation-related GHG targets. SB 375 provides guidance on how curbing emissions from cars and light trucks can help the state comply with AB 32.

There are five major components to SB 375. First, regional GHG emissions targets: California ARB's Regional Targets Advisory Committee guides the adoption of targets to be met by 2020 and 2035 for each Metropolitan Planning Organization (MPO) in the state. These targets, which MPOs may propose themselves, are updated every 8 years in conjunction with the revision schedule of housing and transportation elements. Second, MPOs are required to prepare a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. The SCS and the Regional Transportation Plan (RTP) must be consistent with each other, including action items and financing decisions. If the SCS does not meet the regional target, the MPO must produce an Alternative Planning Strategy that details an alternative plan to meet the target. Third, SB 375 requires that regional housing elements and transportation plans be synchronized on 8-year schedules. In addition, Regional Housing Needs Assessment allocation numbers must conform to the SCS. If local jurisdictions are required to rezone land as a result of changes in the housing element, rezoning must take place within 3 years. Fourth, SB 375 provides CEQA streamlining incentives for preferred development types. Certain residential or mixed-use projects qualify if they conform to the SCS. Transit oriented developments also qualify if they: 1) are at least 50% residential; 2) meet density requirements; and 3) are within 0.5 mile of a transit stop. The degree of CEQA streamlining is based on the degree of compliance with these development preferences. Finally, MPOs must use transportation and air emissions modeling techniques consistent with guidelines prepared by the California Transportation Commission. Regional transportation planning agencies, Cities, and Counties are encouraged, but not required, to use travel demand models consistent with the California Transportation Commission guidelines.

CALIFORNIA VEHICLE CODE

The California Vehicle Code (CVC) provides requirements for ensuring emergency vehicle access regardless of traffic conditions. Sections 21806(a)(1), 21806(a)(2), and 21806(c) define how motorists and pedestrians are required to yield the right-of-way to emergency vehicles.

COMPLETE STREETS ACT

AB 1358, the Complete Streets Act (Government Code Sections 65040.2 and 65302), was signed into law by Governor Arnold Schwarzenegger in September 2008. As of January 1, 2011, the law requires Cities and Counties, when updating the part of a local general plan that addresses roadways and traffic flows, to ensure that those plans account for the needs of all roadway users. Specifically, the legislation requires Cities and Counties to ensure that local roads and streets adequately accommodate the needs of bicyclists, pedestrians, and transit riders, as well as motorists. At the same time, the California Department of Transportation (Caltrans), which administers transportation programming for the State, unveiled a revised version of Deputy Directive 64 (DD-64-R1 October 2008), an internal policy document that now explicitly embraces Complete Streets as the policy covering all phases of State highway projects, from planning to construction to maintenance and repair.

CONGESTION MANAGEMENT PROGRAM

The Congestion Management Program (CMP) is a State-mandated program enacted by the State legislature and was last updated in 2010 (Metro 2010). The program is intended to address the impact of local growth on the regional transportation system. Level of Service (LOS) is a qualitative measure used to describe traffic flow conditions, which range from excellent, nearly free-flow, traffic conditions at LOS A to stop-and-go traffic conditions at LOS F. Statutory requirements of the CMP include monitoring LOS on the CMP Highway and Roadway network, measuring frequency and routing of public transit, implementing the Transportation Demand Management and Land Use Analysis Program, and helping local jurisdictions meet their responsibilities under the CMP.

The Los Angeles County Metropolitan Transportation Authority (Metro), the local CMP agency, has established a countywide approach to implement the statutory requirements of the CMP. This approach includes designating a highway network that includes all State highways and principal arterials within the county and monitoring traffic conditions on the designated transportation network; performance measures to evaluate current and future system performance; promotion of alternative transportation methods; analysis of the impact of land use decisions on the transportation network; and mitigation to reduce impacts on the network. If LOS standards deteriorate in areas outside of infill opportunity zones, then local jurisdictions must prepare a deficiency plan to be in conformance with the countywide plan.

The CMP requires an EIR to evaluate traffic and public transit impact analyses for select regional facilities based on the quantity of project traffic expected to use those facilities. The CMP guidelines state that areas selected for analysis should be those that include the following locations:

- All CMP arterial monitoring intersections, including monitored on- or off-ramp intersections, where the project would add 50 or more trips during either the a.m. or p.m. weekday peak hours of adjacent street traffic; and
- Mainline freeway monitoring locations where the project would add 150 or more trips, in either direction, during either the a.m. or p.m. weekday peak hours.

SENATE BILL 743

On September 27, 2013, SB 743 was signed into law. SB 743 started a process that could fundamentally change transportation impact analysis as part of CEQA compliance. These changes include the elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. SB 743 required the Governor's Office of Planning and Research to propose revisions to the State CEQA Guidelines establishing new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)).

The new State CEQA Guidelines Section 15064.3(b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the State CEQA Guidelines shift the focus of CEQA transportation analyses from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses (which in turn reduces regional vehicle trips). Vehicle miles traveled (VMT) is a measure of the total number of miles driven to or from a development and can be expressed in either total VMT or as an average per person.

Based on these changes, on July 30, 2019, the City of Los Angeles City Council adopted the CEQA Transportation Analysis Update, which sets forth the revised thresholds of significance for evaluating transportation impacts as well as screening and evaluation criteria for determining impacts. The CEQA Transportation Analysis Update establishes VMT as the City's formal method of evaluating a project's transportation impacts. In conjunction with this update, LADOT adopted its Transportation Assessment Guidelines (TAG) in July 2019 and updated in July 2020, which defines the methodology for analyzing a project's transportation impacts in accordance with SB 743.

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM

Caltrans administers transportation programming, which is the public decision-making process that sets priorities and funds projects envisioned in long-range transportation plans. Caltrans commits expected revenues over a multi-year period to transportation projects. The Statewide Transportation Improvement Program (STIP) is a multiyear capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the State Highway Account and other sources.

5.13.2.3 Regional

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS 2020–2045 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

In compliance with SB 375, on September 3, 2020, the Southern California Association of Governments (SCAG) Regional Council adopted the 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (2020–2045 RTP/SCS), a long-range visioning plan that incorporates land use and transportation strategies to increase mobility options and achieve a more sustainable growth pattern while meeting GHG reduction targets set by CARB. The 2020–2045 RTP/SCS contains baseline socioeconomic projections that are used as the basis for SCAG's transportation planning, as well as the provision of services by the six-county region of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. SCAG policies are directed toward the development of regional land use patterns that contribute to reductions in vehicle miles and improvements to the transportation system.

The 2020–2045 RTP/SCS builds on the long-range vision of SCAG's prior 2016–2040 RTP/SCS to balance future mobility and housing needs with economic, environmental, and public health goals. A substantial concentration and share of growth is directed to Priority Growth Areas, which include High-

quality Transit Areas, Transit Priority Areas, job centers, Neighborhood Mobility Areas, and Livable Corridors. These areas account for 4% of SCAG's total land area but the majority of directed growth. High-quality Transit Areas are corridor-focused Priority Growth Areas within 0.5 mile of an existing or planned fixed guideway transit stop or a bus transit corridor where buses pick up passengers at a frequency of every 15 minutes (or less) during peak commuting hours. Transit Priority Areas are Priority Growth Areas that are within 0.5 mile of a major transit stop that is existing or planned.

5.13.2.4 County of Los Angeles

COUNTY OF LOS ANGELES GENERAL PLAN

The Mobility Element, included as Chapter 7 of the Los Angeles County General Plan 2035 (County of Los Angeles 2015), provides an overview of the transportation infrastructure and strategies for developing an efficient and multimodal transportation network. The Mobility Element assesses the challenges and constraints of the County transportation system and offers policy guidance to reach the County's long-term mobility goals. It includes two sub-elements, the Highway Plan and the Bicycle Master Plan. These plans establish policies for the roadway and bikeway systems in the unincorporated areas, which are coordinated with the networks in the 88 cities in the County. The General Plan also established a program to prepare community pedestrian plans, with guidelines and standards to promote walkability and connectivity throughout the unincorporated areas. The County's General Plan Mobility Element is included here for informational purposes only.

LOS ANGELES COUNTY PUBLIC WORKS TRANSPORTATION IMPACT ANALYSIS GUIDELINES

The County published Transportation Impact Guidelines in July 2020 (County Department of Public Works 2020). Generally, these guidelines provide direction for the preparation of transportation impact analyses for development and transportation projects, including requirements and methodologies for VMT analyses. During the Transportation Assessment preparation process, the City and the County agreed that it would be most appropriate to use the City's assessment guidelines rather than the County's. This is primarily because the project would most affect the transportation network in the city.

5.13.2.5 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles. However, the street system surrounding the project site is entirely within the City's jurisdiction. As such, the transportation analysis was prepared pursuant to the LADOT Transportation Assessment Guidelines, which require consistency analysis with the following plans, policies, and ordinances, including the City of Los Angeles Mobility Plan 2035 and the Los Angeles Municipal Code (LAMC).

CITY OF LOS ANGELES MOBILITY PLAN 2035

The Mobility Plan 2035, adopted on January 20, 2016, and readopted September 7, 2016, is a comprehensive update of the City's General Plan Transportation Element. The Mobility Plan 2035 provides the policy foundation for achieving a transportation system that balances the needs of all road users, incorporates "complete streets" principles, and lays the policy foundation for how future generations of Angelenos interact with their streets, in compliance with the Complete Streets Act.

The purpose of the Mobility Plan is to present a guide to the future development of a citywide transportation system for the efficient movement of people and goods. While the Mobility Plan focuses on the City's transportation network, it complements other components of the City General Plan that pertain to the arrangement of land uses to reduce VMT and policies to support the provision and use of alternative transportation modalities. The Mobility Plan includes the following five main goals that define the City's high-level mobility priorities: Safety First; World Class Infrastructure; Access for All Angelenos; Collaboration, Communication, and Informed Choices; and Clean Environments and Healthy Communities.

CITY OF LOS ANGELES MUNICIPAL CODE

Regarding construction traffic, LAMC Section 41.40 limits construction activities to the hours from 7:00 a.m. to 9:00 p.m. on weekdays and from 8:00 a.m. to 6:00 p.m. on Saturdays and national holidays. No construction is permitted on Sundays.

LAMC Section 12.37 sets forth requirements for street dedications and improvements for new development projects. Specifically, LAMC Section 12.37 states that no building or structure shall be erected or enlarged on any property, and no building permit shall be issued therefore, on any R3 or less restrictive zone, or in any lot in the RD1.5, RD2, or R3 Zones, if the lot abuts a major or secondary highway or collector street unless one-half of the street adjacent to the subject property has been dedicated and improved to the full width to meet the standards for a highway or collector street as provided in the LAMC. While LAMC Section 12.37 generally applies to projects meeting the above criteria, the authority to require right-of-way dedications and improvements for discretionary projects that involve zone changes or divisions of land falls under LAMC Sections 12.32 G.1 and 17.05.

With regard to on-site bicycle parking, LAMC Section 12.21 A.16 sets forth requirements for long-term and short-term bicycle parking for residential and commercial buildings. Where there is a combination of uses on a lot, the number of bicycle parking spaces required shall be the sum of the requirements of the various uses. LAMC Section 12.21 A.16 also includes facility requirements, design standards, and siting requirements for bicycle parking.

LAMC Section 12.26 J provides for Transportation Demand Management (TDM) and Trip Reduction Measures that are applicable to the construction of new non-residential gross floor area. Different TDM requirements are provided for developments in excess of 25,000 square feet of gross floor area, 50,000 square feet of gross floor area, and 100,000 square feet of gross floor area. The TDM requirements set forth therein vary depending upon the maximum non-residential gross floor area described above and include measures such as the provision of a bulletin board, display case, or kiosk with transit information and carpool/vanpool parking spaces.

LOS ANGELES DEPARTMENT OF TRANSPORTATION: TRANSPORTATION ASSESSMENT GUIDELINES

On July 30, 2019, LADOT updated its Transportation Impact Study Guidelines, travel demand model, and transportation impact thresholds based on VMT, pursuant to State CEQA Guidelines Section 15064.3 and the 2019 CEQA updates that implement SB 743. The City established the Transportation Assessment Guidelines (TAG) that include both CEQA thresholds (and screening criteria) and non-CEQA thresholds (and screening criteria). LADOT updated the TAG in July 2020. The CEQA thresholds provide the methodology for analyzing the Appendix G transportation thresholds, including providing the City's adopted VMT thresholds. The non-CEQA thresholds provide a method to analyze projects for purposes of entitlement review and making necessary findings to ensure the project is consistent with adopted plans and policies including the Mobility Plan.

Specifically, the TAG is intended to effectuate a review process that advances the City's vision of developing a safe, accessible, well-maintained, and well-connected multimodal transportation network. The TAG have been developed to identify land use development and transportation projects that may impact the transportation system; to ensure proposed land use development projects achieve site access design requirements and on-site circulation best practices, to define whether off-site improvements are needed, and to provide step-by-step guidance for assessing impacts and preparing Transportation Assessment Studies.

5.13.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in a significant impact related to transportation and traffic if it would:

a) Conflict with a project plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;

b) Conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b);

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

d) Result in inadequate emergency access.

5.13.4 Impact Assessment Methodology

As described in the Transportation Assessment prepared by Kittelson and Associates (see Appendix J), impact assessment methodologies for each threshold of significance were developed in accordance with Section 2 of the LADOT TAG (LADOT 2020).

In order to support the assessment of projects' consistency with the City's transportation planning framework, the City has prepared a Plan Consistency Worksheet with questions to help guide whether the project would conflict with these programs, plans, ordinances, and policies. The Transportation Assessment prepared a Consistency Worksheet which considered the Mobility Plan 2035 Public Right-of-Way (PROW) Classification Standards for Dedications and Improvements, the Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes, network access, and other applicable TDM and regional planning policies.

To consider the project's consistency with State CEQA Guidelines Section 15064.3, an off-model VMT analysis using visitor zip code data was used to conduct a full VMT impact analysis. This approach is appropriate because the project is a non-standard use with unique trip generation patterns and neither the City's VMT calculator tool nor the City's Travel Demand Forecasting model could be used for the assessment. To conduct this analysis, average recreation trip lengths from the 2012 California Household Travel Survey were used; the California Household Travel Survey provides zip code–based household data including mode choice and trip lengths. Information is further broken down by trip purpose (home, work, school, errands, dining, shopping, and recreation). The average recreation trip length would be obtained for the zip codes encompassing Los Angeles and Orange Counties. From there, the average trip length for museum visitors in fiscal year 2018 was estimated using visitor's reported zip codes. This would be estimated for visitors from zip codes within Los Angeles and Orange Counties, since they are more likely to make a unique, unlinked driving trip to the museum. The visitors' average trip lengths were then compared to the average trip length for recreation-related trips in the region. To determine impacts, the analysis considers the net increase in total VMT, since trips associated with uses such as event centers and regional-serving entertainment venues are typically discretionary trips made by individuals, which

may be substitute or new trips, based on LADOT traffic study guidelines. The analysis compares the visitor trip length to the average regional recreation trip length to see which is longer. If zip code–based trips are longer than the regional average, then the regional total VMT would increase, thus causing a potential impact. Additional information on the development of the methodology for the VMT impact analysis is provided in the Transportation Assessment prepared by Kittelson and Associates (see Appendix J).The determination of significance regarding the potential for increasing hazards was assessed based on the relative amount of pedestrian activity at project access points, design features/physical configurations that affect the visibility of pedestrians and bicyclists to drivers entering and exiting the project site, the type of bicycle facilities the project driveway(s) crosses and the relative level of use, the physical conditions of the project site and surrounding areas, and other conditions, including the approximate location of incompatible uses that would substantially increase a transportation hazard.

Analysis of the project's potential impacts related to emergency access included a review of vehicle access points to the project site. Construction activities and their impact on emergency access have also been evaluated. The determination of significance for this threshold considers the potential of the project to impede on emergency access on adjacent City streets and/or result in safety impacts.

For impacts during project operation, project trip generation is detailed in the Transportation Assessment prepared by Kittelson and Associates (see Appendix J). Operational trip generation for the project was prepared by first establishing an existing trip generation rate for the weekday daily, weekday a.m. peak hour, weekday midday peak hour, weekday p.m. peak hour, Saturday daily, and Saturday midday peak hour periods using historical data specific to the project site and the existing museum square footage and number of employees. Then, the trip generation rates were applied to the proposed increase in museum square footage to estimate the net increase in project-generated trips. Trip generation was estimated separately for employees and for visitors. All trips presented are one-way.

Table 5.13-4 provides the estimated net increase in vehicle trips generated by the project during project operation,[1] combining the net increases for both employee and visitor vehicle trips. The project is expected to generate 1,293 net new weekday daily vehicle trips and 1,679 net new Saturday daily vehicle trips.

Table 5.13-4. Net Vehicle Trip Generation Estimate

Weekday									
Daily	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
1,293	12	0	**12**	107	199	**306**	16	69	**85**
Saturday									
	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
Daily	In	Out	Total	In	Out	Total	In	Out	Total
1,679	*(not analyzed)*			145	139	**284**	*(not analyzed)*		

Source: Kittelson and Associates (2022).

[1] The Traffic Assessment uses the term "museum expansion" to represent the action of the project, as the proposed increase in square footage was used to estimate the increase in project-generated trips. Throughout this EIR, all actions associated with project implementation are referred to collectively as "the project." For the purposes of this transportation analysis, these two terms are synonymous given the aforementioned methodology for projecting project-generated trips.

The George C. Page Museum (Page Museum) is one of several museums in the transportation study area. It is expected that a portion of visitors to the transportation study area would visit multiple museums in a single visit. This includes the additional visitors to the area due to the project; a portion of the increase in visitors could come from other nearby museums such as LACMA. Therefore, the trip generation used in the Transportation Assessment is conservative by linearly estimating the net increase in trips associated with the project.

5.13.5 Environmental Impact Analysis

The consistency analysis of the applicable transportation plans, policies, and regulations for threshold a) and threshold b) considers the holistic impacts associated with implementation of the project (i.e., it does not provide separate construction and operation analyses). This is because most policies broadly consider the appropriateness of types of land uses and the inclusion of features in the development plan that are consistent with the agency's long-range vision and goals. For threshold c), the focus is on the design features of the project so the question is inherently focused on how the project would function once fully constructed. Construction and operational impacts are addressed for threshold d).

a) Would the project conflict with a project plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

MOBILITY PLAN 2035 PROW CLASSIFICATION STANDARDS FOR DEDICATIONS AND IMPROVEMENTS

While the project includes new construction along Wilshire Boulevard (an Avenue I) and West 6th Street (an Avenue II), the property is not zoned for R3 or less restrictive zoning. Therefore, the project does not conflict with the dedication and improvement requirements that are needed to comply with the Mobility Plan 2035 Street Designations and Standard Roadway Dimensions.

MOBILITY PLAN 2035 PROW POLICY ALIGNMENT WITH PROJECT-INITIATED CHANGES

Given that the project includes physically modifying the curb placement along Curson Avenue, City plans and policies were reviewed in light of the proposed physical changes to determine if the City would be obstructed from carrying out the plans and policies. Curson Avenue along the project frontage is not on the High Injury Network. It is not a part of one of the designated multimodal networks. There are no existing or planned transit lines, transit stops, or bikeways along this segment. With the proposed change, the existing sidewalk would be maintained. The project proposes to modify the curb line to create a bay for a section of curb that is already designated as a bus zone, in place of the existing landscaped area. This moves loading/unloading out of the travel lanes to separate it from the adjacent travel lane.

The project also includes a new driveway on West 6th Street (an Avenue II). However, this does not result in exceeding 1 driveway per every 200 feet along the Avenue II frontage, locating it within 150 feet of the intersecting street, or locating it near a mid-block crosswalk. The project would not conflict with plans or policies that govern the public right-of-way.

NETWORK ACCESS

The project does not propose to vacate or otherwise restrict public access to a street, alley, or public stairway. It does not create a cul-de-sac and is not located adjacent to an existing cul-de-sac. Therefore, the project would not conflict with a plan or policies that ensures access for all modes of travel.

PARKING SUPPLY AND TRANSPORTATION DEMAND MANAGEMENT

The project would not propose a supply of on-site parking that exceeds the baseline amount as required in the LAMC. No increase in the on-site parking supply is anticipated from existing conditions, and the overall museum square footage is increasing. The project would not conflict with parking management policies.

The LAMC bicycle parking requirements for institutional uses are one short-term parking space per 10,000 of floor area, and one long-term parking space per 5,000 square feet of floor area. Since the project includes a net increase of 42,000 square feet, this means that four short-term spaces and eight long-term spaces are required. At this time, the project site plan is conceptual and therefore does not indicate the amount nor location of bike parking. Therefore, the project may conflict with the LAMC requirements for bicycle parking.

The TDM Ordinance requires projects between 25,000 and 50,000 square feet to provide a transportation information display with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities. At the time of EIR development, the project site plan is conceptual and does not indicate the location of this required TDM measure. Therefore, the project may conflict with the LAMC requirements for TDM.

CONSISTENCY WITH REGIONAL PLANS

The project was reviewed to determine potential inconsistencies with GHG reduction targets forecasted in the SCAG RTP/SCS. The project was analyzed using a total VMT threshold (as opposed to an efficiency-based impact threshold). The project site functions as a regional attraction and the proposed project would result in a net increase in regional VMT. Since the project would result in a net increase in VMT, further evaluation was necessary to determine whether this project would be inconsistent with VMT and GHG reduction goals of the SCAG RTP/SCS.

It was determined that without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, ensuring safety, maximizing transportation productivity, encouraging active transportation, and improving air quality. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. The project may conflict with the following relevant RTP/SCS goals:

- Improve mobility, accessibility, reliability, and travel safety for people and goods
- Enhance the preservation, security, and resilience of the regional transportation system
- Increase person and goods movement and travel choices within the transportation system
- Reduce greenhouse gas emissions and improve air quality
- Leverage new transportation technologies and data-driven solutions that result in more efficient travel

CONCLUSION

Through the analysis above, it was determined that the project would be inconsistent with regional plans related to mobility and GHG reductions, as well as the LAMC requirements for bicycle parking and TDM. As such, the project could result in a *significant impact* related to consistency with plans, programs, ordinances, or policies.

TRA Impact 1	
The project could result in a significant impact related to consistency with transportation plans, programs, ordinances, or policies. (CEQA Checklist Appendix G Threshold XVII a)	
Mitigation Measures	

TRA/mm-1.1	*In consultation with the LADOT, the Los Angeles County Museum of Natural History Foundation (Foundation) shall prepare and implement a Transportation Demand Management (TDM) Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare.*
	
	The Foundation shall designate an existing member of staff as the on-site TDM Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT.
	
	***Employee Strategies**:*
	
	Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures may be applied to reduce employee vehicle trips and VMT:
	
	• *Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.*
	• *Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.*
	• *Encourage and support participation in Metro vanpool, including subsidies for participation.*
	• *Implement paid parking for employees.*
	• *Subsidize transit passes.*
	• *Offer flexible work schedules and telecommuting, when feasible.*
	
	***Visitor Strategies**:*
	
	Transportation information for visitors shall be displayed on La Brea Tar Pits' website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT:
	
	• *Advertise and offer discounted museum tickets for visitors who use public transit or a bicycle to visit the project.*
	• *Provide and maintain secure on-site bicycle parking for visitors and monitor usage to determine if additional bicycle racks are needed.*
	  o *Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.*
	  o *Ensure bicycle parking is well lit and monitored by staff.*
	• *Continue to have paid parking for visitors.*
	• *Coordinate with Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to La Brea Tar Pits, through the following measures:*
	  o *Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits.*

TRA Impact 1	
	o *Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by La Brea Tar Pits visitors.* o *Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection.* • *Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and West 6th Street.*
Impacts Following Mitigation	
With implementation of Mitigation Measure TRA/mm-1.1, impacts related to consistency with plans, programs, ordinances, or policies would be reduced to less than significant.	

b) Would the project conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b)?

The California Household Travel Survey average trip lengths by trip purpose for households in Los Angeles County and Orange County indicate the average recreation trip length is 6.65 miles. Ticketing information and reported zip codes (for visitors from Los Angeles County and Orange County zip codes) from fiscal year 2018 were used to estimate the average visitor trip length. According to this subset of fiscal year 2018 visitors, the average trip length per visitor was 19.70 miles.

The average visitor trip length (19.70 miles) is higher than the average recreation trip length (6.65 miles). Visitors to the museum travel approximately 196% longer than the average recreation trip in Los Angeles and Orange Counties. Given that museum visitor trips are longer than regional recreation trip lengths, additional visitor trips to the project site due to the proposed project would result in a net increase in total VMT.

The Page Museum is one of several museums in the transportation study area. It is expected that a portion of visitors to the transportation study area would visit multiple museums in a single visit. This includes the additional visitors to the area due to the project; a portion of the increase in visitors could come from other nearby museums such as LACMA. Therefore, the VMT assessment used for the impact findings under TRA Impact 1 and TRA Impact 2 is conservative in that it assumes new visitors generated by the project would exhibit the same trip length patterns as existing visitors to the project site.

According to the California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (CAPCOA 2022), the maximum VMT reductions for various categories of on- and off-site measures range from approximately 2% to 65% for projects located in urban areas. However, given the magnitude of VMT that would need to be reduced—due to visitor trips being 196% longer than average regional recreation trips—Mitigation Measure TRA/mm-1.1 may be insufficient to reduce VMT to less-than-significant levels. Therefore, the project would result in a substantial increase in vehicle miles traveled and would be considered a *significant* impact.

TRA Impact 2
The project would result in a net increase in VMT and would result in a substantial increase in vehicle miles traveled. Impacts would be considered significant. (CEQA Checklist Appendix G Threshold XVII b)
Mitigation Measures
Implement Mitigation Measure TRA/mm-1.1.
Impacts Following Mitigation
Although implementation of TRA/mm-1.1 would reduce employee and visitor VMT and support multimodal connectivity, it may be insufficient to reduce VMT to less-than-significant levels. Therefore, the project's impacts related to causing substantial vehicle miles traveled would remain significant and unavoidable.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Once developed, the project would include a new driveway on West 6th Street that is 20 feet wide and consists of one inbound and one outbound lane. The driveway would be located approximately 450 feet west of the intersection with Curson Avenue and 250 east of the signalized pedestrian crossing. The driveway location does not result in exceeding 1 driveway per every 200 feet along the Avenue II frontage, locating it within 150 feet of the intersecting street, or locating it near a mid-block crosswalk. West 6th Street has relatively flat grades and there are no visible obstructions to sight distance for the proposed location. West 6th Street has an existing two-way left-turn lane for approximately 200 feet in each direction of the proposed driveway, with only one driveway on the north side which provides access to parking for the Park La Brea apartments. To minimize potential conflicts, the project driveway would be aligned across from the existing driveway on the north side of West 6th Street.

Pedestrian activity is high on West 6th Street and there is a sidewalk with landscaped separation between the curb and the sidewalk where the driveway would be located. Bicycle activity is moderate on West 6th Street and currently shares the roadway with vehicles, but there are planned protected bike lanes. Introduction of a new driveway would create a new conflict point between vehicles and pedestrians/bicyclists but would be designed to provide adequate sight distance and with curb radii that require slower speeds to complete turning movements.

A new loading zone is proposed along West 6th Street between the LACMA parking access and the signalized mid-block crossing connecting to the project site. The loading zone would replace existing on-street parking and would operate similar to the existing parking when considering whether the project would cause potential hazards.

The project also includes modifying the curb along Curson Avenue to provide a pull-out area for loading and unloading. The project proposes to modify the curb line to create a bay for a section of curb that is already designated as a bus zone. This moves loading/unloading out of the travel lanes to separate it from the adjacent travel lane.

Based on the proposed site plan and evaluation of geometric design and uses, the project would result in *less than significant* impacts when considering increasing hazards during project operation.

TRA Impact 3
Once developed, the project would not substantially increase hazards due to a geometric design feature; impacts would be less than significant. (CEQA Checklist Appendix G Threshold XVII c)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to hazards due to a geometric design feature would be less than significant.

d) Would the project result in inadequate emergency access?

CONSTRUCTION

Construction of the project would include renovation and expansion of the existing museum, demolition of the existing museum entrances, grading and excavation, and construction of new structures and related infrastructure. While all construction activities, including construction staging of equipment, would be situated entirely within the project site, it is possible that project construction and needs for unique construction-period access could cause temporary delays to vehicles (including emergency response providers) in the vicinity of the project site.

OPERATION

Once the project is constructed and operational, emergency vehicle access to the project site would be provided from the two site entrances off South Curson Avenue and off West 6th Street. As stated in the Transportation Assessment, the project may result in queuing and delays at the two major intersections directly next to (and providing access to) the project site, which could affect emergency access to the project site and other nearby sites.

The project would be required to be designed in accordance with the California Vehicle Code (CVC), which provides requirements for ensuring emergency vehicle access regardless of traffic conditions. In addition, the project's emergency vehicle access would need to comply with Los Angeles Fire Department (LAFD) access requirements as to not impede emergency access within the project vicinity, and all project driveways would be required to be designed according to LADOT standards to ensure adequate access, including emergency access, to the project site. While increased vehicle traffic may increase delays and queues on the network, the drivers of emergency vehicles normally have a variety of options for avoiding traffic, such as using sirens to clear a path of travel, activating emergency vehicle pre-emption phases on traffic signals, or driving in the lanes of opposing traffic. Pertaining to emergency access within the project site, a Preliminary Basis of Design Narrative was prepared for the project to outline the applicable codes related to fire safety and access features required to ensure adequate on-site circulation and access to the buildings and park areas within the project site (Code Consultants, Inc. [CCI] 2021). As outlined by CCI, the project would be designed in accordance with regulations set forth in the County of Los Angeles Building Code as well as the City of Los Angeles Fire Code as they pertain to fire safety and emergency access.

CONCLUSION

Given the project is undergoing continued development, the specific emergency access design and parameters have not been finalized, either for construction-period or post-construction conditions. For these reasons, emergency access impacts are considered *potentially significant*.

TRA Impact 4	
The project could result in inadequate emergency access during construction and operation. Project impacts would be potentially significant. (CEQA Checklist Appendix G Threshold XVII d)	
Mitigation Measures	
TRA/mm-4.1	*A construction traffic management plan (CTMP) shall be developed by the contractor, approved by the County, ~~and~~ the City of Los Angeles Department of Transportation (LADOT), Caltrans, and LA Metro, and implemented to alleviate construction period impacts. The CTMP will include, but may not be limited to, the following restrictions:* • *Prohibition of construction worker parking on nearby residential streets.* • *Prohibition of construction-related vehicles parking or staging on surrounding public streets.* • *Prohibition of construction-related parking or staging on streets with bus service.* • *Temporary pedestrian and vehicular traffic controls (i.e., flag persons) during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways.* • *Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate.* • *Scheduling of construction-related deliveries, haul trips, etc., shall occur outside the commuter peak hours to the extent feasible.* • *Avoidance of construction-related deliveries, haul trips, etc. from routing along congested local and state facilities, to the extent feasible.* • *Relocation and accommodation (as needed) of adjacent bus stops and access, to the extent feasible.*
TRA/mm-4.2	*Consultation shall occur with the City of Los Angeles Fire Department (LAFD) to analyze the project's emergency access design, including a review of the proposed vehicle access points. Construction activities and their impact on emergency access shall also be reviewed to ensure that the final design provides adequate access to the project site and neighboring businesses and residences.*
TRA/mm-4.3	*To improve emergency access safety and circulation, coordination shall occur with LADOT to explore the feasibility of implementing one or more of the following improvements:* • *Signal timing at the built-out intersection of Curson Avenue/Wilshire Boulevard shall be regularly updated to optimize traffic signal timing. In addition, the weekday a.m. and p.m. peak period bus-only lanes on Wilshire Boulevard shall be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection.* • *Signal timing at the Curson Avenue/West 6th Street intersection shall be regularly updated to optimize splits. In addition, improve existing lane striping to extend the*

TRA Impact 4	
	northbound left-turn lane at the intersection, and/or add an inbound left-turn lane at the project's Curson Avenue driveway. • *Incorporate safety features to accommodate passenger pick-up and drop-off along West 6th Street when planned separated bike lanes are implemented.* • *Monitor driveway operations at Curson Avenue.* *The County of Los Angeles does not have the authority to impose these measures because they are within the discretionally authority of the City of Los Angeles. Thus, while they are recommended, the County of Los Angeles is not required to implement them. However, the requirement to coordinate with the City and facilitate possible implementation of the above measures shall be required.*
Impacts Following Mitigation	
Impacts related to inadequate emergency access would be less than significant with mitigation. Emergency access can be addressed and brought to a level of less-than-significant solely with the implementation of TRA/mm-4.1 and 4.2. However, the exploration and facilitation of the improvements identified in TRA/mm-4.3, which are under the City of Los Angeles jurisdiction, are recommended to further advance and improve transportation conditions in the project site.	

5.13.6 Cumulative Impact Analysis

In accordance with the LADOT Transportation Assessment Guidelines, this cumulative analysis analyzes the effects of the project in relation to other developments in proximity of the project site that are proposed, approved, or under construction. The LADOT TAG define related projects as those that are within a 0.5-mile radius from a project site for CEQA analysis, and 0.25 mile beyond the farthest study intersection for non-CEQA circulation analysis[2] (LADOT 2020).

Estimated trip generation for the nine cumulative projects included in the Transportation Assessment is provided in Table 5.13-5. More information on how the trip generation for the cumulative projects was developed is provided in the Transportation Assessment. The trip generation for the cumulative projects is conservative by not applying negative net new trips and instead assuming those to be zero. Accordingly, a hyphen in a cell of the table denotes that the related project generates either zero or negative net new trips for that specific time period and inbound/outbound trip generation.

Table 5.13-5. Related Projects Trip Generation

Project	Week-day Daily	Weekday a.m.			Weekday Midday			Weekday p.m.			Sat. Daily	Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total		In	Out	Total
LACMA Renovation	668	43	2	**45**	27	33	**60**	15	53	**68**	763	34	41	**75**
Mixed-Use Project	310	4	14	**18**	11	7	**18**	14	9	**23**	209	9	6	**15**
Wilshire Curson Project	17,576	1,692	261	**1,953**	378	1,283	**1,661**	491	1,666	**2,157**	8,176	319	1,083	**1,402**

[2] The cumulative project list provided in Chapter 4, Environmental Setting, includes an expanded list beyond the geographic requirements of the LADOT Transportation Assessment Guidelines to allow consideration of potential cumulative impacts related to other environmental issue areas with a broader geographic reach.

Project	Week-day Daily	Weekday a.m.			Weekday Midday			Weekday p.m.			Sat. Daily	Saturday Midday		
		In	Out	Total	In	Out	Total	In	Out	Total		In	Out	Total
Mixed-Use Residential Project	786	27	46	**73**	36	24	**60**	48	31	**79**	913	31	20	**51**
Mixed-Use Residential and Commercial Development	--	--	41	**41**	1	--	**--**	1	--	**--**	--	1	--	**--**
Olympic and Fairfax Mixed Use Project	--	--	12	--	3	2	**5**	3	3	**6**	--	2	2	**4**
Mixed-Use Project	1,609	49	93	**142**	51	16	**67**	66	21	**87**	762	43	14	**57**
San Vicente Medical/ Commercial Project	5,374	364	108	**472**	141	304	**445**	183	395	**578**	2,146	119	257	**376**
Olympic Boulevard Mixed-Use Project	99	6	3	9	4	--	**4**	5	--	**5**	30	3	--	**3**

Source: (Kittelson and Associates (2022).

Note: A hyphen (–) denotes that the related project does not generate net new trips for that time period and/or direction.

The analysis conducted for consistency with transportation plans and policies to determine if cumulative impacts may result from the project in combination with related projects in the transportation study area is as follows:

- **Mobility Plan 2035 PROW Classification Standards for Dedications and Improvements:** The LACMA Renovation is a related project that shares the block as well as West 6th Street and Wilshire Boulevard frontages with the project. However, while the LACMA Renovation also includes new construction along Wilshire Boulevard (an Avenue I) and West 6th Street (an Avenue II), the property is not zoned for R3 or less restrictive zoning. Therefore, cumulative conflicts are not anticipated.
- **Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes:** Related projects in the transportation study area do not propose curb modifications and new driveways near the project. Therefore, cumulative conflicts are not anticipated.
- **Network Access:** The related projects in the transportation study area do not propose to vacate or restrict public access or create cul-de-sacs in proximity of the project. Therefore, cumulative conflicts are not anticipated.
- **Parking Supply and Transportation Demand Management:** It is not anticipated that related projects in the transportation study area would conflict with the City's parking management policies (either through providing sufficient parking supply or implementing parking management strategies). The potential project shortcomings related to bicycle parking and TDM requirements would be exacerbated by related projects in the transportation study area. Therefore, *cumulative conflicts are anticipated.*

- **Consistency with Regional Plans:** The LACMA Renovation, located directly to the west of the project and sharing the city block, is similarly a museum that serves as a regional attraction and would likely result in a net increase in regional VMT. *Therefore, cumulative conflicts with regional plans related to mobility and GHG reductions are anticipated*.

Other projects in the transportation study area are generally residential, office, and retail projects. However, the LACMA renovation, located directly to the west of the project and sharing the city block, is similarly a museum that serves as a regional attraction and would likely result in a net increase in regional VMT. Cumulative increases in VMT are anticipated. Therefore, the project would contribute to a *significant* cumulative impact related to causing substantial vehicle miles traveled and consistency with transportation plans, programs, ordinance, and policies.

The analysis of potential increased hazards was reviewed to determine if cumulative impacts may result from the project in combination with related projects in the transportation study area. Related projects in the area would likely contribute additional vehicle, pedestrian, and bicycle activity. The project design would not be impacted by the related projects nor the increase in activity. Thus, the project would result in a *less than significant* cumulative impact when considering increasing hazards based on the geometric design and uses of the project.

TRA Impact 5
The project would result in a significant contribution to cumulative transportation impacts by resulting in a net increase in VMT.
Mitigation Measures
Implementation of TRA/mm-1.1 shall be required.
Impacts Following Mitigation
Although implementation of TRA/mm-1.1 would reduce employee and visitor VMT and support multimodal connectivity, it may be insufficient to reduce VMT to less-than-significant levels. Therefore, the project's cumulative impacts related to causing substantial vehicle miles traveled would remain significant and unavoidable.

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5.14 TRIBAL CULTURAL RESOURCES

This section of the EIR provides an assessment of potential impacts related to tribal cultural resources that could result from implementation of the project. The analysis in this section is based on the results of the consultation with affiliated California Native American tribes and research presented in a technical report prepared by SWCA. The tribal consultation is being conducted by the County of Los Angeles (County) for purposes of compliance with CEQA, specifically the requirements stated in Public Resources Code (PRC) Section 21080.3.1, as amended by Assembly Bill (AB) 52. The results of the tribal consultation and research used to inform the sections presented below are based on *Archaeological and Tribal Cultural Resources Assessment for the La Brea Tar Pits Master Plan Environmental Impact Report, Los Angeles, California* prepared by SWCA (Millington and Dietler 2023). The report will remain part of the confidential administrative record because of the detail describing the specific location of the archaeological and tribal sites (allowable pursuant to California Government Code 6254(r) and 6254.10; the Public Records Act, California Code of Regulations (CCR) Section 15120 (d), PRC Sections 5097.9 and 5097.993; and PRC Section 21082.3(c)).

In its capacity as the lead agency under CEQA, the County maintain ns a list of California Native American tribes that requested to receive notifications pursuant to PRC Sections 21080.3.1 and 21080.3.2 (AB 52). The list includes representatives from five tribal organizations. The County sent letters describing the project and providing information regarding consultation to representatives of these five tribes via certified mail on March 8, 2022:

- Fernandeño Tataviam Band of Mission Indians;
- Gabrieleno Band of Mission Indians – Kizh Nation;
- Gabrieleno/Tongva San Gabriel Band of Mission Indians;
- San Manuel Band of Mission Indians; and
- Tejon Indian Tribe.

Of these five Native American tribes, the County received requests for consultation with respect to the proposed project from:

- Fernandeño Tataviam Band of Mission Indians on March 9, 2022;
- Gabrieleno Band of Mission Indians – Kizh Nation on March 22, 2022; and
- Gabrieleno/Tongva San Gabriel Band of Mission Indians on May 3, 2022.

In response to a request from the County, the California Native American Heritage Commission (NAHC) provided a list of 38 individuals affiliated with tribal organizations who are included on a contact list for all of Los Angeles County. The list included the five contacts from the County's AB 52 list. The County sent informational letters to the 33 tribal contacts who were not on the AB 52 list on March 8, 2022. Of these, the County received input as part of informational outreach from one Native American tribe as follows:

- Gabrielino Tongva Indians of California Tribal Council on March 28, 2022.

This section includes the results of the consultation and includes mitigation measures to address potential impacts to tribal cultural resources. As described in Section 5.14.2, Regulatory Setting, PRC Section 21074 states that "tribal cultural resources" are defined as: 1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe that are listed in, or determined to be eligible for listing in, the national or state register of historical resources, or listed in a local register of historic resources; or 2) resources that the Lead Agency determines, in its discretion, are tribal cultural resources.

For the purposes of this EIR and as a result of the AB 52 consultation process, the identified Native American archaeological resource within the project site is considered a tribal cultural resource.

5.14.1 Existing Conditions

A description of the archaeological record of Native Americans who lived in the vicinity of the project site can be found in Section 5.4, Cultural Resources – Archaeological Resources. This overview covers the period beginning with the earliest documented arrival of Native Americans in this part of North America during the Terminal Pleistocene (approximately 11,500 years ago) and extends to the time in which Spanish colonists arrived in the mid-eighteenth century.

5.14.1.1 Gabrielino Ethnography and History

The project site is in an area historically occupied by the Gabrielino. Because there is no agreement over the most appropriate name for this group, the term Gabrielino is used in the remainder of this section to designate people who were indigenous to the Los Angeles Basin and southern Channel Islands and their descendants. The name "Gabrielino" (sometimes spelled Gabrieleno or Gabrieleño) originated as a reference to Native Americans who were affiliated with Mission San Gabriel, whereas those who were affiliated with the nearby Mission San Fernando were referred to as Fernandeño. In the Mission and Rancho periods, Mission San Gabriel included Native Americans from the greater Los Angeles area, as well as members of surrounding groups such as Kitanemuk, Serrano, and Cahuilla. Surrounding Native American groups included the Chumash and Tatataviam/Alliklik to the north, the Serrano to the east, and the Luiseño/Juaneño to the south. Interaction between the Gabrielino and many of their neighbors in the form of intermarriage and trade was well-documented in ethnographic accounts and oral histories.

The Gabrielino subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the people utilized resources in mountain, foothill, valley, desert, riparian, estuarine, and open and rocky coastal eco-niches. As with most Native Californians, acorns were the staple food, which material evidence suggests was established several thousand years ago. Supplemental foods included the roots, leaves, seeds, and fruits of a variety of flora (e.g., islay, cactus, yucca, sages, and agave). Freshwater and saltwater fish, shellfish, birds, reptiles, and insects, as well as large and small mammals, were also consumed.

The Gabrielino used a variety of tools and implements to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used oceangoing plank canoes and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands. Gabrielino people processed food with a variety of tools, including hammer stones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Food was consumed from a variety of vessels, including soapstone bowls, and Catalina Island steatite was used to carve ollas and cooking vessels.

At the time of Spanish colonization, the basis of Gabrielino religious life was the Chinigchinich, centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions and taught the people how to dance as a form of religious practice. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws. The origins of the Chinigchinich are somewhat unclear as it seems to have been relatively new when the Spanish arrived. It was spreading south into the southern Takic groups even as Christian missions were being built and may represent a mixture of Native and Christian belief and practices.

Deceased Gabrielino were either buried or cremated, with inhumation more common on the Channel Islands and the neighboring mainland coast, and cremation predominating on the remainder of the coast and interior. Remains were buried in distinct burial areas, either directly associated with villages or without apparent village association. Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes, as well as scattered among broken ground stone implements. Grave goods associated with burials/cremations varied in quantity and content and included projectile points, beads, steatite objects, and asphaltum. Well-preserved burial features have evidence of wrappings of nets, hide blankets or capes, or mats of tule reeds or seagrass. At least one formal grave marker, an elaborately etched sandstone slab, was reported in 1885 at a site between Los Angeles and the coast, near San Pedro. Archaeological data such as these correspond with ethnographic descriptions of an elaborate mourning ceremony that included a variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wooden tools, shell beads, bone and shell ornaments, and projectile points and knives. Offerings varied with the gender and status of the deceased.

The traditional way of life for Native American people was dramatically altered by the Spanish mission system and later Mexican and American settlement in this part of Southern California. The dissolution of indigenous culture alienated them from their traditional subsistence patterns, social customs, and marriage networks. European diseases, against which they had no immunity, reached epidemic proportions, and Gabrielino populations rapidly declined. The increase in agriculture and the spread of grazing livestock into their collecting and hunting areas made maintaining traditional lifeways increasingly difficult. Although many Gabrielino were eventually subsumed by the mission system, some refused to give up their traditional existence and escaped into the interior regions of the state, where they survived as refugees, often in living in communities with other tribes.

Many researchers have brought attention to the role of Native American labor in developing and sustaining colonial settlements by providing crucial services and highly skilled roles across multiple types of industry. Gabrielino acquired equestrian skills used in herding, corralling, and branding cattle, and they routinely conducted the work of killing and skinning livestock. They demonstrated an aptitude for the engineering needed to create irrigation systems—finding grades, laying out ditches, and managing watering regimes. Irrigation was crucial for supplying domestic supplies and agriculture, especially wine making, which also relied on Gabrielino to plant the grapevines. Native women and children provided crucial household chores within the ranchos across the Los Angeles Basin. During the American period, Native Americans found work in citrus groves and other large-scale agricultural operations. During the twentieth century, Native Americans affiliated with Tribes from outside the region increasingly came to Los Angeles, some out of necessity or in pursuit of new opportunities, and others because of the federal government's termination and relocation policies. Native American workers made important contributions to several of the industries important during the early and middle parts of the twentieth century, such as aviation and film. It is estimated that several thousand Gabrielino descendants currently live in the Los Angeles area, though no reservation or rancherias were ever set aside and tribal organizations have not been federally recognized.

5.14.1.2 Gabrielino Placenames and Settlements

The project site is in an open alluvial plain comprising the northern portion of the Los Angeles Basin, bounded to the north by the Santa Monica Mountains. None of the Native American sites, placenames, or former settlements described in Gabrielino ethnographic records were located within the project site. Rather, the project site is situated in what was open prairie between two western communities located closer to the coast, and inland communities in what is now downtown Los Angeles.

The named Gabrielino settlements in closest proximity to the project site include the following: Kuruvungna Springs, approximately 5 miles to the east; Guaspet/Waachnga (hereafter Guaspet),

approximately 8 miles to the southwest near Ballona Creek; and two sites in the downtown Los Angeles area, Geveronga and Yaangna, approximately 6 and 7 miles to the west, respectively. In addition to the named communities, there are notable Native American archaeological sites in the Ballona Creek area, between 3 and 10 miles to the southwest—the Los Angeles Man Site (LAN-171) and the Haverty Site (LAN-172).

5.14.1.3 Sacred Lands File Search

The NAHC Sacred Lands File search was received from the NAHC on August 11, 2022, and produced negative results. The NAHC provided a list of Native American contacts and suggested contacting them to provide information on sacred lands that may not be listed in the Sacred Lands File. The County conducted informational outreach to tribes across Los Angeles County for the project, as well as formal consultation with tribes included on the County's AB 52 consultation list, which is described below. The responses to this outreach and consultation confirmed the sensitivity of existing archaeological discoveries and the potential for additional Native American materials to be preserved as buried deposits within the project site.

5.14.1.4 Existing Tribal Cultural Resources

As discussed in Section 5.4, Cultural Resources – Archaeological Resources, two archaeological sites identified in the California Historical Resources Information System (CHRIS), LAN-159 and LAN-1261H, have been combined and are referenced herein as the La Brea Tar Pits Archaeological Site (LAN-159/H), which is within the project site. A separate designation has been given to Hancock Park – La Brea as California Historical Landmark (CHL) No. 170 and an associated listing in the CHRIS as P-19-171007, but the historical significance of this resource and its status as a CHL focuses on the role of the site in the history of paleontology and excludes components that may be considered a tribal cultural resource.

LAN-159/H contains the material record of past Native American activities at the site from at least 10,000 to 3,200 years ago, and historical refuse from as long ago as the 1860s through the twentieth century (Millington and Dietler 2023). In terms of the Native American component of the La Brea Tar Pits Archaeological Site, there have been a total of 77 artifacts recovered from the site, in addition to the skeletal remains of a female Native American and a domesticated dog. The date range for the Native American component is based on radiocarbon dating1 on samples of the young female remains dated to 10,200–10,250 calibrated years before present (cal B.P.), a wooden atlatl foreshaft dated to 4536–5583 cal B.P., and a domesticated dog dated to 3250–3400 cal B.P. The historical component of the site (formerly LAN-1261H) was recovered from a single feature recorded in 1986 and was composed of various pieces of historical refuse, some indicating the materials were deposited as long ago as the 1860s. In addition to previously recorded resources within the project site, Phase 1 and Phase 2 investigations at the site confirmed the potential for previously undocumented and/or unknown Native American archaeological components and non-Native American historical artifacts to be located within the project site and near the previously recorded materials (Millington and Dietler 2023).

The boundary of LAN-159/H is defined as the full extent of the project site plus a small portion that extends outside the project site to the southwest and into the lawn area in front of the Shin'en Kan Pavilion (formerly site LAN-1261H). The Native American component of LAN-159/H includes 10 localities spread across an area measuring 185 meters (m) long and 30 m wide along the southwestern

[1] Calibrated radiocarbon dates are expressed here as cal B.P., or calibrated (years) before present, and are distinct from uncalibrated radiocarbon dates that require calculations to adjust for variations in the atmospheric carbon dioxide. As is the scientific convention for dates based upon radiocarbon measurements, dates expressed in B.P. are calculated backwards from the year 1950.

portion of Hancock Park and the project site. Artifacts were identified at depths ranging between 0.3 and 5.9 m below the surface, varying in absolute elevation based on the period in which they were deposited. Additional components could be present within the surface-level overburden—sediments created through artificial means—or in the underlying alluvium that is composed of asphaltic and non-asphaltic sediments. The remarkable preservation of Pleistocene floral and faunal remains for which La Brea Tar Pits are well known are those mainly deriving from the asphaltic sediments, although substantial portions of the fossil-bearing asphaltic sediments lack any evidence of human activity and may be too old to include them. Thus, while many portions of the LAN-159/H boundary are unlikely to contain additional Native American components, this boundary, based on the confirmed and likely archaeological expressions, represents a reasonable approximation for purposes of delineating LAN-159/H as a tribal cultural resource.

The age of the human remains demonstrates the longevity of La Brea Tar Pits as a place where Native Americans would gather and, at a minimum, collect the naturally occurring asphaltum (also known as bitumen). Bitumen was used for a variety of purposes, much of which involved its use as a waterproofing and adhesive agent. The La Brea site is the most substantial onshore bitumen source known in the Los Angeles Basin. Bitumen was also known to have been collected from coastal settings where the submarine tar seeps would produce tarballs that washed ashore, which were especially common in what are now Santa Barbara, Ventura, and Los Angeles Counties. One of the shell artifacts recovered from the La Brea Tar Pits Archaeological Site was stained with bitumen and interpreted as part of a small scoop used to extract bitumen.

Notably, when the Spanish party accompanying Portolá passed through the Los Angeles Basin in 1769, they followed a route west (approximated by segments of Wilshire Boulevard) and passed by the tar pits, later remarking on the presence of the tar (in Spanish, *la brea*) and marshes in their written accounts. It is widely assumed that Native Americans continued to use the site as a bitumen source at least into the early part of the Spanish period. Indeed, it was local Native American people who guided the Spanish along the route through this portion of the Los Angeles Basin, and the earliest ethnographic sources recording the Native American use of bitumen come from these Spanish records. La Brea Tar Pits still have cultural significance to contemporary Native American groups who observe traditional practices that incorporate the extraction and use of bitumen. Temporary Native American settlements or use-areas associated with bitumen extraction are likely to have once been present in the immediate vicinity; however, to date, few to no Native American artifacts have been documented outside of the components depicted in 10 localities within LAN-159/H.

Based strictly on a scientific assessment, LAN-159/H meets the definition of a historical resource and a unique archaeological resource. Given the input of consulting tribal parties (discussed below in Section 5.14.4, Impact Assessment Methodology), LAN-159/H is also a tribal cultural resource.

5.14.2 Regulatory Setting

The following section describes the regulations that are most relevant to the tribal cultural resources that may be affected by the project. Additional regulations that are relevant, but less directly so, are described in related sections of this EIR, including Section 5.4, Cultural Resources – Archaeological Resources, and Section 5.5, Cultural Resources – Historical Resources.

5.14.2.1 Federal

There are no federal regulations related to cultural resources applicable to the project.

5.14.2.2 State

State regulations applicable to tribal cultural resources include portions of the PRC, CCR, and Health and Safety Code are summarized in Section 5.4, Cultural Resources – Archaeological Resources. These include sections cross-referenced by portions of the PRC addressing tribal cultural resources. Specifically, these include provisions establishing the California Register of Historical Resources (CRHR) criteria, definitions of historical resources and unique archaeological resources, and the process by which human remains are treated, including steps requiring notification to the NAHC and designated most likely descendant if the remains are confirmed to be Native American in origin. The following sections focus on regulations that are more exclusively applicable to the assessment of tribal cultural resources and the government-to-government consultation process between California Native American tribes and the County as the CEQA Lead Agency.

ASSEMBLY BILL 52

AB 52 established the category of a tribal cultural resource for purposes of environmental review and formalized the lead agency–tribal consultation process. AB 52 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. While CEQA requires assessment of tribal cultural resources independently from archaeological resources, tribal cultural resources may be archaeological in nature and require consideration as both types of resources.

TRIBAL CULTURAL RESOURCES

Section 4 of AB 52 adds Sections 21074(a) and (b) to the PRC, which address tribal cultural resources and cultural landscapes. Section 21074(a) defines tribal cultural resources as one of the following:

1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
   A. Included or determined to be eligible for inclusion in the CRHR.
   B. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 1(a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource."

TRIBAL CONSULTATION

The provisions of AB 52 require that the lead agency initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. PRC 21080.3.1(b) states that the lead agency is required to begin consultation prior to the release of a Negative Declaration, Mitigated Negative Declaration, or EIR if: 1) the California Native American tribe requested to the lead agency, in writing, to be informed by the lead agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated

with the tribe, and 2) the California Native American tribe responds, in writing, within 30 days of receipt of the formal notification, and requests the consultation. PRC 21080.3.1(d) defines the minimum requirements for notification as sending "at least one written notification including a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section."

If a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects on tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]). Consultation is defined according to California Government Code Section 65352.4 and is defined as the "meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural values and, where feasible, seeking agreement." Government Code Section 65352.4 requires that consultation be conducted in a manner that is mutually respectful of each party's sovereignty and recognizes the confidentiality of places of traditional cultural significance.

5.14.2.3 Local

Local regulatory and guidance documents pertaining to cultural resources, including archaeological resources and tribal consultation, are provided in Section 5.4 of this EIR. Of note is Policy C/NR 14.4 in the County of Los Angeles General Plan (2015), which requires proper notification procedures to Native American tribes, consistent with Senate Bill 18. While this policy does not apply to the project since there is no General Plan Amendment proposed, there is inference that proper tribal consultation should occur. The process and consultation that the County has implemented pursuant to PRC 21080.3.1 and the informational outreach are consistent with this guidance. Also, Policy C/NR 14.6 directs that proper notification and recovery processes shall be carried out for development on or near historic, cultural, and paleontological resources. Broadly, a tribal cultural resource that is archaeological in nature is considered to be a type of cultural resource and, thus, is addressed by this policy.

5.14.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse impacts related to tribal cultural resources if it would:

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

   i. Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k), or

   ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

5.14.4 Impact Assessment Methodology

LAN-159/H contains the material remains of Native American use between at least 10,000 and 3,200 years ago, and historical refuse from the 1860s through the twentieth century. It was determined that LAN-159/H is eligible for the CRHR under Criterion 4 because it possesses sufficient archaeological data with the potential to contribute important information to history and it retains integrity. The Native American component of the site also appears to meet the definition of a unique archaeological resource. Consulting tribal parties have also expressed that the site has cultural value, and the assembled evidence indicates that the site meets the definition of a tribal cultural resource. Therefore, for the purposes of this project, LAN-159/H is considered a historical resource and tribal cultural resource under CEQA. As with historical resources, the significance of a tribal cultural resource may be impacted by direct physical disturbance associated with future development or indirectly through a change in setting or increased use of the area.

On March 8, 2022, AB 52 consultation letters were sent to representatives from the following five tribal organizations who had previously requested to be included on the County's AB 52 consultation list: Fernandeño Tataviam Band of Mission Indians, Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, San Manuel Band of Mission Indians, and Tejon Indian Tribe. Responses were received from four of the five tribal parties. One of the four responding tribes stated they did not wish to consult, one requested a copy of the cultural and tribal cultural resources technical study or EIR section, and two groups requested consultation and have been actively engaged in correspondence with the County.

On March 4, 2022, the NAHC provided a list of 38 individuals affiliated with their respective tribal organizations who are included on a contact list for all of Los Angeles County. This is compiled from the same list included with a Sacred Lands File search but expanded to include County-wide contacts. The list included the five contacts from the County's AB 52 list. To be broadly inclusive of the area's Native American community, the County elected to share information and solicit input from tribes throughout the county. The County sent informational letters to the 33 tribal contacts who were not on the AB 52 list on March 8, 2022, and four responses were received. A representative from the Gabrielino Tongva Indians of California Tribal Council responded by providing input and asked to participate in the implementation of the proposed mitigation measures. The Pechanga Band of Indians requested a site visit for tribal members as an activity unrelated to the proposed project, which was granted by the County and facilitated by staff at the George C. Page Museum (Page Museum). Representatives from the Quechan Tribe of the Fort Yuma Reservation and the Rincon Band of Luiseno Indians acknowledged receiving the notification letters but did not have any information to provide and deferred to local groups.

This discussion focuses on the County's coordination with the following tribes that requested consultation for the project under AB 52:

- Fernandeño Tataviam Band of Mission Indians
- Gabrieleno Band of Mission Indians – Kizh Nation
- Gabrieleno/Tongva San Gabriel Band of Mission Indians

5.14.5 Environmental Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed in or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. The lead agency shall consider the significance of the resource to a California Native American tribe.

The County, as the CEQA Lead Agency, has provided notification to Native American tribes affiliated with the project site pursuant to AB 52. Responses were received from four of the five tribes: Fernandeño Tataviam Band of Mission Indians, Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, and San Manuel Band of Mission Indians. Of those responses, Fernandeño Tataviam Band of Mission Indians, Gabrieleno Band of Mission Indians – Kizh Nation, and Gabrieleno/Tongva San Gabriel Band of Mission Indians have requested consultation for the project. The project site contains LAN-159/H, which is recommended eligible for the CRHR under Criterion 4 because it possesses sufficient archaeological data with the potential to contribute important information to history and it retains integrity. Based strictly on this scientific assessment, LAN-159/H meets the definition of a historical resource and a unique archaeological resource.

CONSTRUCTION

The project would result in renovation and upgrades throughout the Tar Pits complex, including the 13-acre portion of Hancock Park and the Page Museum. At the time of preparation of this report, final engineering, design, and grading plans for the project had not been finalized. Because the project design is at a preliminary stage, the level detail needed to determine the precise depth and extent of ground disturbance is not known. However, the level of design that has occurred to-date allows for a general characterization of the overall ground disturbance and excavation that would be necessary for the project. For impact assessment purposes, the design team for the project, working with the Los Angeles County Museum of Natural History Foundation and the County, estimates that, at most, the project would require excavations 6 to 10 feet below ground, potentially involving 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill. These estimates represent the most impactful scenario in terms of depths and horizontal extent of excavation within the project site. Thus, ground-disturbing activities have the potential to directly impact LAN-159/H as a tribal cultural resource.

Given the input provided by the consulting tribal parties, the contents of LAN-159/H and any additional components that may be buried within the project site have cultural value, which extends beyond the scientific data potential. The consulting tribal parties have stated that they consider the materials previously recorded and any that may be identified to have cultural value, regardless of whether they are recovered from their originally deposited setting or have been moved via artificial means over time. Furthermore, three of the consulting tribal parties and one of the tribes contacted for informational

purposes have stated in a more generalized sense that they consider the site to be sensitive, sacred, or otherwise culturally significant. The boundaries of Native American components previously recorded for LAN-159/H have been delineated within the larger site boundary that occupies the full extent of the project site. While not all subsurface settings within the project site boundary have an equal probability of containing additional Native American components, the boundary established for LAN-159/H represents a reasonable approximation of the area in which additional Native American materials could be preserved and provides an adequate basis on which the potential for project impacts can be assessed. Thus, LAN-159/H meets the definition of a tribal cultural resource. Therefore, impacts to tribal cultural resources during project construction could be *significant*.

OPERATION

Operation of the project would not result in any ground-disturbing activities such as grading or excavation outside of the existing research sites; therefore, there is no potential to encounter, alter, or disturb tribal cultural resources during project operation. No impact would occur during project operation.

TCR Impact 1
During project construction, the project could cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Sections 5020.1(k) and 5024.1. Construction impacts could be significant. Project operation would not cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Sections 5020.1(k) and 5024.1. No operational impacts would occur. (CEQA Checklist Appendix G Threshold XVIII. a, i and ii)
Mitigation Measures
TCR/mm-1.1 Retain Tribal Consultants. *a. Prior to any ground-disturbing activities on the project site associated with the proposed project, the Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, and* Gabrielino Tongva Indians of California *shall be retained as Tribal Consultants. Each of the Tribal Consultants shall provide the services of a representative, known as a Tribal Monitor. The Tribal Monitor(s) shall be present on-site and carry out actions described in the Archaeological and Tribal Cultural Resources Management Plan (AR-TCR Management Plan) and any actions required to comply with mitigation measures for tribal cultural resources. These actions shall include but not be limited to monitoring ground-disturbing activities. Ground disturbing activities are defined as excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing trees, clearing, driving posts or pilings, augering, backfilling, blasting, stripping topsoil or a similar activity at the project site. The frequency of the monitoring services shall be provided on a rotational basis as outlined in TCR/mm-1.3.* *b. At least 21 days before any ground disturbing activities commence, each of the Tribal Consultants shall submit a letter of retention to the Museum of Natural History confirming that the that they have been retained consistent with the terms of the TCR/mm-1.1.*

TCR Impact 1	
TCR/mm-1.2	*Prior to any ground-disturbing activities on the project site associated with the proposed project, the Tribal Consultants or Tribal Monitors shall provide a worker training to on-site project personnel responsible for supervising ground-disturbing activities (i.e., foreman or supervisor) and machine operators. The initial training shall be conducted prior to the start of ground-disturbing activities in the project site. The worker training shall include but not be limited to any topics related to protocols related to tribal cultural resources, regulatory compliance requirements, monitoring procedures and stop-work restrictions, and any other applicable mitigation measures that must be adhered to during ground-disturbing activities for the protection of tribal cultural resources. As an element of the worker training, the Tribal Consultants or Tribal Monitors shall advise the construction crews on proper procedures to follow if an unanticipated tribal cultural resource is discovered during construction whether a Tribal Monitor is present or not. The Tribal Consultants or Tribal Monitors shall also provide the construction workers with contact information for the Tribal Consultants and Tribal Monitors. Once the ground disturbances have commenced, the need for additional or supplemental worker training shall be determined through consultation with the Tribal Consultants, and project proponent or their designated project supervisor. Within 5 days of completing a worker training, a list of those in attendance shall be provided to the Museum of Natural History by the Tribal Consultants, the Qualified Archaeologist, or a designee of either parties.*
TCR/mm-1.3	*Monitoring for Tribal Cultural Resources.* *a. Prior to any ground-disturbing activities associated with the project, a minimum of one Tribal Monitor shall be present during ground-disturbing activities as stipulated in the AR-TCR Management Plan. The AR-TCR Management Plan shall establish a monitoring schedule in a manner that provides opportunities for each of the three Tribal Consultants to participate in monitoring throughout the project's duration and within specific project phases that involve ground-disturbing activities. The monitoring schedule shall be determined at the sole discretion of the Museum of Natural History. The Museum of Natural History or their designee shall notify each Tribal Consultant in advance of its assigned monitoring period to allow for adequate preparation and planning. The Qualified Archaeologist shall be responsible for coordinating and communicating with the Tribal Consultants to address the need for consistency in reporting of the results during the rotational monitoring process. If one Tribal Monitor is unable to attend on a given day, but another Tribal Monitor is present, ground disturbing work shall commence. The need for additional monitors exceeding the two respective Tribal Monitors shall be assessed if the areas subject to monitoring exceeds what can be reasonably covered. The Tribal Monitors shall work under the direction of their respective Tribal Consultant.* *b. The Tribal Monitors shall complete daily monitoring logs that provide descriptions of the relevant ground-disturbing activities (the type of construction activities performed and location of ground-disturbing activities), sediment types, presence or absence of tribal cultural resources or potential tribal cultural resources, and any other facts, conditions, materials, or discoveries of significance to the Tribal Consultants. Monitor logs shall identify and describe any discovered tribal cultural resources or potential tribal cultural resources as defined in Public Resources Code Section 21074(a), which includes but is not limited to Native American artifacts, remains, places of significance, as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs shall be provided to the project lead agency and the Qualified Archaeologist for purposes of summarizing in the monitoring report.* *c. The Tribal Monitors shall have the authority to temporarily halt or redirect construction activities if a tribal cultural resource or potential tribal cultural resource is exposed during construction. If a tribal cultural resource or potential tribal cultural resource is identified, work in the immediate vicinity (not less than 50 feet) of the find shall stop unless another distance is determined by both the Tribal and Archaeological Monitors, which shall consider the nature of the find and the potential for additional portions of the resource to remain buried in the unexcavated areas of the project site. Construction activities may continue in other areas in coordination with the qualified archaeologist and tribal consultant.*

TCR Impact 1	
	d. If a potential component of the existing tribal cultural resource (LAN-159/H) is identified, it shall be assessed by the Tribal Consultants as a tribal cultural resource in terms of its cultural value, based on tribal expertise, and supported by substantial evidence. If the discovery is archaeological in nature, then the assessment shall also incorporate the Qualified Archaeologist's evaluation as a potential contributor to the significance of LAN-159/H based on the California Register of Historical Resources criteria or as a unique archaeological resource, as specific in the AR-TCR Management Plan and in substantial conformance with the Archaeological and Tribal Cultural Resources Assessment. Any identified tribal cultural resources shall be assessed by both Tribal Consultants and the materials shall be cataloged and stored at the Page Museum for the period in which the ground-disturbing activities are occurring. Further analysis and the disposition of any collected materials shall be determined through consultation with the Tribal Consultant, the County, and informed by the evaluation of the materials as elements that contribute to the significance of the archaeological resource. Any consultation required shall occur on an as-needed basis during the ground-disturbing activities and continue after tribal monitoring has concluded as part of the reporting process described in Part F of TCR/mm-1.4 and CR-ARCH/mm-1.4. *If initial monitoring identifies no further sensitivity (i.e., sediments incapable of containing tribal cultural resources) below a certain depth or within a certain portion of the project site, a corresponding reduction of monitoring coverage would be appropriate. The reasoning for and scale of the recommended reduction shall be assessed by the Tribal Consultant in consultation with the Qualified Archaeologist and communicated to the Museum of Natural History in writing prior to reduction. Monitoring for tribal cultural resources shall be required until there is written confirmation from the County or a supervisor responsible for overseeing the ground-disturbing activities that there shall be no further ground-disturbing activities on the project site or in connection with the project site, either for the duration of the project.* *e. Within one month of concluding the tribal cultural resources monitoring, the Tribal Consultants shall prepare a memo stating that the monitoring requirements have been fulfilled consistent with the terms of TCR/mm-1.3 and summarize the results of any finds and actions taken by the tribal monitor to implement the final measures related to tribal cultural resources. The memo shall be submitted to the Museum of Natural History and the Qualified Archaeologist to be attached to a final archaeological and tribal monitoring report prepared by the Qualified Archaeologist consistent with CR-ARCH/mm-1.4.*
TCR/mm-1.4	*If human remains are encountered during construction all ground-disturbing work shall be immediately diverted from the discovery as directed by the Tribal Consultant and Qualified Archaeologist and based on consideration of the possibility that additional or multiple Native American human remains may be located in the project site, and after having considered whether the bones are human or faunal. Upon discovery of human remains, whether the archaeological or tribal monitor is present, the Los Angeles County Coroner's Office shall be notified, as prescribed in PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the Coroner determines that the remains are of Native American origin, the Coroner shall proceed as directed in Section 15064.5(e) of the State CEQA Guidelines, and as specified in the TCRMMP, which require the coroner to notify the NAHC who will appoint a Most Likely Descendent (MLD). Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated accordingly. While the coroner determines whether the remains are Native American and the MLD is designated and notified, the discovery is to remain confidential and secure to prevent any further disturbance.*
Impacts Following Mitigation	
Mitigation Measures TCR/mm-1.1 through TCR/mm-1.4 have been developed considering input from the Fernandeño Tataviam Band of Mission Indians, Gabrieleno Band of Mission Indians – Kizh Nation, Gabrieleno/Tongva San Gabriel Band of Mission Indians, and Gabrielino Tongva Indians of California. Implementation of TCR/mm-1.1 through TCR/mm-1.4 during project construction would reduce the project's construction impacts to less than significant. No operational impacts would occur.	

Grading plans and construction drawings have not been prepared and the specific phases of the project implementation have not been determined. Preparing the Archaeological Resources-Tribal Cultural Resources (AR-TCR) Management Plan using more advanced project designs and based on an anticipated schedule for the types of construction activities would allow the AR-TCR Management Plan to better account for this information in the document and ensure proper implementation. However, the project plans and design as proposed and the analysis of a known archaeological and tribal cultural resource, supported by substantial evidence, are sufficiently detailed to allow for the specific performance criteria to be identified for the AR-TCR Management Plan, the implementation of which would occur at a later time.

According to State CEQA Guidelines 15126.4(b)(3), preservation in place (i.e., avoidance) is the preferred manner of treatment of a significant archaeological site. If a previously unrecorded archaeological component of LAN-159/H is identified during ground-disturbing activities for the project and is found to contribute to the significance of the site, it is possible that under some circumstances preservation in place would not be a feasible form of mitigation under any of the examples listed in State CEQA Guidelines, and alternative treatment options would be required to avoid or reduce potentially significant impacts. If avoidance is not feasible, treatment may include archaeological data recovery (i.e., excavation, laboratory processing, and analysis) to obtain important information and thereby reduce potential impacts to less than significant.

5.14.6 Cumulative Impact Analysis

For the purposes of this EIR analysis, the geographic context for the analysis of cumulative impacts to tribal cultural resources is defined as the northwestern Los Angeles Basin—approximately the area west of the Los Angeles River, south of the Santa Monica Mountains, east of the Pacific coastline, and north of the Palos Verde Peninsula. The northwestern Los Angeles Basin area is large enough to contain a representative sample of Native American archaeological sites that could be important to affiliated California Native American tribes, and it is small enough to account for the cumulative impacts from projects on a more local scale. Importantly, the northwestern Los Angeles Basin is fully within the traditional territory of the Gabrielino and to a lesser extent the overlapping portions of the traditional territory of Tataviam-affiliated groups. The full extent of the traditional Gabrielino territory includes adjoining regions to the north, east, and south. Further discussion of the northwestern Los Angeles Basin as the geographic context used to analyze cumulative impacts is provided above in Section 5.4.6, which is focused upon archaeological resources but is relevant to the analysis of tribal cultural resources.

Tribal cultural resources are nonrenewable, irreplaceable, and inherently important to the Native American descendants, and their destruction prevents further study of past lifeways and history. Projects that could be developed in the northwestern Los Angeles Basin include the development projects listed in Chapter 4, Environmental Setting, as well as additional development projects beyond the geographical limit of the cumulative project listing contained in Chapter 4. The development of projects in the northwestern Los Angeles Basin could result in the destruction of tribal cultural resources and, particularly those for land development and transportation, would have the potential to result in a cumulative impact associated with the loss of tribal cultural resources. Given the potential for tribal cultural resources in the northwestern Los Angeles Basin and the number of construction activities that involve disturbance of areas sensitive for tribal cultural resources, cumulative impacts to tribal cultural resources could occur through physical demolition, destruction, relocation, or alteration to a resource such that it would cause an adverse change in the significance of tribal cultural resources—CRHR-eligible resources as defined in PRC Section 2020.1(k) or resources considered by the County to be tribal cultural resources pursuant to PRC Section 5024.1.

The project has the potential to contribute to a loss of tribal cultural resources that could combine with impacts from past, present, and reasonably foreseeable projects prior to implementation of the mitigation measures outlined previously in this section. The project's contribution toward cumulative effects on tribal cultural resources in the region could be significant if mitigation measures were not required and implemented to address the potential for direct impacts and the potential for project contribution to cumulative impacts.

As provided in the environmental impacts analysis in Section 5.14.5, a series of mitigation measures have been developed to address the project's potential for impacts to tribal cultural resources, which build upon and enhance the process put forward in Mitigation Measures CR-ARCH/mm-1.1 through CR-ARCH/mm-1.4. These mitigation measures have been developed to not only address direct impacts of project implementation, but also to address the project's contribution to cumulative tribal cultural resource impacts. Implementation of Mitigation Measures TCR/mm-1.1 through TCR/mm-1.4—which provide for retention of a qualified tribal consultant, worker training, monitoring by tribal monitors, and treatment of unanticipated discoveries—would ensure that tribal cultural resources impacts, both direct and contributions to cumulative impacts, are reduced to less than significant with mitigation. Taken together, implementation of these mitigation measures would ensure that the project would have less-than-significant impacts related to tribal cultural resources, as well as address the project's potential for significant contributions to potential cumulative tribal cultural impacts in the northwestern Los Angeles Basin.

TCR Impact 2 (Cumulative Impacts)
Prior to the consideration of proposed mitigation measures, construction of the project could result in significant contributions to cumulative impacts related to the disturbance and destruction of tribal cultural resources.
Mitigation Measures
Implement Mitigation Measures TCR/mm-1.1 through TCR/mm-1.4. These measures put forward a process that ensures any new tribal cultural resources or new components of an existing tribal cultural resource will be identified, inventoried, evaluated for significance in terms of its value to a California Native American tribe, and treated appropriately if found to be a contributing element.
Impacts Following Mitigation
With implementation of Mitigation Measures TCR/mm-1.1 through TCR/mm-1.4, the project's contribution to cumulative impacts to known and potentially unknown tribal cultural resources would be reduced to less than significant.

5.15 UTILITIES AND SERVICE SYSTEMS

This section of the EIR addresses the project's potential for environmental impacts related to the provision of utilities and service systems for the project. Utilities include water supply services, wastewater services, stormwater drainage, solid waste services, electricity services, and natural gas services.

While the project site is owned by the County of Los Angeles (County), the project site is located within the jurisdictional boundaries of the City of Los Angeles (City). Given the location of the project site within the city boundaries, the project's water and wastewater services as well as stormwater conveyance facilities and electricity are provided by various departments associated with the City, including the Los Angeles Department of Water and Power (LADWP) and City of Los Angeles Bureau of Sanitation (referred to as Los Angeles Sanitation and Environment [LASAN]). This section incorporates information provided in LADWP's 2020 *Urban Water Management Plan and* LASAN's 2019 *Sewer System Management Plan*, as well as Service Request correspondence letters (will serve letters) received from LADWP on October 28, 2022, and from LASAN on November 22, 2022 (see Appendix K).

5.15.1 Existing Conditions

5.15.1.1 Water Service

LADWP is responsible for providing water within the city of Los Angeles, including the project site. Water is supplied to the City from four primary sources: the Los Angeles Aqueduct system, local groundwater, purchased water from Metropolitan Water District of Southern California (MWD), and Colorado River Aqueduct (supplied by MWD). The Los Angeles Aqueduct supplies an average of 48% of the City's water, MWD purchases account for about 41%, local groundwater resources comprise 9%, and recycled water supplies 2% (LADWP 2020). The 2020 LADWP urban water management plan (UWMP) provides water demand and supply projections in 5-year increments to 2045, based on projected population estimates provided by the Southern California Association of Governments (SCAG) in its 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2020–2045 RTP/SCS), as summarized in Table 5.15-1. As shown, water supply would be equal to the water demand within LADWP's service area during average, single-dry and multi-dry years from 2025 through at least 2045.

Table 5.15-1. LADWP Water Demand and Supply Projections through Year 2045

Hydrologic Conditions	Year (acre-feet per year)				
	2025	2030	2035	2040	2045
Demand*					
Average year	642,600	660,200	678,800	697,800	710,500
Single dry year	674,700	693,200	712,700	732,700	746,000
Multi-dry years†	657,900	675,800	694,900	714,400	727,400
Supply					
Average year	642,600	660,200	678,800	697,800	710,500
Single dry year	674,700	693,200	712,700	732,700	746,000
Multi-dry year	657,900	675,800	694,900	714,400	727,400

Source: LADWP (2020)

* This total demand number is conservative, as it only includes passive conservation prior to fiscal year-end 2014.

† First year of multi-dry year.

Potable water for fire suppression systems, domestic cold water, and irrigation are provided by the LADWP from a water main located in South Curson Avenue. The project site's existing water usage during fiscal year 2021 to 2022 was 13,407 centum cubic feet (ccf) per year, which is equivalent to 30.8 acre-feet [af] per year or approximately 27,500 gallons per day (Foundation 2023). The existing fire suppression water line is served from a pipe connection to the public water main in South Curson Avenue adjacent to the northwest corner of the George C. Page Museum (Page Museum). There is one 3.5-inch domestic cold-water meter located in the sidewalk on South Curson Avenue adjacent to the southeast corner of the Page Museum. Water service to the Observation Pit and Project 23 is currently provided by Los Angeles County Museum of Arts (LACMA). Due to the relatively remote location of these service points compared to their proximity to LACMA, it is practical to assume that those demands would continue to be served by and coordinated with LACMA. There is also an existing public fire hydrant on the sidewalk on South Curson Avenue, just east of the Page Museum.

5.15.1.2 Wastewater Service

The sewer system and wastewater treatment facilities serving the project site are owned and operated by LASAN. LASAN operates and maintains a large collection of systems, serving a population of over 4 million within a 600-square mile service area. It consists of approximately 6,500 miles of sewers, 140,000 maintenance holes, and 44 pumping plants. LASAN also operates four water reclamation plants that have a combined capacity of 580 million gallons of recycled water per day (LASAN 2019).

Within LASAN, the Wastewater Engineering Services Division is responsible for the operation and maintenance of sewer and wastewater treatment facilities in the city of Los Angeles, including the project site. LASAN divides the wastewater treatment for the city into two major service areas: the Hyperion Service Area and the Terminal Island Service Area. The project site is within the Hyperion Service Area. The Hyperion Service Area is serviced by the Hyperion Sanitary Sewer System, which consists of the Hyperion Water Reclamation Plant, the Donald C. Tillman Water Reclamation Plant, and the Los Angeles-Glendale Water Reclamation Plant. Wastewater generated from the project site is conveyed via the local collector sanitary sewer system directly to the Hyperion Water Reclamation Plant for treatment. The Hyperion Water Reclamation Plant has the capacity to treat approximately 450 million gallons per day of wastewater for full secondary treatment and currently treats on average approximately 275 million gallons per day (LASAN 2019).

Under existing conditions, sewer discharge from the site is directed to the east where it connects by gravity to an existing City of Los Angeles public sewer main. The sewage infrastructure in the vicinity of the project site includes an existing 12-inch line on South Curson Avenue. The sewage from the existing 12-inch line feeds into an 18-inch line on Wilshire Boulevard then into a 39-inch line on Crescent Heights Boulevard before discharging into a 48-inch sewer line also located on Crescent Heights Boulevard (Appendix K). The Observation Pit and Project 23 sewer connections tie into LACMA infrastructure.

5.15.1.3 Stormwater Conveyance Facilities

Stormwater conveyance facilities serving the project site include both LASAN and the Los Angeles County Flood Control District infrastructure. There is a network of existing catch basins and underground storm drainage piping throughout the site under existing conditions. Existing catch basins are in both the northwest and southwest corners of the parking lot. These drains connect to underground storm drainage piping which join the 12-inch storm drain from the Page Museum, as well as landscape drainage around the multi-purpose lawn. Together, stormwater then drains to the southwest where it ties into a LACMA storm drain line and ultimately discharges to both LASAN and subsequently the Los Angeles County Flood Control District public infrastructure on Wilshire Boulevard (KPFF Consulting Engineers [KPFF] 2021).

5.15.1.4 Electricity and Natural Gas

Electric power service for the project site is provided by LADWP from an underground power distribution grid, including three underground 4.8-kilovolt circuits that run along West Wilshire Boulevard, South Spaulding Avenue, and South Ogden Drive. In addition, there are three 34.5-kilovolt circuits adjacent to the project site which also run along West Wilshire Boulevard (LADWP 2022).

Natural gas on the project site is provided by Southern California Gas Company (SoCalGas) from an existing public gas main located in South Curson Avenue. There is an existing gas meter located east of the Page Museum with a 1 to 1.5-inch gas line connecting to the Page Museum on the north side (KPFF 2021).

5.15.1.5 Telecommunications

Telecommunications at the Page Museum are provided by AT&T, Centrex, and Crown Castle. AT&T provides phone line and phone system services, Centrex provides support through copper phone line connectivity, and Crown Castle provides support to the internal network at the museum in addition to internet services.

5.15.1.6 Solid Waste

The Los Angeles County Public Works (County Public Works) operates the solid waste management system through their Countywide Integrated Waste Management Plan (CIWMP). Solid waste generated by single-family and some multi-family residences is collected by County Public Works. Remaining multi-family residences and all industrial and commercial buildings contract with private contracted waste haulers to collect, dispose, and recycle solid waste. A private waste management company, Southland Disposal Company, is responsible for the collection, disposal, and recycling of solid waste generated at the project site. Solid waste collection and disposal services for the project could be accepted at the Azusa Land Reclamation Company Landfill (Azusa Land Reclamation). Azusa Land Reclamation provides disposal services for communities, businesses, and industries serving the Los Angeles metropolitan area and eastern Los Angeles County. According to the California Department of Resources Recycling and Recovery (CalRecycle), Azusa Land Reclamation has a maximum permitted capacity of 80,571,760 cubic yards and is estimated to close in the year 2045 (CalRecycle 2023). Azusa Land Reclamation has a maximum daily throughput of 6,400 cubic yards per day, which is equivalent to approximately 1,664,000 cubic yards per year. In 2020, an average of 820 cubic yards per day of solid waste was disposed of at Azusa Land Reclamation, resulting in approximately 213,200 cubic yards per year (CalRecycle 2012; County Public Works 2021). As of December 31, 2020, Azusa Land Reclamation had a remaining permitted capacity of 52,342,017 cubic yards (County Public Works 2021).

Solid waste from the project site could also be disposed of at one or more of the other Class III landfills serving the County (Table 5.15-2). As shown in Table 5.15-2, the remaining capacity at other Class III landfills that could serve the project site is approximately 185,187,000 tons (County Public Works 2021).

The project site currently empties four 3-cubic yard bins of solid waste, including recyclable waste, three times a week. Additionally, one 3-cubic yard bin of green waste is emptied once every 4 to 6 weeks (Los Angeles County Museum of Natural History Foundation [Foundation] 2022). These generation rates are the equivalent of approximately 1,872 cubic yards of solid waste per year and approximately 39 cubic yards of green waste per year from the existing uses at the project site.

Table 5.15-2. Remaining Disposal Capacity for Los Angeles County Class III Landfills Serving the Project Site

Class III Landfill	Remaining Disposal Capacity (tons)
Azusa Land Reclamation	52,342,017
Chiquita Canyon	54,420,179
Sunshine Canyon City/County	54,079,158
Antelope Valley	10,178,644
Lancaster	9,873,404
Savage Canyon	4,261,790
Pebbly Beach	32,092
Total	**185,187,284**

Source: County Public Works (2021)

5.15.2 Regulatory Setting

5.15.2.1 Federal

CLEAN WATER ACT

In 1972, the federal Water Pollution Control Act (Clean Water Act [CWA]) was amended to prohibit the discharge of pollutants to waters of the United States unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The CWA focused on tracking point sources, primarily from wastewater treatment facilities and industrial waste dischargers, and required implementation of control measures to minimize pollutant discharges. The CWA was amended again in 1987, adding Section 402(p), to provide a framework for regulating municipal and industrial stormwater discharges. In November 1990, the U.S. Environmental Protection Agency (EPA) published final regulations that establish application requirements for specific categories of industries, including construction projects that encompass greater than or equal to 5 acres of land. The Phase II Rule became final in December 1999, expanding regulated construction sites to those greater than or equal to 1 acre. The regulations require that stormwater and non-stormwater runoff associated with construction activity that discharges either directly to surface waters or indirectly through Municipal Separate Storm Sewer Systems (MS4s), must be regulated by an NPDES permit.

SAFE DRINKING WATER ACT

The purpose of the Safe Drinking Water Act (SDWA) is to protect public health by regulating the nation's public drinking water supply. The Safe Drinking Water Act authorizes the EPA to set national health-based standards for drinking water to protect against both naturally occurring and human-made contaminants that may be found in drinking water. Potential contaminants include improperly disposed chemicals, animal wastes, pesticides, human threats, waste injected underground, and naturally occurring substances. In addition, water that is not properly treated may pose a threat to drinking water. The Safe Drinking Water Act applies to all public water systems across the nation. The EPA, individual states, and water systems work in coordination to ensure that these standards are met. The EPA identifies potential contaminants, determines an allowable maximum contaminant level, and enforces the set standards.

5.15.2.2 State

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act is a three-bill legislative package, comprising Assembly Bill (AB) 1739, Senate Bill (SB) 1168, SB 1319, and subsequent statewide regulations. The Sustainable Groundwater Management Act provides a statewide framework for the long-term protection of groundwater resources by requiring local agencies to form Groundwater Sustainability Agencies for high- and medium-priority basins.

Those Groundwater Sustainability Agencies are required to develop and implement a groundwater sustainability plan to mitigate overdraft of groundwater resources. The California Department of Water Resources (DWR) is responsible for assessing existing conditions and prioritizing groundwater basins within the state. The project site is within the Los Angeles Coastal Plain Groundwater Basin (4-011.02), which has been designated as a very low priority basin (DWR 2020).

URBAN WATER MANAGEMENT PLANNING ACT

The Urban Water Management Planning Act of 1983 (California Water Code Sections 10610 et seq.) requires that every supplier providing water for municipal purposes to more than 3,000 customers or suppliers supplying more than 3,000 acre-feet of water annually to prepare an urban water management plan (UWMP) every 5 years. The UWMP shall include a description of the service area, existing and planned sources of water available to the supplier, how much water the agency has on a reliable basis, how much it needs for the foreseeable future, what the agency's strategy is for meeting its water needs, the challenges facing the agency, and any other information necessary to provide a general understanding of the agency's plan. In addition, every urban water supplier shall prepare and adopt a water shortage contingency plan as part of its UWMP that includes, but is not limited to, an analysis of water supply reliability over a 20-year planning time frame, the procedures used in conducting an annual water supply and demand assessment, definitions of standard water shortage levels corresponding to progressive ranges of up to 50% shortages and greater than 50% shortages, and shortage response actions that align with the defined shortage levels.

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

The California Integrated Waste Management Act of 1989 (AB 939) mandated local jurisdictions to meet waste diversion goals of 25% by 1995 and 50% by 2000, and established an integrated framework for program implementation, solid waste planning, and solid waste facility and landfill compliance. AB 939 requires Cities and Counties to prepare, adopt, and submit to CalRecycle a source reduction and recycling element to demonstrate how the jurisdiction will meet the diversion goals. Other elements included encouraging resource conservation and considering the effects of waste management operations.
The diversion goals and program requirements of the act are implemented through a disposal-based reporting system by local jurisdictions under California Integrated Waste Management Board regulatory oversight. AB 939 has achieved substantial progress in waste diversion, program implementation, solid waste planning, and protection of public health, safety, and the environment from landfills operations and solid waste facilities. In 2011, AB 341 was passed, requiring CalRecycle to require that local agencies adopt strategies that will enable 75% diversion of all solid waste by 2020.

SOLID WASTE REUSE AND RECYCLING ACCESS ACT

The California Solid Waste Reuse and Recycling Access Act (AB 1327) requires each local jurisdiction to adopt an ordinance requiring commercial, industrial, institutional building, marina, or residential

buildings having five or more living units to provide an adequate storage area for the collection and removal of recyclable materials. The sizes of these storage areas are to be determined by the appropriate jurisdictions' ordinance. If no such ordinance exists with the jurisdiction, the CalRecycle model ordinance shall take effect. Chapter 22.132 in the County of Los Angeles Code of Ordinances provides storage enclosure requirements for recycling and solid waste (County of Los Angeles 2023).

CALIFORNIA BUILDING CODE AND GREEN BUILDING STANDARDS

The California Building Code (CBC) contains standards that regulate the method of use, properties, performance, or types of materials used in the construction, alteration, improvement, repair, or rehabilitation of a building or other improvement to real property. The CBC is adopted every 3 years by the Building Standards Commission.

"Green" building standards are virtually indistinguishable from any other building standards, are contained in the CBC, and regulate the construction of new buildings and improvements. Whereas the focus of traditional building standards has been protecting public health and safety, the focus of green building standards is to improve environmental performance. The green building standards were most recently updated in January 2023 and are detailed in the 2022 California Green Building Standards Code (CALGreen). CALGreen Section 5.408 requires the diversion of at least 65% of the construction waste generated during construction (CALGreen 2023).

MANDATORY COMMERCIAL RECYCLING PROGRAM

The Mandatory Commercial Recycling Program (AB 341) authorizes CalRecycle to develop and adopt regulations for mandatory commercial recycling. AB 341 requires all commercial businesses and public entities that generate 4 cubic yards or more of waste per week to have a recycling program in place. In addition, all multi-family homes with more than five units are also required to have a recycling program in place.

CALIFORNIA SENATE BILL 1374

SB 1374 was implemented to assist jurisdictions with diverting construction and demolition waste material. Per SB 1374, Public Resources Code (PRC) Section 41821 requires public agencies to include a summary of the progress made in diverting construction and demolition waste according to diversion goals included in AB 939. Per SB 1374, PRC Section 41850 authorizes CalRecycle to fine jurisdictions that do not meet the required goals. Additionally, per SB 1734, PRC Section 42912 requires that CalRecycle adopt a model ordinance for diverting 50% to 75% of all construction and demolition waste from landfills.

5.15.2.3 County of Los Angeles

COUNTY OF LOS ANGELES 2035 GENERAL PLAN

The County of Los Angeles 2035 General Plan provides the policy framework and establishes the long-range vision for how and where the unincorporated areas will grow, and establishes goals, policies, and programs to foster healthy, livable, and sustainable communities (County of Los Angeles 2015). The project is subject to relevant goals, policies, and actions listed in the County of Los Angeles 2035 General Plan. Goals, policies, and actions related to the Conservation and Natural Resources Element and Public Services and Facilities Element are included below.

Conservation and Natural Resources Element

Goal C/NR 5. Protected and useable local surface water resources.

Public Services and Facilities Element

Goal PS/F 1: A coordinated, reliable, and equitable network of public facilities that preserves resources, ensures public health and safety, and keeps pace with planned development.

> ***Policy PS/F 1.2.*** Ensure that adequate services and facilities are provided in conjunction with development through phasing or other mechanisms.

Goal PS/F 4. Reliable sewer and urban runoff conveyance treatment systems

> ***Policy PS/F 4.3.*** Ensure the proper design of sewage treatment and disposal facilities, especially in landslide, hillside, and other hazard areas.
>
> ***Policy PS/F 5.5.*** Reduce the County's waste stream by minimizing waste generation and enhancing diversion.
>
> ***Policy PS/F 5.6.*** Encourage the use and procurement of recyclable and biodegradable materials.
>
> ***Policy PS/F 5.7.*** Encourage the recycling of construction and demolition debris generated by public and private projects.

COUNTYWIDE INTEGRATED WASTE MANAGEMENT PLAN

Pursuant to AB 939, each County is required to prepare and administer a Countywide Integrated Waste Management Plan (CIWMP), including preparation of an annual report. The CIWMP is composed of the County's and the Cities' Source Reduction and Recycling Elements, an Integrated Waste Management Summary Plan, and a Countywide Siting Element. The Summary Plan describes the steps to be taken by local agencies, acting independently and in concert, to achieve the mandated state diversion rate by integrating strategies aimed toward reducing, reusing, recycling, diverting, and marketing solid waste generated within the county. County Public Works is responsible for preparing and administering the Summary Plan and the Countywide Siting Element. The County continually evaluates landfill disposal needs and capacity as part of the preparation of the CIWMP annual report. Within each annual report, future landfill disposal needs over the next 15-year planning horizon are addressed in part by determining the available landfill capacity.

5.15.2.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles. Nonetheless, regulatory and planning documents of the City of Los Angeles that are most relevant to the project as they relate to utilities and service systems are provided herein for informational purposes.

CITY OF LOS ANGELES GENERAL PLAN

The City of Los Angeles General Plan is a policy document originally adopted in 1974 that serves as a comprehensive, long-term plan for future development of the city. The City General Plan sets forth goals, objectives, and programs to guide land use policies and meet the existing and future needs of the City. Goals, policies, and actions related to utilities and service systems are included below.

Objective 9.3. Increase the utilization of Demand Side Management strategies to reduce system demand and increase recycling and information.

> ***Policy 9.3.1.*** Reduce the amount of hazardous substances and the total amount of flow entering the wastewater system.
>
> ***Policy 9.3.2.*** Consider the use of treated wastewater for irrigation, groundwater recharge, and other beneficial purposes.

Objective 9.10. Ensure that water supply, storage, and delivery systems are adequate to support planned development.

Objective 9.12. Support integrated solid waste management efforts.

URBAN WATER MANAGEMENT PLAN

In accordance with the California Urban Water Management Planning Act, UWMPs are updated at 5-year intervals. LADWP adopted the 2020 UWMP on May 25, 2021. The 2020 UWMP complies with the Urban Water Management Planning Act, builds upon the goals and progress made in the 2015 UWMP, and currently serves as the City's master plan for reliable water supply and resource management consistent with the City goals and objectives. The UWMP details LADWP's efforts to promote the efficient use and management of its water resources. LADWP's UWMP used a service area–wide methodology in developing its water demand projections. This methodology does not rely on individual development demands to determine area-wide growth. Rather, the projected growth in water use for the entire service area was considered in developing long-term water projections for the City to the year 2045. Long-range projections are based on SCAG growth projections. The 2020 UWMP is based on projections in the 2020-2045 RTP/SCS.

5.15.3 Thresholds of Significance

The following thresholds of significance are based on the Environmental Checklist contained in Appendix G of the State CEQA Guidelines. A project would result in significant adverse environmental impacts related to utilities and service systems if it would:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

b) Not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

5.15.4 Impact Assessment Methodology

The following impact assessment evaluates the potential for the project to require new or relocated utility infrastructure or exceed existing utility infrastructure capacities and whether or not any necessary improvements may have the potential to cause significant environmental effects. The assessment in this section is based in part on information provided within LADWP's 2020 *Urban Water Management Plan* and LASAN's 2019 *Sewer System Management Plan*, County Public Works' Countywide Integrated Waste Management Plan (CIWMP) *2020 Annual Report*, as well as Service Request correspondence letters (will serve letters) received from LADWP on October 28, 2022, and from LASAN on November 22, 2022. The project's potential to result in significant environmental impacts related to utilities and service systems was evaluated by determining if growth associated with the project would require new or relocated utility infrastructure or exceed existing infrastructure capacity and then, if improvements or additional infrastructure would be required, considering whether those additional facilities and/or improvements would result in potential impacts to the environment.

5.15.5 Environmental Impact Analysis

a) Would the project result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

WATER

Delivery of potable water to the project site would be provided by LADWP. Proposed on-site water delivery infrastructure would include a 3-inch water line and a 3-inch fire line at the northeast corner of the site beneath the proposed parking lot, which would connect to the existing water meter in the sidewalk on South Curson Avenue (KPFF 2021). From there, the project site is served by three water mains that include two 8-inch asbestos-cement pipelines along Wilshire Boulevard and Curson Avenue, and a cast-iron pipeline along 6th Street (LADWP 2022). New above grade backflow preventer devices would be located just inside the property line adjacent to the meter. Water service to both the Observation Pit, as well as Project 23, is currently provided by LACMA. Due to the relatively remote location of these service points compared to their proximity to LACMA, it is assumed that those demands would continue to be served by and coordinated with LACMA. Based on a response letter provided by LADWP on October 28, 2022, regarding the project's request for water and electric service connection, other than the improvements described above, LADWP confirmed that there are no known issues or deficiencies related to water services or facilities within the project site vicinity (see Appendix K). The estimated water demand anticipated upon project implementation is detailed in the analysis provided for threshold b).

WASTEWATER

Wastewater discharge from the project site is directed to the east where it connects by gravity to an existing City of Los Angeles public sewer main. The sewage infrastructure in the vicinity of the project site includes an existing 12-inch line on South Curson Avenue. The 12-inch line feeds into an 18-inch line on Wilshire Boulevard then into a 39-inch line on Crescent Heights Boulevard before discharging into a 48-inch sewer line also located on Crescent Heights Boulevard (LASAN 2022). The Observation Pit and Project 23 sewer connections tie into LACMA infrastructure. Wastewater generated from the new project elements, as proposed, would be conveyed from the sewer line at the northeast corner of the site beneath the proposed parking lot to the existing 12-inch sewer main along South Curson Avenue. On-site sewer lines would connect to the existing sewer main along South Curson Avenue. Ultimately, wastewater

flows from the project would be conveyed through these sewer lines and treated at the Hyperion Wastewater Reclamation Plant.

Based on a letter provided from LASAN dated November 22, 2022, LASAN analyzed its existing infrastructure capacity to convey and treat project wastewater flows (see Appendix K). Based on LASAN's calculations, the project would result in an increase of approximately 5,823 gallons of wastewater flow per day. With this level of flow, LASAN concluded that while there is sufficient capacity within the existing sewer system to treat wastewater flows generated by the project at the Hyperion Wastewater Reclamation Plant, the capacity to convey wastewater flows via the existing sewer lines serving the project site would require further detailed gauging and evaluation (see Appendix K). Given the exact timing of when the proposed new development is expected to be occupied and in consideration of LASAN requirements, detailed gauging and calculation of available sewer line capacities would be required as part of the permit process, which would occur when building plans are more fully developed and able to be submitted to LASAN. As part of this process, LASAN would identify specific sewer point connections, verify that capacity still exists in the infrastructure, and determine if new or additional sewer lines would need to be built to the planned point of connection (LASAN 2022).

STORMWATER DRAINAGE

As described in Section 5.9, Hydrology and Water Quality, implementation of the project would result in a decrease of pervious surfaces from 59.3% to 51.9%.and would modify the existing drainage management areas as shown in Figure 5.9-5 in Section 5.9 (per the *Low Impact Development (LID) and Hydrology Report* [KPFF 2023], provided as Appendix H). The project's proposed drainage pattern would convey all on-site drainage to on-site stormwater management systems (i.e., the three proposed biofiltration areas) prior to discharging stormwater off-site. The proposed drainage plan also includes a drainage area that is entirely within the public right-of-way and consists of runoff that drains directly to the existing Wilshire Boulevard stormwater facilities. In addition, the project's proposed grading and drainage plan for the site has been designed to use the existing topography of the site and maintain historic drainage patterns to the maximum extent feasible, with integration of additional water quality and drainage facilities to meet or exceed applicable Los Angeles Regional Water Quality Control Board (LARWQCB) Post-Construction Stormwater Management Requirements.

The proposed drainage plan consists of three new biofiltration systems to manage stormwater runoff, designed in accordance with the Los Angeles County Low Impact Development Standards Manual. Proper design of landscape features and site grading, as well as implementation of the proposed biofiltration systems, would have the potential to improve the quality of stormwater runoff from the project site. The City has designed the existing storm drainage infrastructure serving the project site to carry stormwater flows per the County of Los Angeles Department of Public Works Hydrology Manual (County Public Works 2006) and the City of Los Angeles Department of Public Works Storm Drain Design Manual (City of Los Angeles 1986) and is designed to carry the 50-year storm event per the County's Hydrology Manual. No known deficiencies exist in the vicinity of the project. Furthermore, the project's proposed drainage plan has the potential to increase the water quality of discharged stormwater flows through implementation of the project's proposed biofiltration areas and would result in peak discharge flow rates that are not anticipated to exceed the capacity of the existing storm drain conveyance system (see Appendix H for peak discharge flow rates per proposed drainage area). Therefore, the project would be designed to capture, filter, and reduce the volume of any additional runoff from the project's proposed pervious surfaces in a way that mimics, as well as improves, existing drainage patterns (see Section 5.9.5 and Appendix H for peak discharge flow rates per proposed drainage area).

ELECTRICITY AND NATURAL GAS

Upgrades would be required with respect to electric power and natural gas facilities, based on the construction of the new museum building. Point of connection to the project would be submitted to LADWP and SoCalGas prior to construction of the proposed development. Upgrades would be confined to the lateral connections to the project site and not any centralized facilities. Upgrades would likely be completed by either trenchless technology or completion of open trenching, to the depth of the underground utilities. The construction of the laterals would be temporary and would be subject to all applicable regulatory requirements. In addition, there would be solar electric power for the new museum building as well as additional energy-saving measures, including natural light to be harvested for the main spaces using large expanses of glass and skylights; daylighting systems to coordinate the levels of artificial lighting; HVAC systems that would be sized and designed in compliance with the CALGreen Code to maximize energy efficiency caused by heat loss and heat gain; and new and existing tree canopies to be used to protect building walls from sun exposure and provide shade for the ground area. In compliance with Title 24's Energy Efficiency Standards for Residential and Non-Residential Buildings in California, the proposed energy savings would help offset any additional energy demands and consumption resulting from the project (SWCA 2022). Chapter 7, Other CEQA Considerations, provides further analysis related to the project's energy consumption.

TELECOMMUNICATIONS

The project would continue to rely on the same internet and phone services as existing conditions expanding the services of current providers to the new museum (e.g., AT&T, Centrex, and Crown Castle). Future connections with these service providers are not anticipated to result in the need for construction of new or expanded infrastructure beyond the typical connections required within the project site to the new building.

CONSTRUCTION

Construction and installation of the utility infrastructure improvements described above would be conducted during the initial site preparation activities to allow for renovations within the project site and would require grading and ground-disturbance activities that have been considered throughout Chapter 5, Environmental Impact Analysis, of this EIR. Mitigation Measures AES/mm-4.1, AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, and BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; CR-HIST/mm-1.1 through 1.5; GEO/mm-3.1 and 3.2, GEO/mm-4.1, and GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.2 and HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1 and TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4 have been identified to reduce potential impacts associated with construction of future uses on-site, including construction and installation of new utility infrastructure within the boundaries of the project site.

Construction and implementation of the infrastructure improvements that may be required beyond the project site would be expected to occur within existing roadway rights-of-way in areas that have been previously disturbed. As well, where applicable, the mitigation measures identified above apply to all project elements, including off-site improvements.

In addition, construction and installation of utility infrastructure would require preparation and implementation of a stormwater pollution prevention plan with construction best management practices for short- and long-term erosion control in accordance with RWQCB requirements. Construction crews would also be required to comply with California Code of Regulations Title 22, which regulates the use, storage, and transport of hazardous materials, and Health and Safety Code Division 20, Chapter 6.95, which requires the preparation and implementation of a hazardous material release response plan and the preparation of a hazardous materials inventory for materials used and stored at the site.

While adherence to applicable state and local regulations as well as implementation of identified project-specific mitigation measures would serve to reduce potential impacts related to construction of new or expanded utility infrastructure during project construction, whether additional or upgraded off-site LASAN infrastructure would be required is not known at this time and, if they were to be required, their location is not known. While there is sufficient capacity to treat wastewater flows from the project at the Hyperion Wastewater Reclamation Plant, LASAN will not be able to give a definitive confirmation of adequate sewer line capacity for the project without further detailed gauging and evaluation associated with more detailed architectural plans, which would be provided during the project's permitting phase. At this juncture, it is not known if new or upgraded sewer lines would be required and conclusion of this analysis would be speculative. Additional coordination with LASAN and consideration of sewer line capacity would be required to determine if additional sewer line infrastructure upgrades and/or new facilities would be necessary to accommodate the project. Therefore, impacts related to construction of new or expanded utility infrastructure could be *significant*.

OPERATION

Following implementation of the project, LADWP would maintain the project site's water and electricity infrastructure, LASAN would maintain the sewer and stormwater drainage infrastructure (stormwater drainage in coordination with the Los Angeles County Flood Control District), and natural gas infrastructure would be maintained by SoCalGas. Future maintenance and repair trips associated with maintenance of new utility infrastructure would occur on an as-needed basis and are not anticipated to generate a substantial number of vehicle trips that could result in an adverse quantity or concentration of criteria air pollutants or greenhouse gas emissions. Therefore, operation of utility infrastructure improvements would not result in long-term impacts, and operational impacts would be *less than significant*.

UTL Impact 1	
During project construction, the project could require the construction of new or expanded sewer lines from the project site to an identified point of connection within existing sewer system facilities. LASAN will not be able to give a definitive confirmation of adequate sewer system capacity for the project without further detailed gauging and evaluation associated with more detailed architectural plans, which would be provided during the project's permitting phase. At this juncture, it is not known if new or upgraded sewer lines would be required and conclusion of this analysis would be speculative. Impacts related to construction of new or expanded utility infrastructure could be significant. Operational impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. a)	
Mitigation Measures	
UTL/mm-1.1	*To confirm the sewer system serving the project site can accommodate the total wastewater flows generated by the project, the Los Angeles County Museum of Natural History Foundation (Foundation) shall coordinate with Los Angeles Sanitation and Environment (LASAN) during project permitting and prior to construction for confirmation of sewer system capacity. LASAN shall make this determination by conducting detailed gauging and further evaluation to identify a specific sewer connection point and/or to determine if upgrading or additional sewer lines are necessary to accommodate the project.*

UTL Impact 1
Implement Mitigation Measures AES/mm-4.1; AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 and 5.2, and BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; GEO/mm-3.1 and 3.2, GEO/mm-4.1, and GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 and 1.2, and HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1 and TRA/mm-4.1 through 4.3; and TCR/mm-1.1 through 1.4.
Impacts Following Mitigation
With implementation of all the project mitigation measures listed above as well as UTL/mm-1.1, impacts related to construction of new or expanded water, wastewater, stormwater drainage, electric power, natural gas, and telecommunications facilities would be less than significant. Operational impacts would be less than significant.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Domestic water supply services for the project would be provided by LADWP. Present and future water supplies available to the LADWP to provide water service to the project site include the Los Angeles Aqueducts, local groundwater, purchased water from MWD, and Colorado River Aqueduct (supplied by MWD).

CONSTRUCTION

Construction activities for the project would result in a temporary demand for water associated with soil compaction and earthwork, dust control, mixing and placement of concrete, equipment and site cleanup, irrigation for plant and landscaping establishment, testing of water connections and flushing, and other short-term related activities. These activities would occur incrementally throughout construction of the project (from the start of construction to project buildout). The amount of water used during construction would vary depending on soil conditions, weather, and the specific activities being performed.
As concluded in LADWP's 2020 UWMP, projected water demands for the City would be met by the available supplies during an average year, single-dry year, and multiple-dry year in each year from 2025 through 2045 (see Table 5.15-1). The project would not exceed the available supplies projected by LADWP. Therefore, as the intermittent water use during construction would be less than the proposed water consumption at the project site, the project's temporary and intermittent demand for water during construction would be met by the City's available supplies during each year of project construction. Construction impacts related to water supply and demand would be *less than significant*.

OPERATION

Development of the project would result in an increase in long-term water demand for consumption, operational uses, maintenance, and other activities on the project site. The project's anticipated water demand was estimated by using the net increase in square footage for new museum facilities proposed by the project (a factored increase of approximately 1.6 over the existing square footage) multiplied by existing water usage rates for the project site during fiscal year 2021 to 2022. As provided in Section 5.15.1.1, the project site's existing water usage was 13,407 ccf per year (30.80 af per year or approximately 27,500 gallons per day) (Foundation 2023). Based on the increase in building square footage proposed by the project, the projected water usage during project operation would be approximately 21,451 ccf per year (49 af per year or 43,894 gallons per day). This is an approximate increase of 37% in water demand with the project. This estimation does not account for the project's water conservation features, and it is not anticipated that the irrigation needs of the proposed landscaping

within the 13-acre site would require significant additional water, and that has not been factored out of the estimated water demand projection; therefore, the project's estimated water demand is conservative. In addition, LADWP's 2020 UWMP forecasts for projected water demand are based on the SCAG's population projections, which rely on the adopted land use designations contained within the general plans that cover the geographic area within LADWP's service. The water use projections included in the 2020 UWMP were based on the project site's existing "Public Facilities" land use designation on the City of Los Angeles Land Use Map. Because the project would be consistent with the City's existing land use designation, the water demand associated with the project was considered in the demand anticipated by the 2020 UWMP and analyzed therein. As stated in a letter provided by LADWP dated October 28, 2022, projects that conform to the demographic projections from SCAG's 2020-2045 RTP/SCS and are currently located in the City's service area are considered to have been included in the LADWP's water supply planning efforts (LADWP 2022). Because the project would be consistent with the demographic projections used in the SCAG's 2020-2045 RTP/SCS, as stated above, LADWP expects to have adequate water supplies to meet the demands of the project until at least 2045 (LADWP 2022). Therefore, sufficient water supplies are available to serve the project and no new or expanded entitlements are needed. Operational impacts related to water supply and demand would be *less than significant*.

UTL Impact 2
LADWP would have sufficient water supply to serve the water demand generated by the project and the existing service area during normal, single dry year, and multiple dry years conditions during both construction and operation of the project. Impacts related to water supply and demand would be less than significant. (CEQA Checklist Appendix G Threshold XIX. b)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to sufficient water supply would be less than significant.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The project's wastewater treatment needs would be provided by LASAN. Wastewater from the project would be collected through LASAN's sewer collection system and would be treated at the Hyperion Water Reclamation Plant.

Implementation of the project would result in the renovation of the existing Page Museum, along with construction of the new museum building along with specific museum-related uses that would increase the amount of wastewater generated at the project site, thereby increasing the demand on existing LASAN wastewater treatment facilities. Table 5.15-3 includes the estimated wastewater discharges associated with the project as provided by LASAN (see Appendix K).

Table 5.15-3. Estimated Wastewater Generation (per capita/attendance)

Type Description	Wastewater Generation Rate (gpd/unit)	Quantity/Floor Area (sf/seats)	Wastewater Generation (gpd)
Existing			
Page Museum	30 gpd/1,000 sf	63,200 sf	1,896
Existing Total			**1,896**
Proposed with Project			
Renovated Page Museum	30 gpd/1,000 sf	63,200 sf	1,896
New Museum Building	30 gpd/1,000 sf	42,000 sf	1,260
Lobby	50 gpd/1,000 sf	4,000 sf	200
Exhibit Services	50 gpd/1,000 sf	24,000 sf	1,200
Theater #1	3 gpd/seat	70 seats	210
Theater #2	3 gpd/seat	190 seats	570
Research Room	50 gpd/1,000 sf	21,030 sf	1052
Administration Space	120 gpd/1,000 sf	11,090 sf	1,331
Proposed with Project Total			**7,719**
Net Increase (Proposed – Existing)			**5,823**

Source: LASAN (2022)
Note: gpd = gallons per day; sf = square feet

As shown, the estimated wastewater generation under existing conditions is 1,896 gpd and the estimated wastewater demand under the project is 7,719 gpd; therefore, the project would result in a net increase of approximately 5,823 gpd. Therefore, the flows contributed by the project would not result in an exceedance of the reclamation plant's capacity or effluent water quality standards set forth by the LARWQCB. In addition, the project would be required to comply with numerous federal, state, and local regulations that would reduce the potential for the project to exceed the wastewater treatment requirements of the LARWQCB. These include the federal Water Pollution Control Act, which regulates discharges of pollutants into the waters of the U.S.; the California Water Code, which controls all considerations of water and its use; and the Porter-Cologne Water Quality Control Act, which controls polluted discharges into state waters. Therefore, impacts would be *less than significant*.

UTL Impact 3
It has been determined that the wastewater treatment provider serving the project (LASAN) would have adequate capacity to serve the wastewater flows generated by the project. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. c)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to adequate wastewater treatment capacity would be considered less than significant.

d) Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Implementation of the project would generate solid waste during construction and operation, which would be disposed of at Azusa Land Reclamation. As previously identified, the Azusa Land Reclamation has the capacity to accept and process 2,336,000 cubic yards of solid waste per year. In 2020, an average of 820 cubic yards of solid waste was disposed of at Azusa Land Reclamation facility per day, resulting in approximately 299,300 cubic yards of solid waste per year (County Public Works 2021). As a result, Azusa Land Reclamation has the capacity to accept and process approximately 2,036,700 cubic yards of additional solid waste per year.

CONSTRUCTION

Construction activities would include demolition of approximately 2,000 square feet of existing museum buildings and entrances, grading and excavation, and construction of approximately 44,000 square feet of new facilities and structures. Table 5.15-4 identifies the estimated amount of solid waste that would be generated by the project during construction.

Table 5.15-4. Estimated Construction Solid Waste Generation

Solid Waste Generator	Building Area (square feet)	Solid Waste Generation Rate (pounds/square foot)	Solid Waste Generated		
			pounds	tons	cubic yards
Construction	44,000	3.89	171,160	85.58	68.46
Demolition	2,000	155	310,000	155	124.00
Total					**192.46**

Source: EPA (1998)

As shown in Table 5.15-4, approximately 192.46 cubic yards of solid waste would be generated over the course of the proposed construction period. The project would be required to comply with mandatory waste reduction requirements identified in CALGreen Section 5.408, which requires the diversion of at least 65% of construction-related waste generated during construction. Based on required compliance with CALGreen waste diversion requirements, approximately 48.11 cubic yards of solid waste generated during project construction would be disposed of at Azusa Land Reclamation or one or more of the other Class III landfills serving the County (as shown in Table 5.15-2). As previously identified, Azusa Land Reclamation has the capacity to accept and process approximately 2,036,700 cubic yards of additional solid waste per year; therefore, there would be adequate available capacity to dispose of the approximately 68.46 cubic yards of solid waste generated during project construction. As such, the volume of solid waste generated during project construction would not exceed state or local disposal standards nor would it exceed the local infrastructure capacity to handle the waste disposal. Therefore, construction impacts would be *less than significant*.

OPERATION

As identified in Section 5.15.1.6, Solid Waste, the museum facility currently generates approximately 1,872 cubic yards of solid waste per year and approximately 39 cubic yards of green waste per year (Foundation 2022). The project would result in a net increase of 44,000 square feet of building space associated with improvements to the Page Museum and the construction of the new museum building. This new development would be an approximate 60% increase in building and facility square footage.

This expansion of use would result in a corresponding increase in the amount of solid waste generation. CalRecycle establishes waste generation rates for different land use types (e.g., residential, commercial, industrial); however, there is not a waste generation rate for museums or other similar land uses (CalRecycle 2022). As such, operational solid waste that would be generated by the project was estimated by assuming a 60% increase in solid waste in comparison to existing conditions, which reflects the 60% increase in building space associated with the project. However, since an increase in building space does not necessarily account for all waste-generating activities on-site, a conservative estimate was also identified by doubling the amount of existing solid waste generated at the project site.

Table 5.15-5 identifies the potential increase in operational solid waste that would be generated by the project.

Table 5.15-5. Estimated Operational Solid Waste Generation

Waste Type	Existing (cubic yards/year)	Existing+60% Increase in Solid Waste (cubic yards/year)	Existing+Doubling of Solid Waste (cubic yards/year)
Solid waste	1,872	2,764.8	3,744
Green waste	39	57.6	78
Total (cubic yards/year)		**2,822.4**	**3,822**

As shown in Table 5.15-5, the project would generate up to 3,744 cubic yards of solid waste and 78 cubic yards of green waste per year. Operational waste would be disposed of at Azusa Land Reclamation, which has the capacity to accept approximately 2,036,700 cubic yards of additional solid waste per year; therefore, a total increase of approximately 3,822 cubic yards of solid and green waste per year would not exceed existing capacity at Azusa Land Reclamation facility. Further, a minimum of 50% of all solid waste would be required to be recycled pursuant to AB 939, consistent with the State's solid waste reduction goals. Based on required compliance with AB 939, approximately 1,911 cubic yards of operational solid and green waste per year would be disposed of at Azusa Land Reclamation. Therefore, the volume of solid waste generated during operation of the project would neither exceed state or local disposal standards nor exceed the local infrastructure capacity to handle the waste disposal. Therefore, operational impacts would be *less than significant*.

UTL Impact 4
The project would not generate solid waste in excess of the capacity of local infrastructure or otherwise impair state or local solid waste reduction goals during construction and operation of the project. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. d)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to an increase in solid waste would be less than significant

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

As discussed in UTL Impact 4, implementation of the project would generate solid waste during both construction and operation of the project, thus requiring the consideration of waste reduction and recycling measures. The project would be consistent with the applicable regulations associated with solid waste and would promote compliance with AB 939, AB 341, and AB 1826. Specifically, the project would include clearly marked, source-sorted receptacles to facilitate recycling with a focus on items such as paper, cardboard, glass, aluminum, plastic, and cooking oils. In addition, as described in UTL Impact 4, waste diversion and reduction during project construction and operations would be completed in accordance with CALGreen standards, County diversion standards, and the County Integrated Waste Management Plan. As a result, the project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste during both construction and operation. Impacts are considered *less than significant*.

UTL Impact 5
The project would comply with federal, state, and local solid waste reduction goals during construction and operation. Impacts would be less than significant. (CEQA Checklist Appendix G Threshold XIX. e)
Mitigation Measures
No mitigation is required.
Impacts Following Mitigation
Not applicable. Impacts related to compliance with waste reduction goals would be less than significant.

5.15.6 Cumulative Impacts

Background to the cumulative analysis is provided in Chapter 4, Environmental Setting. Also included in Chapter 4 is a description of the geographic area that is considered in the cumulative development scenario for each of the resource areas. In general, because the analyses in the previous sections largely consider the overall capacity of the service provider and their projections based on population and existing and proposed land uses within their service areas, the preceding sections consider the overall growth and demands the service providers are anticipating with future development. While not anticipated, potential environmental impacts related to potential utilities and infrastructure improvements beyond the 13-acre La Brea Tar Pits project site would be addressed by implementing the resource-specific mitigation measures identified for the specific resource areas of concern (e.g., cultural resources). Because LASAN has indicated that there is some potential that additional sewer line capacity would be necessary to serve the project, it is most conservative to assume that an off-site upgrade of a sewer line could be required to serve the project in combination with other projects that may be developed in the area, as project plans for the La Brea Tar Pits Master Plan are finalized, and construction begins. As such, the project has the potential to result in secondary cumulatively considerable impacts related to the potential upgrades of LASAN sewer lines to serve the project and other development in LASAN's service area.

As discussed under UTL Impact 2, LADWP is projected to have sufficient water supplies to serve the project, its existing commitments, and the project's projected water demand during normal, single dry,

and multiple dry year conditions to the year 2045 (LADWP 2020). Other reasonably foreseeable future projects proposed within the project site would be subject to environmental review to determine individual water demand and potential impacts to LADWP's water supply availability. Based on LADWP's current surplus of water supplies and the feedback received from LADWP on the utility's ability to serve the project, the project's potential contribution to cumulative impacts related to water supply are not considered cumulatively considerable.

As discussed under UTL Impact 3, based on the letter provided by LASAN in May 2022, LASAN has adequate treatment capabilities to serve the project and wastewater flows resulting from the project would be conveyed to the Hyperion Water Reclamation Plant, which LASAN determined has sufficient capacity to serve the project in combination with other growth within its service area (LASAN 2022). Based on the current and projected capacity of the Hyperion Water Reclamation Plant and LASAN's projections that it can serve the proposed project in combination with other reasonably anticipated projects in LASAN's service area, the project's potential contribution to cumulative impacts related to wastewater collection, treatment, and discharge would be less than cumulatively considerable.

As discussed under UTL Impact 4, based on the County's approved and future solid waste disposal capacity, project solid waste generation rates, and required adherence to applicable state and local waste diversion policies, solid waste generated during project construction and operation would not result in an excess of state or local standards or exceed the capacity of local infrastructure. Other reasonably foreseeable future projects would be subject to applicable state and local solid waste diversion policies and would also be subject to environmental review to determine individual impacts related to solid waste generation and disposal capacity.

In summary, the project would generally not be anticipated to result in cumulatively considerable environmental impacts related to the provision of utilities and services for the proposed project. While LASAN environmental impacts associated with construction and installation of utility infrastructure would range in the geographic scope depending on the resource area, there is some potential for secondary environmental impacts to occur with the development of new infrastructure. As such, the project could result in contributions to cumulatively considerable impacts related to off-site upgrades to LASAN's sewage collection system. At this juncture, it is not known if specific sewer lines would be required and conclusion of this analysis would be speculative. However, it is reasonable to assume that some potential for environmental impacts would occur with an infrastructure upgrade that may be required to collect sewage from the La Brea Master Plan project in combination with other development projects that are developed within LASAN's service area; this impact is considered *potentially significant*.

UTL Impact 6 (Cumulative)
The project could result in contributions to cumulatively considerable impacts related to off-site upgrades to LASAN's sewage collection system. At this juncture, it is not known whether new or upgraded sewer lines would be required and the conclusion of this analysis would be speculative. However, it is reasonable to assume that some potential for environmental impacts would occur with an infrastructure upgrade that may be required to collect sewage from the La Brea Master Plan project in combination with other development projects that are developed within LASAN's service area.
Mitigation Measures
Implement Mitigation Measures AES/mm-4.1; AQ/mm-3.1; BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1 through ~~and~~ 5.3 ~~5.2~~, and BIO/mm-6.1; CR-ARCH/mm-1.1 through 1.4; CR-HIST/mm-1.1 through 1.5; GEO/mm-3.1 and 3.2, GEO/mm-4.1, and GEO/mm-6.1 through 6.5; GHG/mm-1.1; HAZ/mm-1.1 through 1.2, and HAZ/mm-2.1 and 2.2; NOI/mm-1.1; TRA/mm-1.1 and TRA/mm-4.1 through 4.3; TCR/mm-1.1 through 1.4; and UTL/mm-1.1.

UTL Impact 6 (Cumulative)
Impacts Following Mitigation
With implementation of the identified project mitigation measures, cumulative impacts related to utilities and service systems would be less than significant.

5.16 MANDATORY FINDINGS OF SIGNIFICANCE

This section provides consideration of the proposed La Brea Tar Pits Master Plan and the Mandatory Findings of Significance in response to the Environmental Checklist questions included in Appendix G Section XXI and Section 15065 of the State CEQA Guidelines. The information provided in this section is based on the data and analyses conducted for this EIR (see Chapter 5, Environmental Impact Analysis, Sections 5.1 through 5.15 for a more detailed discussion of project impacts related to each resource topic).

5.16.1 Environmental Evaluation

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

As discussed in Section 5.3, Biological Resources, one candidate species for listing under the federal Endangered Species Act—monarch butterfly (*Danaus plexippus*)—has been recorded on the project site. No other candidate, sensitive, or special-status species of flora or fauna are expected to occur at the project site. While the project site does not support overwintering aggregations of monarch butterflies, the presence of non-native tropical milkweed (*A. curassavica*), a known nectar source and host plant and potentially harmful ecological trap for both resident and migratory monarchs, is documented to occur on-site. Project implementation could result in potentially significant impacts during the construction process on the federal candidate monarch butterfly, either directly or through habitat modifications (i.e., removal of milkweed plants). In addition, the project site may contain potential jurisdictional wetland/aquatic resources in and along Oil Creek and the Lake Pit, and project activities could directly and indirectly impact the associated riparian wetland habitat. The project could directly impact nesting birds during project construction and temporally impact nesting bird habitat through project implementation. Further, the project could potentially conflict with the County of Los Angeles Oak Tree Ordinance due to the removal, relocation, trimming, or replacement of the 11 oak trees on the project site. These impacts can be reduced to less-than-significant levels by implementing the project mitigation measures BIO/mm-1.1, BIO/mm-2.1, BIO/mm-3.1, BIO/mm-5.1, BIO/mm-5.2, BIO/mm-5.3, BIO/mm-6.1, and BIO/mm-6.2, as detailed in Section 5.3.5, Environmental Impact Analysis. With implementation of these measures, the project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

As discussed in Section 5.5, Cultural Resources – Historical Resources, the project's proposed alterations to the George C. Page Museum (Page Museum) would compromise its historic integrity to the point that the historical resource would no longer convey the reasons for its significance. In addition, the project implementation would result in a comprehensive redesign of Hancock Park, which would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a California Register of Historical Resources- and locally eligible historic district. The loss of eligibility for the resource represents material impairment and an impact on the environment. While implementation of the proposed mitigation measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts to the extent feasible, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation

measures that would reduce these impacts to less-than-significant levels while keeping the primary elements of the Master Plan; therefore, impacts of the project would remain *significant and unavoidable* after mitigation.

Table 5.16-1 provides a summary of impacts and significance after mitigation for biological resources and cultural historical resources.

Table 5.16-1. Summary of Impacts and Significance after Mitigation for Biological Resources and Cultural Historical Resources

Impact Threshold with Potentially Significant Impact	Impact Statement	Mitigation Measure Identification	Significance After Mitigation
Section 5.3 Biological Resources			
a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	The project could result in in significant effects during construction on one species, the federal candidate monarch butterfly, either directly or through habitat modifications. Impacts during project construction could be significant. During project operation, the project would not result in significant effects, either directly or through habitat modifications, on any identified candidate, sensitive, or special-status species. Impacts during project operation would be less than significant. (CEQA Checklist Appendix G Threshold IV. a)	BIO/mm-1.1	Less than Significant with Mitigation
b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	The project could directly and indirectly impact the riparian wetland habitat associated with Oil Creek during both construction and operation. A reconnaissance survey suggests there may be approximately 0.3 acre of regulated aquatic resources associated with Oil Creek. Impacts during project construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. b)	BIO/mm-2.1	Less than Significant with Mitigation
	The project could directly and indirectly impact the Lake Pit lakebed and its associated riparian habitat during both construction and operation. A reconnaissance survey suggests there may be approximately 1.2 acres of regulated aquatic resources associated with the Lake Pit. Impacts during project construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. b)	BIO/mm-3.1	Less than Significant with Mitigation
c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrologic interruption, or other means?	The project site may contain potential jurisdictional wetland/aquatic resources in and along Oil Creek and the Lake Pit. Project construction and operation may result in impacts to wetland habitat. Impacts during project construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. c)	BIO/mm-2.1 and BIO/mm-3.1	Less than Significant with Mitigation
d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	The project could directly impact nesting birds during project construction and temporally impact nesting bird habitat during project operation. Impacts during project construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. d)	BIO/mm-5.1 ~~and BIO/mm-5.2~~ through BIO/mm-5.3	Less than Significant with Mitigation

Impact Threshold with Potentially Significant Impact	Impact Statement	Mitigation Measure Identification	Significance After Mitigation
e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Removal, relocation, trimming, or replacement of the 13 protected oak trees on the project site during project construction and operation could potentially conflict with the County of Los Angeles Oak Tree Ordinance. Impacts during project construction and operation could be significant. (CEQA Checklist Appendix G Threshold IV. e)	BIO/mm-6.1	Less than Significant with Mitigation
Section 5.5 Cultural Historical Resources			
a) Would the project cause a substantial adverse change in the significance of a Historical Resource Pursuant to Section 15064.5 of the State CEQA Guidelines?	Project construction would cause a substantial adverse change in the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: La Brea Tar Pits Historic District and the George C. Page Museum. This impact would be significant. Project operation would not cause a substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur. (CEQA Checklist Appendix G Threshold V. a)	CR-HIST/mm-1.1 through CR-HIST/mm-1.5	Significant and Unavoidable

Mandatory Findings Impact 1
The project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. The project does have the potential to eliminate important examples of the major periods of California history or prehistory. The project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum (CEQA Checklist Appendix G Threshold XXI. a).
Mitigation Measures
Implementation of Mitigation Measures CR-HIST/mm-1.1 through 1.5 shall be required.
Impacts Following Mitigation
With implementation of the identified mitigation measures, impacts to historical resources would remain significant and unavoidable.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Chapter 4, Environmental Setting, details the existing and reasonably foreseeable future development projects located in proximity to the project site. The related projects generally consist of infill development and redevelopment of existing uses, including mixed-use, residential, commercial, office, restaurant, retail, studio, museum, hotel, and combinations thereof. As well, the cumulative effects of the project have been analyzed for each environmental topic area included in this EIR and can be found following the impact analysis sections in Chapter 5, Environmental Impact Analysis. The project would result in cumulatively considerable impacts related to historical resources (Section 5.5.6) and inconsistencies with applicable land use plans and policies established to protect historical resources (Section 5.10.6). In addition, the project would result in a significant contribution to cumulative transportation impacts by resulting in a net increase in vehicle miles traveled (VMT) (Section 5.13.6). Although implementing the proposed mitigation measures would reduce project impacts, they would not mitigate them to less than cumulatively considerable contributions to potential cumulative impacts. Therefore, the project's impacts related to historical resources, inconsistencies with land use plans and policies established to protect historical resources, and the increase in VMT would remain *cumulatively considerable*.

Mandatory Findings Impact 2
The project would result in cumulatively considerable impacts related to the substantial alteration of designated historical resources; inconsistencies with applicable land use plans and policies established to protect historic resources; and the substantial increase in vehicle miles traveled. (CEQA Checklist Appendix G Threshold XXI. b)
Mitigation Measures
Implementation of Mitigation Measures CR-HIST/mm-1.1 through 1.5 and TRA/mm-1.1 shall be required.
Impacts Following Mitigation
Although implementation of Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 and TRA/mm-1.1 would reduce project impacts related to the identified cumulative impacts (historical resources and vehicle miles traveled), they would not mitigate them to less-than-significant levels. Therefore, the project's impacts related to historical resources, inconsistencies with land use plans and policies established to protect historic resources, and the increase in vehicle miles traveled would be cumulatively considerable.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The potential for the project to result in adverse direct or indirect impacts on human beings was examined for each environmental topic area included in Chapter 5, Environmental Impact Analysis. For this project, environmental categories associated with indirect or direct effects on human beings would include aesthetics, air quality, geology and soils, greenhouse gas emissions, hazards and hazardous materials, and noise, which are addressed in Section 5.1, Aesthetics; Section 5.2, Air Quality; Section 5.6., Geology and Soils; Section 5.7, Greenhouse Gas Emissions; Section 5.8, Hazards and Hazardous Materials; and Section 5.11, Noise and Vibration. As described in each of these sections, the project would result in

potentially significant impacts in each of these environmental topics during construction and operation of the project; however, the project would implement mitigation measures to reduce impacts to less-than-significant levels. As such, after implementation of the identified mitigation measures, the project's environmental effects on human beings would be *less than significant*.

Mandatory Findings Impact 3
The project could result in significant adverse effects on human beings during project construction and operation. (CEQA Checklist Appendix G Threshold XXI c)
Mitigation Measures
Implementation of Mitigation Measures AES/mm-4.1 and 4.2; AQ/mm-3.1; GEO/mm-3.1 and 3.2, GEO/mm-4.1, and GEO/mm-6.1 through 6.4; GHG/mm-1.1; HAZ/mm-1.1, HAZ/mm-1.2., HAZ/mm-2.1, and HAZ/mm-2.2.; and NOI/mm-1.1 shall be required.
Impacts Following Mitigation
With implementation of the project mitigation measures listed above, the project would not result in significant adverse effects on human beings.

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CHAPTER 6. ALTERNATIVES ANALYSIS

6.1 INTRODUCTION TO THE ALTERNATIVES ANALYSIS

Section 15126.6(a) of the State CEQA Guidelines requires an EIR to "describe a reasonable range of alternatives to a project, or to the location of a project, which could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives." This chapter discusses a range of alternatives to the proposed La Brea Tar Pits Master Plan (Master Plan), including alternative designs and a No Project/No Build Alternative. The State CEQA Guidelines provide the following guidance and direction for the discussion of alternatives to the project:

- "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives." (Section 15126.6(a))
- "Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly." (Section 15126.6(b))
- "The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison." (Section 15126.6(d))
- "The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decisionmakers to compare the impacts of approving the project with the impacts of not approving the project." (Section 15126.6(e))
- "The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project." (Section 15126.6(f))
- "Only [alternative] locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR." (Section 15126.6(f)(2)(A))

CEQA does not prescribe fixed rules governing the type or number of alternatives to a project that should be analyzed in an EIR; the nature of alternatives varies depending on the context of the project being analyzed. As expressed by the California Supreme Court: "CEQA establishes no categorical legal imperative as to the scope of alternatives to be analyzed in an EIR. Each case must be evaluated on its facts, which in turn must be reviewed in light of the statutory purpose" (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564).

Under these principles, an EIR needs to describe and evaluate only those alternatives necessary to permit a reasonable choice and "to foster meaningful public participation and informed decision making" (State CEQA Guidelines Section 15126.6[f]). The range of alternatives required in an EIR is governed by a "rule of reason" that requires an EIR to set forth only those alternatives necessary to permit a reasoned

choice (State CEQA Guidelines Section 15126.6 [f]). An EIR need not consider every conceivable alternative to a project. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the basic project objectives, are not feasible, and/or do not avoid or substantially lessen any significant environmental effects (State CEQA Guidelines Section 15126.6[c]).

CEQA does not require the alternatives to be evaluated at the same level of detail as the project. Rather, the discussion of alternatives must include sufficient information about each alternative to allow "meaningful evaluation, analysis, and comparison with the proposed project" (State CEQA Guidelines Section 15126.6[d]).

Given the CEQA mandates listed above, this section: 1) describes the alternatives selection process; 2) describes the range of reasonable alternatives to the project, including the No Project/No Build Alternative; 3) examines and evaluates resource issue areas where significant adverse environmental effects have been identified and compares the impacts of the alternatives to those of the project; and 4) identifies the Environmentally Superior Alternative.

6.2 ALTERNATIVES SELECTION

In accordance with the State CEQA Guidelines, appropriate alternatives for EIR analysis are those that meet most of the basic project objectives and avoid or substantially lessen any of the significant environmental effects of the project. Consequently, this section provides a summary of the project components, reviews the objectives that were identified for the project, and identifies the significant environmental impacts of the project.

6.2.1 Project Summary

As described in detail in Chapter 3, Project Description, the project would result in a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex and the 13-acre portion of Hancock Park, including renovations to the George C. Page Museum (Page Museum). Table 6-1 provides a summary of the project components.

Table 6-1. Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building within the same footprint (approximately 63,200 square feet).
New Museum Building	Construct a new two-story, 40,000-square foot (sf) museum building northwest of the Page Museum, including two new theaters. The construction of the new museum building would require the removal of vegetation in the footprint of the new building.
Wilshire Gateway	Renovate the existing entrance to La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pit Renovations (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site. These renovations would require the removal and replacement of some vegetation, although the exact amount and nature of the vegetation removal and enhancements has not been determined at the time of this report.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking existing features on the project site. Provide improvements to the Central Green. Establish a children's play area, picnic areas, and a possible future small dog park west of the 6th Street Gateway.

Project Component	Description
Circulation and Parking	Relocate the parking lot approximately 50 to 70 feet to the north. This would require removal and relocation of existing trees on-site. The size of the parking lot (63,000 square feet) and the number of parking spaces would not change. The shifting of the parking lot on the northern side of the project site may require removal or relocation of the trees between the existing parking lot and West 6th Street. If these trees need to be removed or relocated, they would be either moved to another location within the 13-acre project site or replaced elsewhere within the project site. Add new landscaping and vehicle access lanes to the parking lot. Establish a new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping	Establish three distinct landscaping zones encircled by a looping pedestrian path. More than 330 trees are currently on the project site. The project would require removal and replacement and/or relocation of between 150 and 200 trees. The planting strategy includes the planting (introduction or relocation) of a similar number of trees as would be removed. It is ~~preliminarily~~ estimated that up to 10% of the 150 to 200 trees to be removed would be relocated rather than replaced. Create three biofiltration areas for stormwater management.

6.2.2 Project Objectives

As described in Chapter 3, Project Description, the Los Angeles County Museum of Natural History, as a departmental unit of the County of Los Angeles (County), and the Los Angeles County Museum of Natural History Foundation (Foundation) have identified the following objectives for the project:

1. Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019; County of Los Angeles 2024).
2. Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.
3. Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.
4. Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.
5. Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.
6. Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.
7. Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.
8. Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.
9. Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element

and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.

6.2.3 Significant Impacts Resulting from the Project

Alternatives to be considered under CEQA are those that would avoid or substantially lessen one or more of the significant environmental effects identified during evaluation of the project. The environmental impact issue areas described in Chapter 5, Environmental Impact Analysis, were determined to be potentially significant but could be reduced to less than significant through the implementation of mitigation measures. ~~Three~~ For the proposed project, three impacts were found to be significant and unavoidable after implementation of the feasible mitigation measures. A summary of impacts identified for the project by issue area is provided in Table 6-2.

Table 6-2. Summary of Impacts Resulting from the Project

Environmental Resource	Significant and Unavoidable Impact	Less than Significant Impact with Mitigation	Less than Significant Impact
Aesthetics		X	
Agriculture and Forestry Resources*			X
Air Quality		X	
Biological Resources		X	
Cultural Resources – Archaeological Resources		X	
Cultural Resources – Historical Resources	X		
Energy*			X
Geology and Soils		X	
Greenhouse Gas Emissions		X	
Hazards and Hazardous Materials		X	
Hydrology and Water Quality		X	
Land Use and Planning	X		
Mineral Resources*			X
Noise and Vibration		X	
Population and Housing*			X
Public Services*			X
Recreation		X	
Transportation	X		
Tribal Cultural Resources		X	
Utilities and Service Systems		X	
Wildfire*			X

* Based on the evaluation in Section 7.5, Environmental Effects Found Not to be Significant, the County determined that the project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire. ~~Issues evaluated in Section 7.5, Environmental Effects Found Not to be Significant. Based on preliminary analysis and discussions with the Los Angeles County Museum of Natural History Foundation, it was determined that the project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire.~~

As mentioned, the project would result in significant and unavoidable impacts related to historical resources, land use and planning, and transportation. Each identified significant and unavoidable impact and the reason for the significance determination is provided in Table 6-3.

Table 6-3. Significant and Unavoidable Impacts Resulting from the Project

Environmental Issue Area	Impact	Reason for Significance Determination
Cultural Resources – Historical Resources	**CR-HIST Impact 1:** As a result of project construction, the project would cause a substantial adverse change in the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum. Construction impacts would be significant. Project operation would not cause a substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur.	**Significant and unavoidable**. The proposed alterations to the Page Museum during project construction would compromise its historic integrity to the point that the historical resource would no longer convey the reasons for its significance. In addition, the project construction would result in a comprehensive redesign of Hancock Park, which would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a California Register of Historical Resources- and locally eligible historic district. The loss of eligibility for the resource represents material impairment and an impact on the environment. Construction impacts would be significant. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less-than-significant levels while meeting the project objectives and keeping the primary elements of the Master Plan; therefore, construction impacts of the project would remain *significant and unavoidable* after mitigation.
Land Use and Planning	**LUP Impact 2:** Implementation of the project would result in the alteration of designated historical resources and would be potentially inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's General Plan Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources.	**Significant and unavoidable**. The project would result in the alteration of designated historical resources, the La Brea Tar Pits Historic District and the Page Museum, which is inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources (County of Los Angeles 2015, City of Los Angeles 2001a, 2001b). While implementation of project Mitigation Measures CRHIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while meeting the project objectives and keeping the primary elements of the Master Plan; therefore, impacts of the project would remain significant and unavoidable after implementation of the recommendations, creating inconsistencies with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan. Impacts would remain *significant and unavoidable*.

Environmental Issue Area	Impact	Reason for Significance Determination
Transportation	**TRA-Impact 2:** Operation of the project would result in a net increase in vehicle miles traveled (VMT) and would result in a substantial increase in VMT.	**Significant and unavoidable**. The project would result in an average visitor trip length that is higher than the average recreation trip length. Visitor travel trips to the museum are approximately 196% longer than the average recreation trip in Los Angeles and Orange Counties. Given that museum visitor trips are longer than regional recreation trip lengths, additional visitor trips to the project site due to implementation of the project would result in a net increase in total VMT. While the project's mitigation measure TRA/mm-1.1 would aim to reduce employee and visitor VMT and support multimodal connectivity, it may be insufficient to reduce VMT to less-than-significant levels and there are no additional feasible mitigation measures to reduce the impact. Therefore, operation of the project would result in a substantial increase in VMT and would remain *significant and unavoidable* after mitigation. after mitigation.

Note: The LUP Impact 2 is a consistency analysis of the applicable land use plans, policies, and regulations, and considers the holistic impacts associated with implementation of the project; it does not provide separate construction and operation analyses or conclusions.

As stated in Chapter 7, Other CEQA Considerations, the project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire based on preliminary analysis and discussions with the Los Angeles County Museum of Natural History Foundation. Therefore, the analysis of these issue areas is not presented in Chapter 5, Environmental Impact Analysis. All alternatives carried forward for analysis in this section would occur on the same project site and impacts on these resource areas would be similar or less than those of the project. Therefore, these resource topics are not discussed further in this alternatives analysis.

6.2.4 Alternatives Development and Analysis Process

In defining the feasibility of alternatives, the State CEQA Guidelines provide that: "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site." If an alternative was found to be infeasible, as defined above, then it was dropped from further consideration in this analysis.

In addition, State CEQA Guidelines Section 15126.6 states that alternatives should "…attain most of the basic objectives of the project…". As further explained by the California Supreme Court:

> *"[A]n EIR should not exclude an alternative from detailed consideration merely because it 'would impede to some degree the attainment of the project objectives.' But an EIR need not study in detail an alternative that is infeasible or that the lead agency has reasonably determined cannot achieve the project's underlying fundamental purpose . . .*
>
> *Although a lead agency may not give a project's purpose an artificially narrow definition, a lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal." (In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings, 43 Cal.4th 1143, 1165-1166 [2008]).*

The alternatives analysis began with screening and evaluating a list of preliminary alternatives to determine which alternatives would be selected for further analysis in the EIR. To maximize the range of alternatives considered and provide flexibility during project approval, the EIR evaluated four variations of the project aimed at reducing the significant and unavoidable impacts related to historical resources and land use and planning. In addition, the explored alternatives were examined for their ability to reduce the project's significant but mitigated environmental impacts related to the following: aesthetics, air quality, biological resources, cultural archaeological resources, geology and soils, greenhouse gas (GHG) emissions, hazards and hazardous materials, noise and vibration, transportation, tribal cultural resources, and utilities and service systems.

Each of the identified alternatives was preliminarily assessed to determine which of the alternatives met the requirements of a viable alternative under CEQA by considering whether the alternative: 1) would be feasible, 2) would avoid or substantially lessen any of the significant effects of the project, and 3) could feasibly attain most of the basic objectives of the project.

The alternatives that met the three requirements of a viable alternative under CEQA (listed above) were carried forward for a more detailed review in the EIR.

6.3 ALTERNATIVES CONSIDERED BUT ELIMINATED

State CEQA Guidelines Section 15126.6(c) requires that an EIR disclose potential alternatives that were considered and eliminated along with a brief explanation of the reason for elimination. Factors used to eliminate alternatives from detailed consideration include: 1) failure to meet most of the basic project objectives, 2) infeasibility, and/or 3) inability to avoid significant environmental impacts.

The alternatives discussed in the following sections were considered but eliminated from further analysis.

6.3.1 Alternative Projects from the Design Competition

Three preliminary conceptual approaches to developing a master plan for La Brea Tar Pits were made public in August 2019. The concepts were presented at the end of a design competition process that started in early 2019. The designs were prepared by three multidisciplinary teams led by architectural firms. All three of the designs envisioned creating a more robust and engaging visitor experience while enhancing La Brea Tar Pits as a destination and cultural hub through expanded museum, research, and exhibition space; providing an integrated experience of the museum and Hancock Park; increasing community access; and developing more sustainable infrastructure.

The designs were evaluated through an open public process where the Museum of Natural History and the Foundation sought public input and response to the submitted designs. In addition, to support the selection process, a competition jury of leading figures from the fields of architecture, landscape architecture, design, science, natural history, and the arts was assembled to contribute to the decision-making process. The result was the selection of Weiss/Manfredi's design as the concept to further advance. The resulting Master Plan (Weiss/Manfredi 2023) is the proposed project evaluated in this EIR.

As evaluated in Section 5.5, Cultural Resources – Historical Resources, the Page Museum is a historical resource pursuant to CEQA. In accordance with State CEQA Guidelines and 14 California Code of Regulations (CCR) Section 15126.4(b)(1), projects that conform with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (*Secretary's Standards*; Weeks and Grimmer 2001) generally avoid significant impacts and material impairment to historical resources.

The two design concepts that were eliminated would have resulted in far more extreme impacts to the Page Museum than the design concept considered in the Master Plan, including the following major alterations and removal of key character-defining features of the Page Museum:

- Both designs that were eliminated from further consideration removed the existing berms on the west and north elevations of the museum site and replaced with other lawn features that are not consistent with the original lawn area design that currently integrates with the Page Museum structure and is a significant design feature of this portion of Hancock Park.
- The indoor-outdoor integration provided by the open roof, podium, and central atrium of the Page Museum was removed in both designs by adding a roof structure. While the designs integrated natural elements and landscaping (e.g., a rooftop garden), neither of the two eliminated designs maintained the open roof concept of the existing Page Museum.
- Both designs that were eliminated from further consideration either removed or enclosed the Pleistocene-era frieze in the museum building. Neither of the rejected designs retained the frieze as an outdoor element of the museum. The visual prominence of the frieze is one of the key character-defining features of the museum.
- In both eliminated designs, the existing Page Museum was largely replaced with a new, larger museum structure. While meeting the Museum of Natural History's and the Foundation's objective to expand the museum exhibits, collections, offices, and laboratory research facilities into one unified, cohesive facility, both designs did so with extensive impacts to the existing Page Museum, including modifications that could be seen as a full removal and/or replacement of the existing Page Museum. The replacement of the Page Museum with a new museum building would result in material impairment to the Page Museum through its demolition.

While the proposed Master Plan also impacts key character-defining features of the existing Page Museum, the degree of the significant impacts is not as extreme as the two designs that were eliminated. The two eliminated designs did not meet the project objectives to the same degree as the proposed project, nor would they avoid significant environmental impacts. On the contrary, the historical impacts of the two eliminated designs would be more significant than those of the proposed project. For these reasons, these two alternatives were removed from the environmental review process for the Master Plan.

6.3.2 Alternative Location

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that can avoid or substantially lessen any significant effects on the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR (State CEQA Guidelines Section 15126[5][B][1]). In addition, an alternative site need not be considered when implementation is "remote and speculative," such as when the alternative site is beyond the control of a project proponent.

La Brea Tar Pits, the Page Museum, and associated facilities have been in operation since 1977 and represent an established paleontological research site located within Hancock Park and the Miracle Mile neighborhood in the city of Los Angeles. The underlying purpose of the project is to renovate and expand the existing museum and associated facilities to provide enhanced space for fossil storage, laboratory research, exhibition and learning environments, and passive recreational opportunities, all of which are intended to preserve and protect the project site's National Natural Landmark designation (California State Parks 2022). The unique underlying geological features and history of the project site are what make the site scientifically valuable and justify the location of the Page Museum and associated scientific

facilities on-site; therefore, developing the project in an alternative location would not meet the basic project objectives. Further, there are no suitable alternate locations within control of the County or the Foundation, nor could other land be acquired that would contain the same unique environmental characteristics as those at the project site. It is possible that elements of the Master Plan could be recreated on a different site if one were available under the control of the County or the Foundation, and implementing the project in a different location could potentially lessen the project's significant and unavoidable impacts. However, given the nature of the project, the characteristics of the project site, and the intent of project objectives, it would be impractical and infeasible to propose an alternative location for the project. Therefore, consideration of an alternative location has not been further considered in the EIR.

Similarly, an alternative location for the Page Museum expansion—one that would avoid changes to the site design and berm surrounding the Page Museum—was rejected from further consideration. Among the project objectives are an expansion of the museum exhibits, collections, offices, and laboratory research facilities in one unified, cohesive facility, and the creation of a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park. A separate annex to the Page Museum would not meet these key project objectives, and therefore an alternative location was rejected for further consideration in this EIR.

6.4 ALTERNATIVES IMPACTS ANALYSIS

In this section, the environmental impacts of the alternatives carried forward for review in the EIR, including the No Project/No Build Alternative, are compared against the impacts of the project for each environmental issue discussed in Chapter 5, Environmental Impacts Analysis. Other than the No Project/No Build Alternative, only alternatives that can achieve the fundamental purpose and basic goals of the project are addressed in this section, consistent with relevant case law (*Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* [2008] 43 Cal.4th 1143, 1165).

The following project alternatives are considered and evaluated in this section:

- No Project/No Build Alternative
- Alternative 1: Renovate Page Museum Only
- Alternative 2: Maintain Central Atrium Pleistocene Garden
- Refined Alternative 3: Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green

Each of the project alternatives is described in further detail in this chapter. A description of each scenario, its ability to meet the project objectives, and analyses of impacts with regard to each environmental resource area are provided for each alternative.

In addition, a significance determination is made about each alternative for each issue area, and a basis for that determination is provided. The determination of comparative impacts used the following criteria:

- **Similar:** Impacts would be identical or would be of the same general extent and severity as the impacts associated with the project; therefore, the significance determination would be the same.
- **Increased:** New potentially significant impacts or a substantial increase in the severity of the impacts associated with the project would occur; therefore, the significance determination would be greater.

- **Decreased:** Potentially significant impacts would be avoided or a substantial reduction in the severity of the impacts associated with the project would occur; therefore, the significance determination would be reduced.

For the comparison of the alternatives to the project, the impact is considered prior to the application or implementation of the mitigation measures outlined in Chapter 5 of this EIR. All of the issue areas considered in Chapter 5 (e.g., aesthetics, air quality, biological resources) are considered in this chapter. In addition, several environmental effects that were scoped out of the detailed analysis in this EIR are addressed in Chapter 7 (e.g., agricultural and forestry resources, mineral resources). In consideration of the alternatives analysis, none of the alternatives discussed in this chapter would have a considerable impact to the environmental topics addressed in Chapter 7. This is either because these environmental resources addressed in Chapter 7 are not present on the site (i.e., forestry resources, mineral resources) or because the alternatives addressed in this section are either the same or a lesser density to the proposed project and/or would have similar project operations. For instance, none of the alternatives discussed in this chapter would measurably change effects to public services or energy when compared to the proposed project.

A comparison of the environmental impacts resulting from each considered alternative and the project is provided later in this chapter, along with the discussion of the Environmentally Superior Alternative.

6.4.1 No Project/No Build Alternative

Section 15126.6(e) of the State CEQA Guidelines requires analysis of the No Project/No Build Alternative. In accordance with the State CEQA Guidelines, the No Project/No Build Alternative for a development project on an identifiable property consists of the circumstance under which the project does not proceed as provided by Section 15126.6(e)(3)(B) of the State CEQA Guidelines. Section 15126.6(e)(3)(B) provides that, "In certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained." As stated in Section 15126.6(e)(2), "The 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

In the No Project/No Build Alternative, implementation of the project would not occur and the existing project site and its physical conditions would generally remain as they are in their current state. This includes the majority of Hancock Park and the structures within the project boundary, including the Page Museum; therefore, these features would resemble existing conditions. Ongoing maintenance and minor upgrades to address necessary improvements, as required, would continue to occur and are considered to be part of the existing operational conditions. Site elements including the surface parking lot, maintenance areas, amphitheater, landscaping, and pathways would all remain. Site access for visitors, loading, maintenance vehicles, and the fire department would remain in its current configuration.

6.4.1.1 Relationship to Project Objectives

The No Project/No Build Alternative would meet one of the project objectives. Table 6-4 outlines this alternative's ability to attain the basic project objectives outlined above and in Chapter 3, Project Description.

Table 6-4. Attainment of Project Objectives—No Project/No Build Alternative

Project Objective	Does the Alternative Attain the Project Objective?
Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019).	**No.** This alternative would not involve the renovation or expansion of the Page Museum. It would not address deferred maintenance, or the necessary upgrades required to bring the Page Museum up to current building code standards. This alternative would not result in any changes to the project site to further the sustainability goals of the County's sustainability plan.
Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**No.** This alternative would maintain the existing fossil storage, maintenance, and service facilities along the northern boundary of the project site and would not expand or construct new fossil storage or support buildings on-site. The existing exhibition galleries and collections storage areas are largely inflexible which present programmatic and spatial limitations, challenging the museum's ability to adapt and allow for future growth in exhibition, education, research, and collections storage.
Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.	**No.** This alternative would not include renovating or expanding the Page Museum to provide for expanded laboratory research facilities. These on-site facilities would remain as they are under current conditions.
Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.	**No.** This alternative would not include expanding the Page Museum to provide space for additional exhibitions, facilities, or enhanced learning environments. This alternative would not expand museum programming; it would remain as is under current conditions. In addition, museum-related exhibits and facilities located within Hancock Park (i.e., tar pits and viewing locations) would remain as they are under current conditions.
Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.	**No.** This alternative would not alter the existing entrances to the project site, nor would this alternative modify any existing pathways or accessways. The Central Green would be maintained as is under current conditions.
Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.	**No.** This alternative would retain the existing Page Museum as is under current conditions and would not include the addition of expanded museum facilities; however, this alternative would limit impacts to historical resources. Regardless, this alternative would not meet this objective of providing expanded museum facilities.
Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.	**No.** In this alternative, the existing museum entrance would remain, and no additional museum facilities or buildings would be constructed.
Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes**. The National Natural Landmarks program seeks to encourage the identification, study, designation, recognition, and preservation of nationally significant ecological and geological resources that reflect the nation's natural heritage (including paleontological/fossil-based resources). This alternative would not result in physical changes or modifications to the project that would change its scientific or historical value, nor impact the current research or programming occurring on the project site. As such, La Brea Tar Pits would continue to be recognized and protected as a National Natural Landmark.
Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.	**No.** This alternative would maintain the Central Green as it is under current conditions and would continue to allow for passive recreational uses within this multi-purpose lawn area of Hancock Park; however, it would not include changes to the current landscaping scheme other than actively maintaining current conditions on-site nor would it involve enhancements that increase connections or further promote the importance of the project site as a cultural destination within the Miracle Mile neighborhood.

6.4.1.2 Comparison of Significant Effects of the Alternative to the Project

The No Project/No Build Alternative would not implement the project. No project-related construction activities would occur, and there would be no changes to the existing land use types or operational characteristics of the project site. Ongoing maintenance and minor upgrades to address necessary improvements, as required, would continue to occur as they do under existing conditions.

The No Project/No Build Alternative would not contribute to cumulative impacts for the environmental issue areas examined in this EIR as the project would not be implemented. Cumulative impacts are not discussed further for the No Project/No Build Alternative.

AESTHETICS

In the No Project/No Build Alternative, the project would not be implemented, and the existing museum building and associated facilities would remain as they are under current conditions. As such, views of, and from, the project site would remain unchanged. This alternative would not have a substantial effect on a scenic vista or damage scenic resources within a State Scenic Highway, as no such resources have been identified within the vicinity of the project site and no change to the existing visual character of the project site and surroundings would occur. This alternative would avoid the project's potential to result in changes to or the addition of new sources of light and glare on the project site and would not require the project's mitigation measures related to this topic.

Therefore, impacts of the No Project/No Build Alternative related to aesthetics would be *decreased* in comparison to the project.

AIR QUALITY

The No Project/No Build Alternative would not facilitate the renovation or redesign of the project site and no construction activities associated with these improvements would occur. In addition, there would be no changes to the operational characteristics of the project site in this alternative. Given this, this alternative would not conflict with an applicable air quality plan, generate short- or long-term criteria pollutant emissions in exceedance of the South Coast Air Quality Management District (SCAQMD) significance thresholds, expose sensitive receptors to substantial concentrations of pollutant emissions, or result in adverse odors or other emissions.

Therefore, impacts of the No Project/No Build Alternative related to air quality would be *decreased* in comparison to the project.

BIOLOGICAL RESOURCES

Under the No Project/No Build Alternative, the project site would remain unchanged, and all biological resources present on-site would remain as is under current conditions. This alternative would avoid the project's potential adverse effects during the construction process on one species, the federal candidate monarch butterfly, such that this alternative would not have a substantial effect on any species identified as a candidate, sensitive, or special-status species. This alternative would also avoid the project's impacts on the aquatic resources habitat associated with Oil Creek. As stated in Section 5.3, Biological Resources, Oil Creek may be subject to the jurisdiction of the California Regional Water Quality Control Board and the California Department of Fish and Wildlife and may also be regulated by the U.S. Army Corps of Engineers under the Clean Water Act (CWA). This alternative would not result in changes or site improvements that would impact Oil Creek, thereby avoiding impacts associated with aquatic resources

habitat. Since no construction activities would occur under this alternative, this alternative would also avoid direct and temporary impacts on nesting birds and nesting bird habitats. In addition, this alternative would not require removing or relocating the existing oak trees on-site and would not conflict with the County of Los Angeles Oak Tree Ordinance. Lastly, this alternative would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Therefore, impacts of the No Project/No Build Alternative related to biological resources would be *decreased* in comparison to the project.

CULTURAL RESOURCES – ARCHAEOLOGICAL RESOURCES

The No Project/No Build Alternative would not include any ground-disturbing activities and the project site would remain unchanged. As such, there would be no potential to disturb known or unknown archaeological resources, including human remains, outside of the existing research sites.

Therefore, impacts of the No Project/No Build Alternative related to archaeological resources would be *decreased* in comparison to the project.

CULTURAL RESOURCES – HISTORICAL RESOURCES

Under the No Project/No Build Alternative, the project site would remain unchanged, and no modifications would be made to the three identified historical resources within the project site footprint, i.e., the La Brea Tar Pits Historic District, Page Museum, and Observation Pit. While the project would not result in impacts to the Observation Pit, it would result in alterations to the La Brea Tar Pits Historic District and the Page Museum that would potentially compromise their historic integrity to the point that these historical resources would no longer convey the reasons for their significance. By leaving the existing buildings, structures, and site plan design features/landscaping on the project site unaltered, the No Project/No Build Alternative would preserve the character-defining features of the La Brea Tar Pits Historic District and the Page Museum and avoid the project's significant and unavoidable impacts related to alterations of these resources.

Therefore, impacts of the No Project/No Build Alternative related to historical resources would be *decreased* in comparison to the project.

GEOLOGY AND SOILS

The No Project/No Build Alternative would not facilitate the renovation or redesign of the project site and no construction activities, including grading or other earthwork activities, associated with these improvements would occur. Therefore, this alternative would not cause or accelerate seismic and geologic hazards including surface fault rupture, strong seismic ground motion, seismically induced settlement due to liquefaction or landslides, soil erosion, lateral spreading, subsidence, and expansive soils. Additionally, since grading and earthwork activities would not occur under this alternative, the potential to uncover subsurface paleontological resources outside of the existing research sites would not occur. However, it is important to also note that this alternative would not provide expanded space or improvement to existing research facilities for the existing and expanding paleontological resources collection at the project site. Given the current condition of the collection and research facilities at the Page Museum, the result of the No Project/No Build Alternative could be detrimental effects to the existing paleontological collections.

In consideration of the various effects, impacts of the No Project/No Build Alternative related to geology and soils would be *decreased* in comparison to the project overall because construction would not occur.

However, effects to the existing paleontological collections at the Page Museum could be negatively affected as a secondary effect.

GREENHOUSE GAS EMISSIONS

Under the No Project/No Build Alternative, no construction-related emissions or changes to the operational characteristics of the project site would occur. Therefore, this alternative would not generate new GHG emissions, either directly or indirectly, above the established SCAQMD thresholds that may have a significant impact on the environment. Given that the operation of the facilities at the project site would mirror existing conditions under this alternative, it would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. However, unlike the project, this alternative would not include components that would further the GHG reduction targets set forth in the applicable plans, policies, regulations, or recommendations of an agency adopted to reduce GHG emissions (Section 5.7, Greenhouse Gas Emissions). Specifically, this alternative would not include components that would further the GHG reduction targets set forth in the Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) related to mobility and GHG reductions. The project's mitigation measure involving the development of a Transportation Demand Management (TDM) program for employee and visitor vehicle trips to increase alternative modes, such as walking, bicycling, public transit, and rideshare, would further consistency with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions. While the No Project/No Build Alternative would not result in impacts related to conflicts with applicable plans, it would also not include the project's mitigation measure to further GHG reduction targets.

Overall, impacts of the No Project/No Build Alternative related to GHG emissions would be *similar* in comparison to the project.

HAZARDS AND HAZARDOUS MATERIALS

Under the No Project/No Build Alternative, no new demolition or construction activities would occur, and the project would not be implemented. This alternative would not result in construction-related activities that would uncover subsurface hazards (i.e., subsurface methane gas produced from naturally occurring petroleum fields) or create a significant hazard to the public or environment through the routine transport, use or disposal of hazardous materials. Therefore, this alternative would not require the project's mitigation measures to address impacts associated with hazardous materials during construction. The project site would continue to be subject to the naturally occurring tar seeps and current strategies for managing this issue would remain in place (Section 5.8.1.4, Hazards and Hazardous Materials, Tar Seeps). Like the project, the existing high concentration of subsurface methane gas at the project site would require ongoing control measures to provide a barrier for hazardous vapors; however, because this alternative does not include modifications to the project site, no changes to the existing methane mitigation requirements would be needed. This alternative would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school, nor would it create a significant hazard to the public or the environment as the project site is not included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. Further, and consistent with the project, this alternative would not be developed within 2 miles of a public airport or public-use airport and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

Since the No Project/No Build Alternative would not result in project-related construction activities, impacts of the No Project/No Build Alternative related to hazards and hazardous materials would be *decreased* in comparison to the project.

HYDROLOGY AND WATER QUALITY

The No Project/No Build Alternative would not facilitate the renovation or redesign of the project site and no construction activities, including grading or other earthwork activities, associated with these improvements would occur. As such, no construction-related impacts would occur related to violating water quality standards and waste discharge requirements; decreasing groundwater supplies or interfering with groundwater recharge; altering drainage patterns, resulting in substantial erosion or siltation, flooding, and/or the creation of runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or impede or redirect flood flows; risk releasing pollutants due to project inundation; and conflicting with or obstructing the implementation of a water quality control plan.

Under the No Project/No Build Alternative, existing buildings and features on-site would remain as they are under current conditions, there would be no changes to the amount of impervious or pervious surfaces on the project site, and no modifications to the existing drainage patterns would be made. This alternative would not implement the project's proposed Low Impact Development (LID) Best Management Practices (BMPs), including the project's three proposed biofiltration areas, or the project's related mitigation measure to further reduce the volume of runoff or improve the quality of runoff from the project site.~~; however, even without the benefit of the project's LID BMPs and mitigation measure for non-structural BMPs, impacts from this alternative would be decreased when compared to those of the project.~~

Therefore, impacts of the No Project/No Build Alternative related to hydrology and water quality would be ~~*decreased*~~ *similar* in comparison to the project. This is because the No Project/No Build Alternative would not result in short-term, less-than-significant, construction-related water quality and hydrology impacts; however, this alternative would also not result in the permanent hydrology and water quality improvements that are contemplated for the site under the proposed project.

LAND USE AND PLANNING

Under the No Project/No Build Alternative, the project site would remain in its current condition and no modifications to the existing structures or features on-site would occur. Like the project, this alternative would not physically divide an established community. This alternative would, however, avoid the project's significant and unavoidable impacts related to inconsistencies with applicable policies pertaining to the alteration of designated historical resources (i.e., the La Brea Tar Pits Historic District and the Page Museum). Since this alternative would not result in physical changes to, or operational characteristics of, the existing project site, it would be consistent with the applicable policies related to the protection of designated historical resources and avoid the project's significant and unavoidable impacts related to this issue.

Therefore, impacts of the No Project/No Build Alternative related to land use and planning would be *decreased* in comparison to the project.

NOISE AND VIBRATION

Under the No Project/No Build Alternative, there would be no construction-related noise or changes to the operational characteristics of the project site. Thus, this alternative would not require the project's mitigation measure to reduce construction-related noise as it would not generate a substantial temporary or permanent increase in noise levels near the project site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. In addition, the No Project/ No Build Alternative would not result in generating excessive ground-borne vibration or ground-borne noise levels. Similar to the project, this alternative would not be near a private airstrip or within the boundaries of an airport land use plan.

The No Project/No Build Alternative would avoid the project's construction-related impacts associated with increases in temporary and permanent noise levels in the vicinity of the project. Therefore, impacts of the No Project/No Build Alternative related to noise would be *decreased* in comparison to the project.

RECREATION

The No Project/No Build Alternative, similar to the project, would not result in a new or permanent population at the project site; therefore, it would not result in an associated increase in the use of nearby existing parks and recreational facilities such that substantial physical deterioration of any one facility would occur or be accelerated. Since the project site would remain under current conditions, this alternative would not result in any additional adverse physical effects on the environment. As with the project, this alternative would continue to provide publicly accessible open space areas within the project site.

Therefore, impacts of the No Project/No Build Alternative related to recreation would be *similar* in comparison to the project.

TRANSPORTATION

Under the No Project/No Build Alternative, there would be no construction-related trips or changes to the operational characteristics of the project site. This alternative would not result in any new conflict with a project plan, ordinance, or policy addressing the circulations system or an applicable congestion management program. This alternative would also avoid the project's estimated net increase in vehicle miles traveled (VMT) as no changes to current conditions would occur. This alternative would not substantially increase hazards due to a design feature and would not result in inadequate emergency access as existing conditions would remain.

While the No Project/No Build Alternative would result in transportation and circulation conditions that would look similar to existing conditions, it would not include components that would further the GHG reduction targets set forth in the SCAG 2020-2045 RTP/SCS related to mobility and GHG reductions, nor would it address the City of Los Angeles Municipal Code (LAMC) requirements for bicycle parking or the TDM Ordinance (Section 5.13.5, Transportation, Environmental Impact Analysis). However, this alternative would avoid the project's significant and unavoidable impacts related to increased VMT. This alternative would also avoid the project's potentially inadequate emergency access during construction and operation.

Therefore, impacts of the No Project/No Build Alternative related to transportation would be *decreased* in comparison to the project.

TRIBAL CULTURAL RESOURCES

The No Project/No Build Alternative would not include any ground-disturbing activities and the project site would remain unchanged. As such, there would be no potential to disturb known or unknown tribal cultural resources, including human remains, outside of the existing research sites.

Therefore, impacts of the No Project/No Build Alternative related to tribal cultural resources would be *decreased* in comparison to the project.

UTILITIES AND SERVICE SYSTEMS

In the No Project/No Build Alternative, the project would not be implemented, and the existing museum building and associated facilities would remain as they are under current conditions. Therefore, this

alternative would not require or result in relocating or constructing new or expanded water or wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities; affect the water supplies available to the project site; result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project; generate solid waste in excess of state or local standards; and oppose federal, state, or local management and solid waste reduction statutes and regulations.

The No Project/No Build Alternative would avoid the project's potential to require the construction of new or expanded sewer system facilities. Therefore, impacts of the No Project/No Build Alternative related to utilities and service systems would be *decreased* in comparison to the project.

6.4.2 Alternative 1: Renovate Page Museum Only

In Alternative 1, Renovate Page Museum Only, the exterior conditions of the La Brea Tar Pits Historic District and the Page Museum would be retained as is under existing conditions, while addressing some of the museum's deficiencies by way of an interior renovation only. The renovation work within the Page Museum would upgrade its existing facilities and systems while maintaining its current program, spatial organization, and room sizes (Figure 6-1). This alternative was considered as the renovation would retain or replace in kind the historic, character-defining features related to the museum's interior such as the central open-air atrium and the fishbowl-like lab space. This alternative would emphasize remedial work on the building structure and existing exhibits and would be performed from the museum interior as much as possible. This alternative scenario would, however, require further study to determine the feasibility of the renovation to also meet modern seismic standards since modifications to the building's exterior would be avoided under this alternative. In those instances, the identified areas would be repaired or replaced in kind and designed to resemble their current physical appearance to avoid impacting the historic, character-defining features on the museum's exterior. The remainder of the project site would also resemble existing conditions, and site access for visitors, loading, maintenance vehicles, and the fire department would remain in the current configuration in this alternative. Other museum-related facilities, as well as associated passive recreational areas and pathways around and within the project site, would remain as is under current conditions.

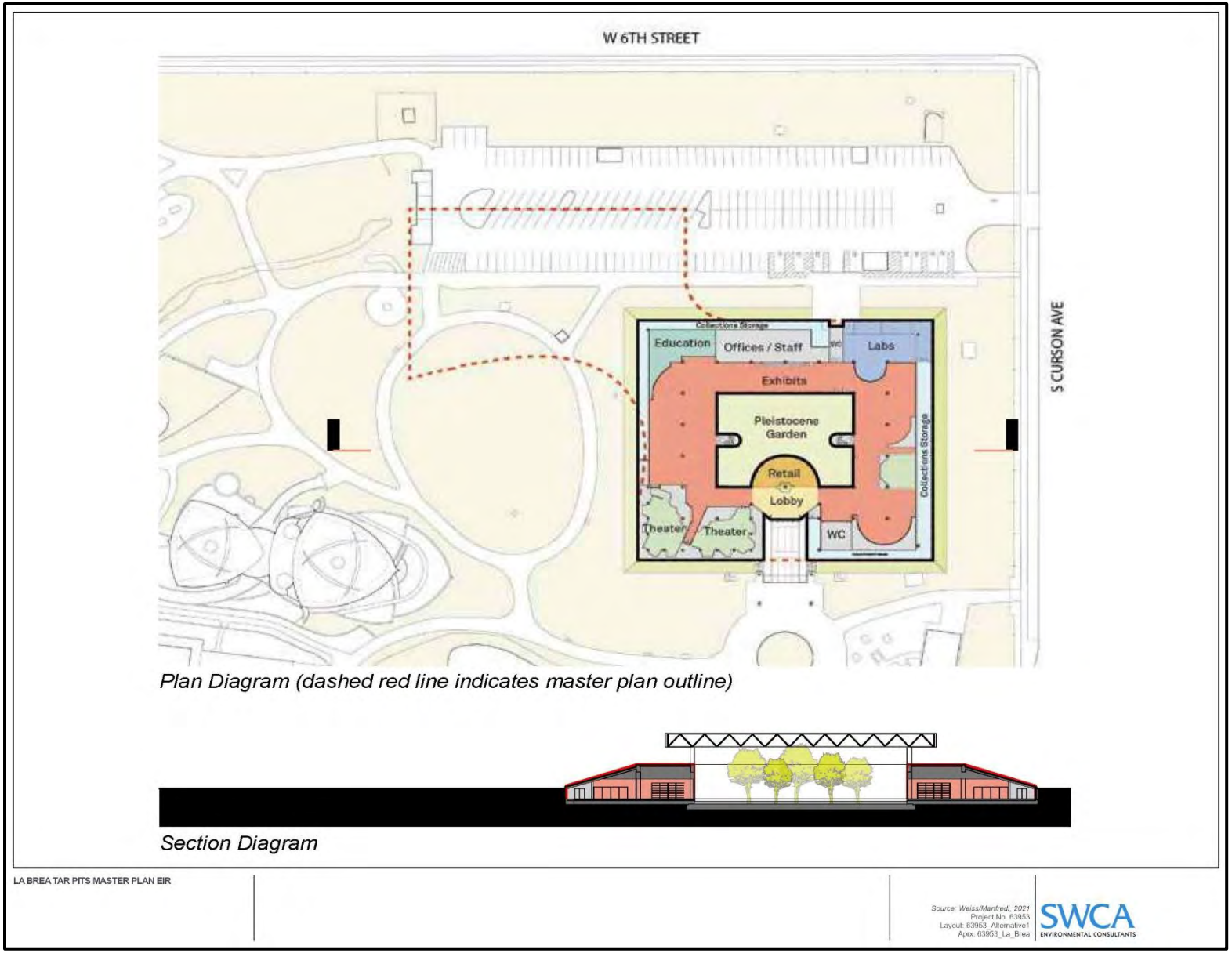

Figure 6-1. Alternative 1: Museum plan and section diagrams.

6.4.2.1 Relationship to Project Objectives

Alternative 1, Renovate Page Museum Only, would meet one of the project objectives, partially achieve two of the project objectives, and would not meet the remaining objectives. Table 6-5 outlines this alternative's ability to attain the basic project objectives outlined above and in Chapter 3, Project Description.

Table 6-5. Attainment of Project Objectives—Alternative 1 Renovate Page Museum Only

Project Objective	Does the Alternative Attain the Project Objective?
Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019).	**Partially**. This alternative would renovate the existing Page Museum to address the deferred maintenance of the building envelope and systems to meet modern electrical and building code standards; however, further study is required to determine the feasibility of the renovation to also meet modern seismic standards since modifications to the building's exterior would be avoided under this alternative. The roof terrace of the Page Museum would remain inaccessible under this alternative's accessibility and universal design standards. In addition, options for achievable sustainability goals to meet the County's sustainability plan would also be further limited because this alternative would avoid any work on the Page Museum exterior and the existing site conditions in Hancock Park.
Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**No.** This alternative would maintain the existing fossil storage, maintenance, and service facilities along the northern boundary of the project site and would not expand or construct new fossil storage or support buildings on-site.
Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.	**No**. This alternative would not include the expansion of the Page Museum that would be needed to provide for expanded laboratory research facilities. These on-site facilities would remain as they are under current conditions.
Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.	**Partially.** While this alternative could feasibly upgrade the exhibition facilities and learning environments within the Page Museum such that they may be considered state-of-the-art, this alternative would not address or involve improvements to exhibition facilities and learning environments outside of the Page Museum within Hancock Park to further enrich the visitor experience and to support active educational programming.
Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.	**No.** This alternative would not alter the existing entrances to the project site, nor would this alternative modify any of the existing pathways or accessways. The Central Green would be maintained as is under current conditions.
Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.	**No.** This alternative would retain the existing Page Museum within its existing footprint and would renovate the interior only. It would not include the addition of expanded museum facilities; however, this alternative would limit impacts to historical resources. Regardless, this alternative would not meet this objective of providing expanded museum space for additional exhibits, collections, offices, and laboratory research facilities.
Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.	**No.** In this alternative, the existing museum entrance would remain, and no additional museum facilities or buildings would be constructed.

Project Objective	Does the Alternative Attain the Project Objective?
Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes.** The National Natural Landmarks program seeks to encourage the identification, study, designation, recognition, and preservation of nationally significant ecological and geological resources that reflect the nation's natural heritage (including paleontological/fossil-based resources). This alternative would result in interior renovations to the existing Page Museum only and would not result in physical changes or modifications to the project that would change its scientific or historical value, nor impact the current research or programming occurring on the project site. As such, La Brea Tar Pits would continue to be recognized and protected as a National Natural Landmark.
Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.	**No.** This alternative would maintain the Central Green as it is under current conditions and would continue to allow for passive recreational uses within this multi-purpose lawn area of Hancock Park; however, it would not include changes to the current landscaping scheme other than actively maintaining current conditions on-site nor would it involve enhancements that increase connections or further promote the importance of the project site as a cultural destination.

6.4.2.2 Comparison of Significant Effects of the Alternative to the Project

Alternative 1, Renovate Page Museum Only, would require construction activities associated with this alternative's proposed improvements; however, the type of construction activities and overall duration of construction activities would be reduced in comparison to the project since there would be no grading or other earthwork activities necessary, and no other structures would be constructed as a result of this alternative. Upon completing this alternative, there would be no changes to the existing land use types or operational characteristics of the project site.

AESTHETICS

Alternative 1, Renovate Page Museum Only, would result in renovations and upgrades to the existing Page Museum building without altering its interior configuration to avoid impacting any of the character-defining features. This alternative would not result in alterations to the exterior appearance of the existing building or any of the associated museum-related facilities on-site. As such, views of, and from, the project site would remain unchanged. Like the project, this alternative would not have a substantial effect on a scenic vista or damage scenic resources within a State Scenic Highway, as no such resources have been identified near the project site and no change to the existing visual character of the project site and surroundings would occur. Therefore, this alternative would not adversely alter or degrade the existing visual character or scenic quality of the project site and would be consistent with the applicable policies that govern scenic quality in both County and City plans. This alternative would avoid the project's potential to result in changes to or the addition of new sources of light and glare on the project site and would not implement the project's mitigation measures related to this topic. In addition, this alternative would not contribute to cumulative impacts related to aesthetics.

Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to aesthetics would be *decreased* in comparison to the project.

AIR QUALITY

Alternative 1, Renovate Page Museum Only, would result in upgrades to the interior Page Museum within the existing building footprint. Construction activities associated with this alternative would be reduced in comparison to the project since there would be no grading or other earthwork activities necessary, and no other structures would be constructed as a result of this alternative. Upon completion of this alternative, there would be no changes to the operational characteristics of the project site. Given this, daily construction emissions associated with this alternative would be reduced in comparison to the project and operational emissions would be similar to existing conditions, thereby reduced when compared to the project. This alternative would not conflict with an applicable air quality plan, generate short- or long-term criteria pollutant emissions exceeding an SCAQMD significance threshold, expose sensitive receptors to substantial concentrations of pollutant emissions, or result in adverse odors or other emissions. In addition, this alternative would not contribute to cumulative impacts related to air quality. Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to air quality would be *decreased* in comparison to the project.

BIOLOGICAL RESOURCES

Alternative 1, Renovate Page Museum Only, would result in upgrades to the interior of the Page Museum, and all biological resources present on-site would remain as is under current conditions. This alternative would avoid the project's potential adverse effects during the construction process on one species, the federal candidate monarch butterfly, such that this alternative would not have a substantial effect on any species identified as a candidate, sensitive, or special-status species. This alternative would also avoid the project's impacts on the aquatic resources habitat associated with Oil Creek. As stated in Section 5.3, Biological Resources, Oil Creek may be subject to the jurisdiction of the California Regional Water Quality Control Board and the California Department of Fish and Wildlife and may also be regulated by the U.S. Army Corps of Engineers under the CWA. This alternative would not result in changes or site improvements that would impact Oil Creek, thereby avoiding impacts associated with aquatic resources habitat. While construction activities would be limited under this alternative, the project's mitigation measure to address impacts on nesting birds and nesting bird habitats would be implemented to avoid direct and temporary impacts. This alternative would not include removing or relocating the existing oak trees on-site and would not conflict with the County of Los Angeles Oak Tree Ordinance. Lastly, this alternative would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. In addition, this alternative would not contribute to cumulative impacts related to biological resources. Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to biological resources would be *decreased* in comparison to the project.

CULTURAL RESOURCES – ARCHAEOLOGICAL RESOURCES

Alternative 1, Renovate Page Museum Only, would not include grading or excavation activities, and construction activities would be isolated to the existing footprint of the Page Museum. The remainder of the project site would remain unchanged. As such, there would be no potential to disturb known or unknown archaeological resources, including human remains, outside of the existing research sites. In addition, this alternative would not contribute to cumulative impacts related to archaeological resources.

Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to archaeological resources would be *decreased* in comparison to the project.

CULTURAL RESOURCES – HISTORICAL RESOURCES

Alternative 1, Renovate Page Museum Only, was designed with the intention of avoiding the project's significant and unavoidable impacts on two of the identified historical resources within the project site, i.e., the La Brea Tar Pits Historic District and the Page Museum. This alternative would accomplish upgrades to the Page Museum building within its existing footprint and without altering its interior configuration and would preserve the Museum's character-defining features (Section 5.5, Cultural Resources – Historical Resources), including the following:

- Oversized one-story mass/height
- Prominent fiberglass frieze with bas relief Pleistocene scenes
- Fishbowl-like laboratory space in museum interior
- Burial mound-like site with sharply raised berms with turf plantings on each side, pyramidal massing, and a square plan
- Symmetrical design composition, building and site
- Descending entrance progression on the south elevation into the center of the building, flanked by mirror stairways leading to the upper podium at the second floor
- Indoor-outdoor integration, open-air roof, and open configuration at the podium level overlooking the atrium
- Open central atrium with landscaping
- Visual primacy as the principal built-environment feature of the historic district

In addition, the site design for the remainder of the project site would remain unaltered, also preserving the character-defining features of the La Brea Tar Pits Historic District, including the following:

- Oversized, sparsely developed parcel, with large swaths of open park space
- Lake Pit
- Mature trees framing Hancock Park, with concentrations along the north and east boundaries
- Page Museum and its site, with pyramidal massing, square plan, and sharply raised berms, along with the visual prominence of Page Museum
- Observation Pit
- Corner entrance with diagonal entry path at Wilshire Boulevard
- Circulation corridors/pathways, including east-west pathways leading from the parking lot and north-south pathway northwest from Central Green
- Remnants of 1930s stone walls in the northwestern portion of the site
- Significant paleontological resources on-site, including various dig and studies sites

By isolating the upgrades to the Page Museum to retain the interior configuration without any exterior modifications to the existing structures or the remainder of the project site within Hancock Park, Alternative 1, Renovate Page Museum Only, would preserve the character-defining features of the La Brea Tar Pits Historic District and the Page Museum and avoid the project's significant and unavoidable impacts related to alterations of those resources. In addition, unlike the project, this alternative would not contribute to cumulative impacts related to historical resources.

Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to historical resources would be *decreased* in comparison to the project. In comparison to the proposed La Brea Master Plan, the decrease would be significant enough to fully avoid the project's significant and unavoidable impacts in the issue area of historical resources.

GEOLOGY AND SOILS

Alternative 1, Renovate Page Museum Only, would result in limited construction activities focused on the renovation and upgrades to an existing building and would not include grading or other earthwork activities. This alternative would address some of the deferred maintenance issues and upgrades and, like the project, would be subject to all applicable regulations, including the applicable provisions in the Alquist-Priolo Earthquake Fault Zoning Act, Seismic Safety Act, Seismic Hazards Mapping Act, the California Building Code, and the 2020 County of Los Angeles Building Code. Given that earthwork activities would not occur, this alternative would not cause or accelerate seismic and geologic hazards including surface fault rupture, strong seismic ground motion, seismically induced settlement due to liquefaction or landslides, soil erosion, lateral spreading, subsidence, and expansive soils. Additionally, this alternative would avoid the project's potential to uncover subsurface paleontological resources outside of the existing research sites. In addition, this alternative would not contribute to cumulative impacts related to geology and soils resources.

Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to geology and soils would be *decreased* in comparison to the project.

GREENHOUSE GAS EMISSIONS

Under Alternative 1, Renovate Page Museum Only, construction-related emissions would be limited to the interior upgrades of the Page Museum. While this alternative would include construction activities associated with these improvements, the type of construction activities and overall duration of construction activities would be reduced in comparison to the project since there would be no grading or other earthwork activities necessary, and no other structures would be constructed as a result of this alternative. This alternative would incorporate the project's mitigation measure related to eliminating natural gas infrastructure and increasing electric vehicle charging stations. Thus, this alternative would not generate, either directly or indirectly, substantial new GHG emissions above the established SCAQMD thresholds that may have a significant impact on the environment.

Given that the operation of the facilities at the project site would be similar to the project under this alternative, it would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions. Like the project, this alternative would include components that would further the GHG reduction targets set forth in the applicable plans, policies, regulations, or recommendations of an agency adopted to reduce GHG emissions (see Section 5.7, Greenhouse Gas Emissions). Specifically, this alternative would include components that would further the GHG reduction targets set forth in the SCAG 2020-2045 RTP/SCS related to mobility and GHG reductions. The project's mitigation measure involving the development of a TDM program for employee and visitor vehicle trips to increase alternative modes, such as walking, bicycling, public transit, and rideshare, would further consistency with applicable plans, policies, and regulations adopted for the purpose of reducing the emissions of GHGs. In addition, with incorporation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to GHG emissions.

Overall, impacts of Alternative 1, Renovate Page Museum Only, related to GHG emissions would be *similar* in comparison to the project.

HAZARDS AND HAZARDOUS MATERIALS

Under Alternative 1, Renovate Page Museum Only, construction activities would be limited to the existing footprint of the Page Museum and would not include grading, excavation, or other earthwork activities. Thus, this alternative would not result in construction-related activities that would create a

significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. Under this alternative, the project site would continue to be subject to the naturally occurring tar seeps, and current strategies for managing this issue would remain in place (see Section 5.8.1.4, Hazards and Hazardous Materials, Tar Seeps). Like the project, the existing high concentration of subsurface methane gas at the project site would require ongoing control measures to ensure a properly designed methane mitigation system would provide a barrier for hazardous vapors. Due to the high potential for elevated concentrations of methane gas at the project site, operational impacts of this alternative related to the release of hazardous materials into the environment would be similar to the project and would include the project's operational mitigation measure to address this impact. This alternative could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school and would include the project's mitigation measures to address construction and operational impacts associated with this issue. This alternative would not create a significant hazard to public or the environment as the project site is not included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. Further, and consistent with the project, this alternative would not be developed within 2 miles of a public airport or public-use airport and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. In addition, this alternative would not contribute to cumulative impacts related to hazards and hazardous materials.

Therefore, the impacts of Alternative 1, Renovate Page Museum Only, related to hazards and hazardous materials would be *similar* in comparison to the project.

HYDROLOGY AND WATER QUALITY

Alternative 1, Renovate Page Museum Only, would result in construction activities that would be limited to the existing footprint of the Page Museum and would not include grading, excavation, or other earthwork activities. Since existing buildings and features on-site would remain as they are under current conditions, there would be no changes to the amount of pervious or impervious surfaces on the project site, and no modifications to the existing drainage patterns would be made. Given this, this alternative would not violate any water quality standards and waste discharge requirements; decrease groundwater supplies or interfere with groundwater recharge; alter drainage patterns that would result in substantial erosion or siltation, flooding, and/or the creation of runoff water that would exceed the capacity of existing or planned stormwater drainage systems, or impede or redirect flood flows.

Regarding water quality, because only interior renovations of the Page Museum would occur, unlike the proposed project, it is not anticipated that there would be the potential for water quality impacts during construction. However, as part of the project design, this alternative would also not implement the Master Plan's proposed LID BMPs, including the project's three proposed biofiltration areas. Thus, this alternative would not provide for the beneficial water quality effect of the Master Plan's proposed biofiltration features. Because the alternative would not implement the beneficial water quality features of the proposed project but it would, conversely, avoid the construction-period effect to water quality that would be anticipated under the proposed project, the net effect to water quality is considered similar.

Therefore, impacts of the Alternative 1, Renovate Page Museum Only related to hydrology and water quality would be *similar* in comparison to the project. <u>This is because Alternative 1 would not result in short-term, less-than-significant, construction-related water quality and hydrology impacts; however, this alternative would also not result in the permanent hydrology and water quality improvements that are contemplated for the site under the proposed project.</u>

LAND USE AND PLANNING

Alternative 1, Renovate Page Museum Only, would result in improvements to the Page Museum only within the existing building footprint while the remainder of the project site would remain unchanged. Like the project, this alternative would not physically divide an established community given no new structures would be introduced, and the site design of the project site would reflect current conditions. This alternative would, however, avoid the project's significant and unavoidable impacts related to inconsistencies with applicable policies pertaining to the alteration of designated historical resources (i.e., the La Brea Tar Pits Historic District and the Page Museum). While this alternative would result in physical changes to the Page Museum, these changes would upgrade the building without altering its interior configuration to avoid impacting any of the character-defining features. Given the nature of the focused upgrades within this alternative, it would be consistent with the applicable plans and policies related to the protection of designated historical resources. In addition, unlike the project, this alternative would not contribute to cumulative impacts related to land use and planning.

Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to land use and planning would be *decreased* in comparison to the project. In comparison to the proposed La Brea Master Plan, the decrease would be significant enough to fully avoid the project's significant and unavoidable impacts related to inconsistencies with applicable policies pertaining to the alteration of designated historical resources.

NOISE AND VIBRATION

Under Alternative 1, Renovate Page Museum Only, project improvements would be limited to the Page Museum. While this alternative would include construction activities associated with these improvements, the type of construction activities and equipment, as well as the overall duration of construction activities, would be reduced in comparison to the project since there would be no grading or other earthwork activities necessary, and no other structures would be constructed as a result of this alternative. Both the duration and intensity of construction-related noise would be reduced for this alternative when compared to the project. Given this, this alternative would not include the project's mitigation measure to reduce construction-related noise as it would not generate a substantial temporary or permanent increase in noise levels near the project site in excess of the standards established in the local general plan or noise ordinance, or applicable standards of other agencies. In addition, this alternative would not result in the generation of excessive ground-borne vibration or ground-borne noise levels. Similar to the project, this alternative would not result in noise-related impacts on the operational characteristics of the project site. In addition and similar to the project, this alternative would not be located within the vicinity of a private airstrip or an airport land use plan, so no impacts related to airport noise would occur. In addition, this alternative would not contribute to cumulative impacts related to noise.

Alternative 1, Renovate Page Museum Only, would avoid the project's construction-related impacts associated with increases in temporary and permanent noise levels in the vicinity of the project. Therefore, impacts of Alternative 1, Renovate Page Museum Only related to noise would be *decreased* in comparison to the project.

RECREATION

Alternative 1, Renovate Page Museum Only, similar to the project, would not result in a new or permanent population to the project site; therefore, it would not result in an associated increase in the use of nearby existing parks and recreational facilities such that substantial physical deterioration of any one facility would occur or be accelerated. Since the project site would remain under current conditions, this alternative would not result in any additional adverse physical effects on the environment. As with the

project, this alternative would continue to provide publicly accessible open space areas within the project site. In addition, this alternative would not contribute to cumulative impacts related to recreation.

Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to recreation would be *similar* in comparison to the project.

TRANSPORTATION

Under Alternative 1, Renovate Page Museum Only, construction-related trips would be reduced when compared to the project as the scope and duration of the project would be significantly reduced in comparison. After completing the Page Museum renovations for this alternative, no changes to the operational characteristics of the project site would occur that would substantially increase the VMT to and from the project site. Thus, this alternative would avoid the project's estimated net increase in VMT and avoid the project's significant and unavoidable impact related to increased VMT. While this alternative would result in transportation and circulation conditions that would look similar to existing conditions, it would not include components that would further the GHG reduction targets set forth in the SCAG 2020-2045 RTP/SCS related to mobility and GHG reductions, nor would it address the LAMC requirements for bicycle parking or the TDM Ordinance (see Section 5.13.5, Transportation, Environmental Impact Analysis). Similar to the project, this alternative could result in a significant impact related to ensuring consistency with transportation plans, programs, ordinances, or policies. In addition, and similar to the project, this alternative would not include components that would substantially increase hazards due to a design feature. Lastly, this alternative would avoid the project's potential impacts to inadequate emergency access during construction and operation and would not contribute to cumulative impacts related to transportation.

While this alternative would not include components that would further the GHG reduction targets, it would avoid the project's operational traffic impacts related to increased VMT and inadequate emergency access during construction and operation. Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to transportation would be *decreased* in comparison to the project. In comparison to the proposed La Brea Master Plan, the decrease would be significant enough to fully avoid the project's significant and unavoidable impacts in the issue area of transportation, which are related to increases in VMT. Increases in VMT would not be expected with the implementation of Alternative 1.

TRIBAL CULTURAL RESOURCES

Alternative 1, Renovate Page Museum Only, would not include grading or excavation activities, and construction activities would be isolated to the existing footprint of the Page Museum. The remainder of the project site would remain unchanged. As such, there would be no potential to disturb known or unknown tribal cultural resources, including human remains, outside of the existing research sites. In addition, this alternative would not contribute to cumulative impacts related to tribal cultural resources.

Therefore, impacts of Alternative 1, Renovate Page Museum Only, related to tribal cultural resources would be *decreased* in comparison to the project.

UTILITIES AND SERVICE SYSTEMS

Alternative 1, Renovate Page Museum Only, would result in improvements to the Page Museum only within the existing building footprint while the remainder of the project site would remain unchanged. As such, this alternative would not include or result in relocating or constructing new or expanded water or wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunication facilities; affect the water supplies available to the project site; result in a determination by the wastewater

treatment provider that it has inadequate capacity to serve the project; generate solid waste in excess of state or local standards; and oppose federal, state, or local management and solid waste reduction statutes and regulations. In addition, this alternative would not contribute to cumulative impacts related to utilities and service systems.

Therefore, impacts of Alternative 1, Renovate Page Museum Only related to utilities and service systems would be *decreased* in comparison to the project.

6.4.3 Alternative 2: Maintain Central Atrium Pleistocene Garden

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include renovating the existing Page Museum to maintain the central atrium with the Pleistocene Garden in place while also providing the same expanded museum facilities and programming as proposed by the project. To maintain the central atrium footprint while providing the proposed laboratory, classroom, and multi-purpose educational spaces, Alternative 2 would include expanding the new museum space by approximately 15,000 square feet above what is proposed by the project. In addition, the character of the open-air roof would remain intact.

As shown in Figure 6-2, this increased square footage would include expansion to the north and west of the existing Page Museum. This alternative would slightly reconfigure the surface parking lot, like the project, extending it west of the new museum building footprint. Reconfiguration of the parking lot would include the removal or relocation of the existing ornamental trees bordering the northern portion of the project site along 6th Street, like the project.

This alternative would adjust the project's triple-loop pedestrian path adjacent to the proposed new museum building to accommodate the larger building footprint. The landscaping improvements and overall landscape design of the project site in Alternative 2 would be similar to the project, except for the reconfigured northern portion of the project site, the reduced open space area, as well as the adjustment to the pedestrian path.

Aside from the modifications discussed above, Alternative 2 would be similar to the project, as outlined in Chapter 3, Project Description, and Table 6-1. Table 6-6 provides a summary of the project components of Alternative 2 that are different from the project.

Table 6-6. Overview of Alternative 2 Project Components Different from the Project

Project Component	Description
Page Museum Renovations	Renovate the existing building in the same footprint (approximately 63,200 square feet) while maintaining the central atrium with Pleistocene Garden in place.
New Museum Building	Construct a new two-story 55,000-gsf museum building northwest of the Page Museum The footprint of the new museum building in this alternative would increase by 15,000 gsf over the new museum footprint proposed by the project.
Pedestrian Path and Recreation Areas	Reconfigure the geometry of the pedestrian pathways adjacent to the new museum building to accommodate for the expanded footprint.
Circulation and Parking	Reconfigure the parking lot, extending it west of the new museum building footprint. This would require removing and/or relocating existing trees on-site.

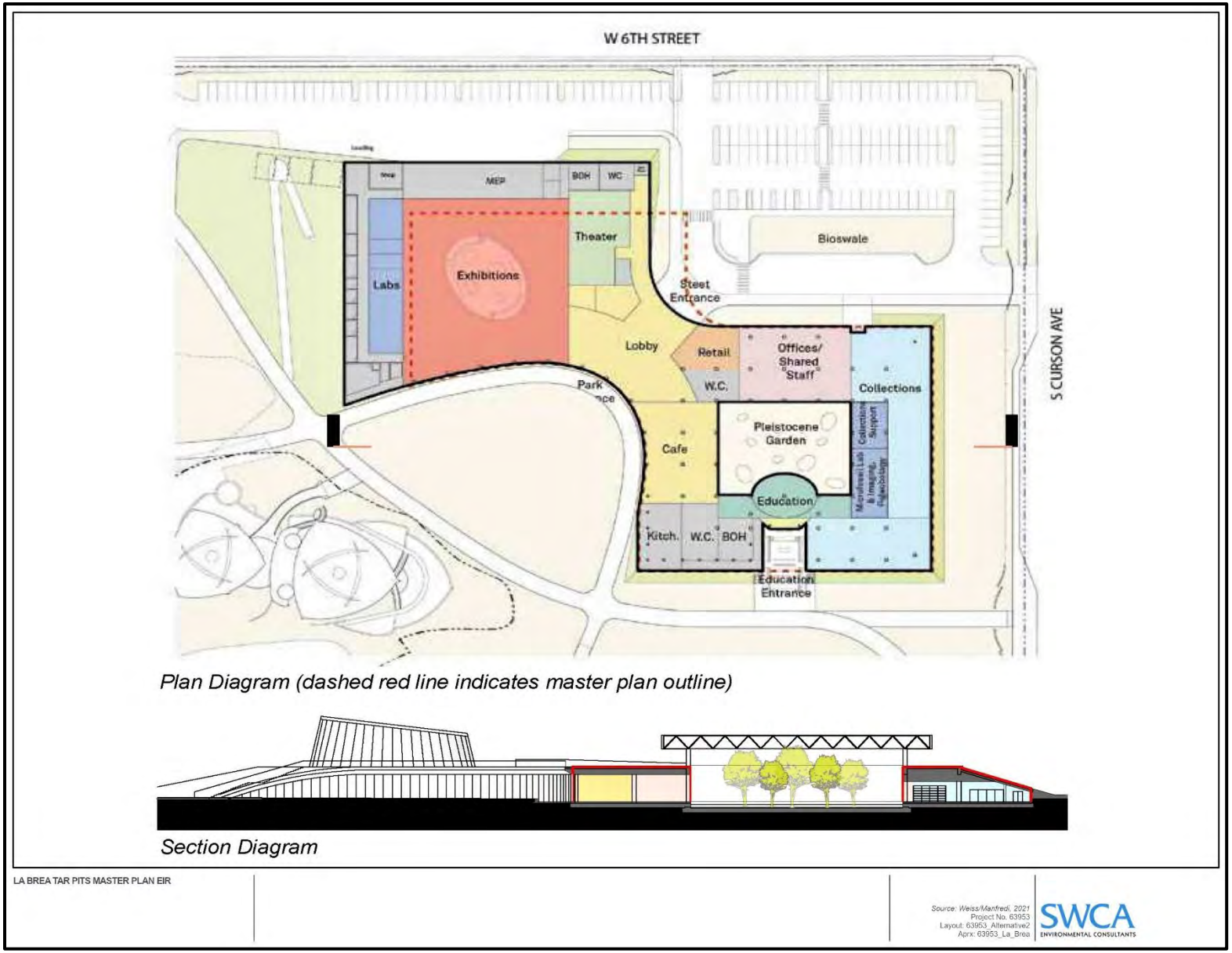

Figure 6-2. Alternative 2: Museum plan and section diagrams.

6.4.3.1 Relationship to Project Objectives

Alternative 2, Maintain Central Atrium Pleistocene Garden, would meet seven of the project objectives, partially meet two of project objectives. Table 6-7 outlines this alternative's ability to attain the basic project objectives outlined above and in Chapter 3, Project Description.

Table 6-7. Attainment of Project Objectives—Alternative 2, Maintain Central Atrium Pleistocene Garden

Project Objective	Does the Alternative Attain the Project Objective?
Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019).	**Partially.** This alternative would allow for renovating the Page Museum to address the deferred maintenance of the building envelope and systems to meet modern electrical and building code standards as well as seismic standards. This alternative would also include sustainability strategies designed to improve stormwater management, reduce the heat island effect, provide more shade, and reduce light pollution to further the sustainability of the County's sustainability plan. However, this alternative would reduce the amount of open space on-site and would not be consistent with the County's sustainability plan.
Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**Yes.** This alternative would include constructing an additional 2,000-square-foot satellite maintenance and support building dedicated to fossil storage, maintenance, and service facilities along the northern boundary of the project site.
Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.	**Yes.** This alternative would allow for renovating the Page Museum and constructing a new museum building that would add 55,000 square feet of museum space to support expanding the laboratory research facilities.
Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.	**Yes.** This alternative would include renovating the Page Museum and constructing a new museum building that would add 55,000 square feet of museum space to provide space for additional exhibition facilities or enhanced learning environments. In addition, this alternative would allow for renovating the existing facilities at all the tar pit locations throughout the project site to allow for improved interpretive signage and viewing areas to further enrich the visitor experience and to support active educational programming.
Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.	**Yes.** This alternative would provide for enhanced entrances to the project site at the Wilshire and 6th Street Gateways and would also reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking all the existing elements of the park. A pedestrian walking path would be constructed across the project site with interpretive signage and explanations related to the former industrial heritage of the site. The project site is currently served by a complete network of sidewalks around the project site block and adjacent street network, with signalized intersections and crosswalks. This alternative would also establish a new school drop-off/loading area on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.	**Yes.** This alternative would expand museum facilities through the construction of the new museum building, while retaining the Page Museum's central atrium Pleistocene garden and open-air roof line, thereby decreasing impacts to historical resources. The renovated Page Museum and new museum building would be connected via a central lobby area and an integrated organization of exhibits and collections, helping to create connection and cohesion between the two museum spaces.

Project Objective	Does the Alternative Attain the Project Objective?
Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.	**Yes.** This alternative would result in a renovated Page Museum and new museum building with a central entry point accessible from the project's parking lot as well as from the Central Green. The central entrance would lead to the museum lobby, which would provide a space for visitors to circulate and become familiar with organization of the museum's exhibits and collections both inside the museum spaces as well as the outdoor spaces within Hancock Park.
Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes.** This alternative would allow for renovating and expanding the existing Page Museum and the remainder of the project site within Hancock Park in a way that would further the fundamental mission of La Brea Tar Pits as a site and facility dedicated to research, education, and exhibition. Under this alternative, the project site would continue to be recognized and protected as a National Natural Landmark.
Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.	**Partially.** This alternative would reduce the amount of dedicated open space on-site due to the expanded footprint of the new museum building. However, this alternative would also redesign and renovate the Hancock Park community park green space to include a landscape design and planting scheme that would aim to ease water consumption and ensure appropriate maintenance. This alternative would include improvements to the existing multi-purpose grass lawn, the Central Green, which would provide a setting for community activities, passive recreational uses, events, and public gatherings. This alternative would also install a new welcome pavilion with a canopy and shade trees at Wilshire Gateway, and a shaded welcome area at the 6th Street Gateway to increase the project site's notability within the Miracle Mile neighborhood.

6.4.3.2 Comparison of Significant Effects of the Alternative to the Project

Alternative 2, Maintain Central Atrium Pleistocene Garden, would result in similar types of construction activities, duration, and equipment as the project. Upon project completion, this alternative would result in similar land uses and operational activities as proposed by the project.

AESTHETICS

Alternative 2, Maintain Central Atrium Pleistocene Garden, would result in changes to the site design and some of the visual characteristics of the project site when compared to the project. Like the project, this alternative's changes in site design would be visible directly from adjacent off-site locations, including high-rise residential and commercial buildings. However, due to the topography of the project site and the relative lack of buildings on the site compared with the surrounding dense urban development, view changes would typically occur at limited vantage points, as opposed to along extensive roadway segments or from entire large geographic areas. While this alternative would result in an expanded footprint for the new museum building, it would still be two stories in height, as proposed by the project. Like the project, this alternative would not have a substantial effect on a scenic vista or damage scenic resources within a State Scenic Highway, as no such resources have been identified near the project site and changes to the existing visual character of the project site would integrate with the surrounding urban development along Wilshire Boulevard and the park setting of Hancock Park. Like the project, implementation of this alternative would change the overall project site design and result in modifications to the visual characteristics of the project site, but not in such a way that it would adversely alter or degrade the existing visual character or scenic quality of the project site, and would be consistent with the applicable policies that govern scenic quality in both County and City plans. This alternative would create new

sources of light and glare, similar to the project, and would include the same mitigation measures as the project to address potential issues related to this issue. In addition, with implementation of the project's mitigation measures to address light and glare, this alternative would not contribute to cumulative impacts related to aesthetics.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to aesthetics would be *similar* in comparison to the project.

AIR QUALITY

Alternative 2, Maintain Central Atrium Pleistocene Garden, would result in similar types of construction activities, duration, and equipment as the project. Upon project operation, this alternative would result in similar land uses as proposed by the project, except for the larger museum footprint. Like the project, this alternative would be subject to consistency with the air quality standards and the land use assumptions identified in the SCAQMD's Air Quality Management Plan (AQMP) and SCAG's regional plans and policies. As identified for the project, this alternative would also implement mitigation measures to reduce construction-related air pollutant emissions. Operational emissions may vary slightly when compared to the project given the expanded footprint of the museum building; however, as shown in Section 5.2, Air Quality, the project is significantly below SCAQMD's established significance thresholds. This alternative would not result in a considerable change from the anticipated uses within the project's site plan that would increase daily operations in such a manner to exceed the maximum daily operational emissions set forth by SCAQMD's significance thresholds. In addition, this alternative would implement the project's mitigation measure which incorporates a number of key control measures identified by the SCAQMD to ensure this alternative does not conflict with an applicable air quality plan, generate short- or long-term criteria pollutant emissions in exceedance of SCAQMD significance thresholds, expose sensitive receptors to substantial concentrations of pollutant emissions, or result in adverse odors or other emissions. In addition, with implementation of the project's mitigation measure to reduce construction-related air pollutant emissions, this alternative would not contribute to cumulative impacts related to air quality. Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to air quality would be *similar* in comparison to the project.

BIOLOGICAL RESOURCES

Alternative 2, Maintain Central Atrium Pleistocene Garden, would allow for modifications to the project's site plan and would result in similar types of construction activities, duration, and equipment as the project. The overall area of ground disturbance during the construction of this alternative would be similar to that of the project. Future operational conditions under this alternative would result in similar land uses as proposed by the project; however, this alternative would result in the loss of 10,000 square feet of open space area over what is proposed by the project due to the increase in the floor area of the new museum.

Thus, this alternative, like the project, could result in adverse effects during the construction process on one species, the federal candidate monarch butterfly, either directly or through habitat modifications. In addition, this alternative could result in impacts to regulated aquatic resources habitat associated with Oil Creek and could also result in the removal or relocation of the existing oak trees on-site, thereby conflicting with the County of Los Angeles Oak Tree Ordinance. Like the project, this alternative would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Given the similar nature of ground disturbance, construction activities, and future operational conditions, this alternative would implement the same mitigation measures to address potential impacts as the project. In addition,

with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to biological resources.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to biological resources would be *similar* in comparison to the project.

CULTURAL RESOURCES – ARCHAEOLOGICAL RESOURCES

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include grading, excavation, and other earthwork activities, similar to the extent proposed by the project, throughout most of the project site. As such, there would be similar potential to disturb known or unknown archaeological resources, including human remains, within the project site. This alternative would implement the same project mitigation measures to reduce this alternative's potential impacts to less-than-significant levels. In addition, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to archaeological resources.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to archaeological resources would be *similar* in comparison to the project.

CULTURAL RESOURCES – HISTORICAL RESOURCES

Alternative 2, Maintain Central Atrium Pleistocene Garden, was designed with the intention of eliminating impacts to the Page Museum by maintaining the following three primary, character-defining features of this historical resource:

- Prominent fiberglass frieze with bas relief Pleistocene scenes
- Indoor-outdoor integration, open-air roof, and open configuration at the podium level overlooking the atrium
- Open central atrium with landscaping

Alterations to the berm surrounding the Page Museum, which is a character-defining feature, would be largely the same in this alternative as in the project. Retention of the open-air roof line of the Page Museum would remain intact, which would decrease impacts to the Page Museum.

By altering the project to retain the central atrium Pleistocene garden, as conceived by Alternative 2, this alternative would result in an increased footprint, with expansion occurring to the north and west of the Page Museum. Although this alternative would avoid impacting the three bulleted character-defining features of the Page Museum, an identified historical resource, the increase in size of the expansion footprint could result in a *greater* impact on the following four primary character-defining features of the historical resources of the Page Museum and La Brea Tar Pits Historic District:

- Page Museum
  - Fishbowl-like laboratory space in museum interior
  - Burial mound-like site with sharply raised berms with turf plantings on each side, pyramidal massing, and a square plan
  - Visual primacy as the principal built-environment feature of historic district
- La Brea Tar Pits Historic District:
  - Oversized, sparsely developed parcel, with large swaths of open park space

For these reasons, Alternative 2, Maintain Central Atrium Pleistocene Garden, would preserve the character-defining features of the La Brea Tar Pits Historic District and the Page Museum and avoid the project's significant and unavoidable impacts related to alterations of those resources. However, as a result of the increased footprint of Alternative 2 as compared to the proposed Master Plan, this alternative would also result in additional impacts to historical resources by resulting in a greater loss of character-defining open space in the La Brea Tar Pits Historic District. With respect to cumulative impacts, this alternative would contribute to cumulative impacts related to historical resources, like the project.

When the impacts to the various character-defining features are considered in combination, the benefits of avoiding the impacts to the Page Museum's three character-defining features (frieze, indoor-outdoor integration and open-air roof, and open central atrium) do not outweigh the additional impacts to character-defining features Alternative 2 would create. Therefore, impacts of Alternative 2 related to historical resources would be roughly *similar* in comparison to the project. Impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to historical resources would remain significant and unavoidable and would occur to a similar degree as compared to the project, although they would change in severity depending upon the historical resources character-defining feature under consideration.

GEOLOGY AND SOILS

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include grading, excavation, and other earthwork activities at a similar extent to that proposed by the project throughout most of the project site except for the expansion of the new museum building. Like the project, this alternative would be subject to all applicable regulations, including the applicable provisions in the Alquist-Priolo Earthquake Fault Zoning Act, Seismic Safety Act, Seismic Hazards Mapping Act, the California Building Code, and the 2020 County of Los Angeles Building Code. As with the project, this alternative would include construction activities on soils with existing artificial fill that may not be suitable to support foundations, slabs on grade, paving, or new compacted fills and could cause geologic instability at the project site related to subsidence (i.e., compressible and collapsible soils) and expansive soils. This alternative would implement the same project mitigation measures to reduce potential impacts related to subsidence, as well as compressible, collapsible, and expansive soils, to less-than-significant levels. In addition, this alternative would not contribute to cumulative geotechnical or soils-related hazards.

Similar to the project, all ground-disturbing activities associated with the construction of this alternative have the potential to impact subsurface paleontological resources given the high paleontological sensitivity of the project site. Paleontological resources may be impacted by the construction or implementation of this alternative regardless of the depth of grading and/or excavation activities. Any fossils encountered during ground-disturbing activities could be at risk for damage or destruction from such activities depending on the nature of the fossil encountered. This alternative would require implementing the same project mitigation measures to reduce potential impacts on paleontological resources to less-than-significant levels. With implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to paleontological resources. Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to geology and soils would be *similar* in comparison to the project.

GREENHOUSE GAS EMISSIONS

Alternative 2, Maintain Central Atrium Pleistocene Garden, would result in similar types of construction activities, duration, and equipment as the project. Upon project operation, this alternative would result in similar land uses as proposed by the project. Given that this alternative would result in a similar construction and operational conditions as the project, this alternative would generate similar GHG emissions. This alternative would also incorporate the project's mitigation measure related to eliminating

natural gas infrastructure and increasing electric vehicle charging stations. Like the project, this alternative would not generate GHG emissions above the established SCAQMD thresholds.

Given that the operation of the facilities at the project site would be similar to the project under this alternative, it would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions. Like the project, this alternative would include components that would further the GHG reduction targets set forth in the applicable plans, policies, regulations, or recommendations of an agency adopted to reduce GHG emissions (see Section 5.7, Greenhouse Gas Emissions). Specifically, this alternative would include components that would further the GHG reduction targets set forth in the SCAG 2020-2045 RTP/SCS related to mobility and GHG reductions. The project's mitigation measure involving the development of a TDM program for employee and visitor vehicle trips to increase alternative modes such as walking, bicycling, public transit, and rideshare would further consistency with applicable plans, policies and regulations adopted for the purpose of reducing the emissions of GHGs. In addition, with incorporation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to GHG emissions.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to GHG emissions would be *similar* in comparison to the project.

HAZARDS AND HAZARDOUS MATERIALS

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include grading, excavation, and other earthwork activities at a similar extent to that proposed by the project throughout most of the project site except for the reconfigured site design of the northeastern portion of the project site. When compared to the project, this alternative has similar potential for construction-related activities to uncover subsurface hazards (i.e., subsurface methane gas produced from naturally occurring petroleum fields) or create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.

Therefore, this alternative would include the project's mitigation measures to address impacts associated with hazardous materials during construction. Under this alternative, like the project, the project site would continue to be subject to the naturally occurring tar seeps, and current strategies for managing this issue would remain in place (see Section 5.8.1.4, Hazards and Hazardous Materials, Tar Seeps).
In addition, the existing high concentration of subsurface methane gas at the project site would require ongoing control measures to ensure a properly designed methane mitigation system would provide a barrier for hazardous vapors. Due to the high potential for elevated concentrations of methane gas at the project site, the operational impacts of this alternative related to the release of hazardous materials into the environment would be similar to the project and would include the project's operational mitigation measure to address this impact. Like the project, this alternative could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school and would include the project's mitigation measures to address construction and operational impacts associated with this issue. This alternative would not create a significant hazard to the public or the environment on a site which is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. Further, and consistent with the project, this alternative would not be developed within 2 miles of a public airport or public-use airport and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Additionally, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to hazardous materials.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to hazards and hazardous materials would be *similar* in comparison to the project.

HYDROLOGY AND WATER QUALITY

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include grading, excavation, and other earthwork activities at a similar extent to that proposed by the project throughout most of the project site except for the expansion of the new museum building. While this alternative would result in an expanded building footprint and reconfigured surface parking lot, it would also result in converting approximately 10,000 square feet of open space pervious surface area to impervious surfaces. Overall, the area of pervious surfaces in this alternative would be slightly decreased when compared to the project.

Like the project, this alternative would result in earthwork activities that would require soil to be excavated and transported off-site and similar dewatering practices as the project would occur under this alternative due to the presence of naturally occurring tar (petroleum) in the subsurface soils. Like the project, compliance with the requirements of the Los Angeles Regional Water Quality Control Board (LARWQCB) (CWA National Pollutant Discharge Elimination System [NPDES] Program and Porter-Cologne Act waste discharge requirements), Construction General Permit, and County stormwater regulations would be sufficient to address the potential for the buildout of the project to violate water quality standards or waste discharge requirements during construction activities. This alternative would implement the three LID BMPs in accordance with the Los Angeles County LID Standards Manual (Los Angeles County Department of Public Works 2014), as outlined in Section 5.9, Hydrology and Water Quality.

This alternative would implement the project's proposed LID BMPs, including the project's three proposed biofiltration areas, and the project's related mitigation measure for non-structural BMPs to further reduce the volume of runoff or improve the quality of runoff from the project site and maximize the percolation of rainfall into the groundwater basin and proposed permeable landscape areas. Similar to the project buildout, this alternative would not adversely affect local groundwater levels or deplete groundwater supplies. While the modifications to the northeastern corner of the project site would occur under this alternative, it would result in a similar overall area of impervious surfaces when compared to the project and, like the project, would be designed to capture, filter, and reduce the volume of any additional runoff from the project's proposed impervious surfaces in a way that mimics, as well as improves, existing drainage patterns. The project site is not in a flood hazard zone or tsunami zone and the risk of a seiche is low. Therefore, there would be no risk of releasing pollutants due to project inundation by these hazards, similar to the project. Lastly, given that this alternative would be subject to compliance with existing applicable regulatory requirements and would implement the project's LID BMPs, this alternative would not conflict with or obstruct implementing a water quality control plan or sustainable groundwater management plan. Additionally, with implementation of the project's LID BMPs and mitigation measure, this alternative would not contribute to cumulative impacts related to hydrology and water quality.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to hydrology and water quality would be *similar* in comparison to the project.

LAND USE AND PLANNING

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include renovations to the Page Museum aimed at preserving some of the identified character-defining features while also providing the expanded museum facilities and the same programming proposed by the project. Like the project, this alternative would not physically divide an established community as all project activities would occur within the existing boundary of the project site and would not introduce features that would implement barriers or divide the established uses within the project site or the greater area of Hancock Park and the surrounding neighborhood. Like the project, this alternative would also result in significant and

unavoidable impacts related to inconsistencies with applicable policies pertaining to the alteration of designated historical resources (i.e., the La Brea Tar Pits Historic District and the Page Museum). While this alternative aims to preserve some of the identified character-defining historic features of the Page Museum and the La Brea Tar Pits Historic District, it would result in significant physical changes, partial demolition, and new construction affecting the two designated historical resources within the project site in such a way that they may no longer convey the reasons for their significance, depending upon the historical resources character-defining feature under consideration. Implementation of project mitigation measures aims to avoid, minimize, rectify, reduce, or compensate for the significance of the impacts to the degree feasible; however, they would not mitigate impacts below the level of significance. Therefore, like the project, this alternative would be inconsistent with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan related to the alteration and preservation of historical resources (County of Los Angeles 2015, City of Los Angeles 2001a, 2001b).

In addition, and like the project, this alternative would contribute incrementally toward cumulative impacts on historical resources and related land use policies protecting these resources (i.e., County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan) even with implementation of the project's mitigation measures aimed at reducing impacts to historical resources.

In comparison to the proposed La Brea Master Plan, this alternative would not avoid the project's significant and unavoidable impacts related to inconsistencies with applicable policies pertaining to the alteration of designated historical resources. Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to land use and planning would be *similar* in comparison to the project.

NOISE AND VIBRATION

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include similar types of construction activities and equipment as the project. This alternative could generate a substantial increase in ambient 2015 noise levels in the vicinity of the project, which could affect noise-sensitive land uses. The project's mitigation measures would be included to reduce construction-related noise for the duration of the construction phase of this alternative, like the project. Once operational, this alternative, like the project, would establish stationary on-site noise sources at the project site as well as contribute to off-site roadway traffic noise. This alternative would include new stationary noise sources similar to the project, including parking lot facility noise, mechanical equipment (i.e., dry coolers and emergency generators), loading and waste compacting activities, and activities associated with the use of outdoor spaces (e.g., outdoor café located on the center terrace on the west side of the Page Museum; Pit 91 outdoor classroom), and roadway traffic noise sources. Given that the project would result in similar museum-related uses, operational noise from this alternative would be similar to the project. Like the project, this alternative would not result in generating excessive ground-borne vibration or ground-borne noise levels. Given that the project site is not near a private airstrip or within the boundaries of an airport land use plan, this alternative would have similar impacts related to airport noise as the project. Like the project, this alternative would not contribute considerably to cumulative noise and/or vibration impacts.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to noise would be *similar* in comparison to the project.

RECREATION

Alternative 2, Maintain Central Atrium Pleistocene Garden, similar to the project, would not result in a new or permanent population (including employees and visitors) that would use the project site for

recreation or increase the use of nearby parks or recreational facilities; therefore, it would not result in an associated increase in the use of nearby existing parks and recreational facilities such that substantial physical deterioration of any one facility would occur or be accelerated. Since this alternative would result in the same improvements and enhancements to the existing passive recreational uses and outdoor spaces as the project, this alternative would result in similar physical effects on the environment during construction and would implement the project's mitigation measures to reduce construction impacts. As with the project, this alternative would continue to provide publicly accessible open space areas within the project site. Like the project, with implementation of the project's mitigation measures to address construction impacts associated with adverse physical effects on the environment, this alternative would not contribute to cumulative impacts related to recreation.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden related to recreation would be *similar* in comparison to the project.

TRANSPORTATION

Alternative 2, Maintain Central Atrium Pleistocene Garden, would result in an expanded footprint of the new museum building. Given the museum square footage was used, in part, to estimate the net increase in project-generated trips along with the average visitor trip length (see Section 5.13, Transportation), this alternative would likely result in an increase in estimated regional VMT above that estimated for the project. While the project's mitigation measure to reduce employee and visitor VMT and support multimodal connectivity would be included for this alternative, like the project, it may be insufficient to reduce VMT to less-than-significant levels. Thus, this alternative would not address the project's significant and unavoidable impact related to increased VMT, and the impacts of this alternative would be similar to the project for this issue.

Similar to the project, this alternative could result in an impact related to consistency with transportation plans, programs, ordinances, or policies as they relate to the LAMC ordinances for vehicle parking supply, bicycle parking supply, and TDM. This alternative would result in similar inconsistencies as the project related to the GHG reduction targets set forth in the SCAG 2020-2045 RTP/SCS. The project's mitigation measure to implement a TDM program would also be included in this alternative to reduce museum employee and visitor vehicle trips and increase the use of alternative modes of transportation such as walking, bicycling, public transit, and rideshare.

Similar to the project, this alternative would not include components that would substantially increase hazards due to a design feature. Lastly, this alternative would result in similar impacts related to inadequate emergency access during construction and operation and would include implementing the project's mitigation measures to reduce impacts. With respect to cumulative impacts, this alternative would result in increased VMT and would contribute to cumulative transportation impacts, like the project.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to transportation resources would be *similar* in comparison to the project. Impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to transportation, specifically the increase in regional VMT associated with the alternative, would remain significant and unavoidable and would occur to a similar degree as compared to the project.

TRIBAL CULTURAL RESOURCES

Alternative 2, Maintain Central Atrium Pleistocene Garden, would include grading, excavation, and other earthwork activities at a similar extent to that proposed by the project. As such, there would be similar

potential to disturb known or unknown cultural resources, including human remains, within the project site. This alternative would include implementing the same project mitigation measures to reduce this alternative's potential impacts to less-than-significant levels. In addition, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to tribal cultural resources.

Therefore, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to tribal cultural resources would be *similar* in comparison to the project.

UTILITIES AND SERVICE SYSTEMS

Alternative 2, Maintain Central Atrium Pleistocene Garden, would result in a similar project site design as the project, except for the expanded footprint of the new museum. This increase in square footage for the new museum is necessary to retain the Central Atrium and would represent similar usable square footage for the buildings as the project. As such, this alternative would result in similar demand for utilities and service systems as the project. Since project impacts related to utilities identified the potential to include construction of new or expanded sewer system facilities, and this alternative proposes similar building sizes and an overall similar site design as the project, it would implement the same project mitigation to address the potential need for constructing new or expanded sewer system facilities. Like the project, this alternative would conform to the demographic projections from SCAG's 2020-2045 RTP/SCS. Since the project site is currently located in the City's service area, it is considered to have been included in the LADWP's water supply planning efforts. Thus, the impacts of this alternative related to the water supply would be similar to the project. This alternative would result in similar generation of solid waste due to the similar building square footages associated with this alternative and, like the project, would be consistent with the applicable regulations associated with solid waste and would promote compliance with the Integrated Waste Management Act, Assembly Bill 939; Mandatory Commercial and Multi-Family Recycling, Assembly Bill 341; and California Integrated Waste Management Act of 1989, Assembly Bill 1826. In addition, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to utilities and service systems.

Overall, impacts of Alternative 2, Maintain Central Atrium Pleistocene Garden, related to utilities and service systems would be *similar* in comparison to the project.

6.4.4 Refined Alternative 3: Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include the renovation of the Page Museum within the existing building footprint, similar to the project, but would incorporate a series of design refinements to reduce impacts on certain primary character-defining features of the Page Museum, including retaining the courtyard (also referred to as the "atrium") as an exterior space and retaining the space frame that supports the frieze ~~refining the materiality and size of the expansion atrium pop-up to better compliment the frieze, preserving a larger portion of the existing berm on the west side of the Page Museum, and detailing the second-floor glass enclosure underneath the Page Museum frieze to be as transparent as possible.~~ This alternative would also include constructing a new museum building of approximately 40,000 square feet, similar to the project, but would adjust the building footprint further to the north and west of the project's proposed footprint (Figure 6-3). This adjustment would allow for more separation of the new museum from the existing Page Museum ~~by narrowing the transition area connection between the two buildings~~. Adjusting the footprint of the new museum to the north would also allow for approximately 4,000 square feet of open space to be added to the Central Green. In this alternative, the on-site surface parking would be reconfigured to complement the adjusted building footprint, extending west of the new museum building as with the

project, but this alternative would maintain the number of parking spaces that currently exist on-site and would not add additional parking spaces.

After completion of the Draft EIR, the County, acting through the Foundation, considered the EIR evaluation with respect to the Draft EIR comments made by the commenting entities and individuals. Many comments noted that the full build out of the Master Plan, as reflected in the Draft EIR, would result in historic resources losing their eligibility. Additionally, some comments opined that the footprint of the project was too large and expressed that alternatives should be considered which would result in fewer impacts to the Page Museum. As a result, the County conducted further feasibility studies of the original Alternative 3; the County determined that further exploration of Alternative 3 should occur to determine if additional improvements could be made to the alternative to address the comments received on the Draft EIR. As a result of this process, this section of the EIR expands the consideration of the original Alternative 3 with a refined version of the alternative. Additional figures showing Refined Alternative 3 are presented in Figures 6-4, 6-5, and 6-6. Refined Alternative 3 would not create additional or more intense environmental impacts than those previously disclosed when compared to the original Alternative 3 concept, as further detailed in each of the expanded environmental evaluations that follow. Below are some key variations in Refined Alternative 3 that are considered in this alternatives analysis:

- The central, open courtyard of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would no longer be covered and converted to indoor space; it would remain as an open courtyard. The landscaping and hardscaping features of the courtyard would be renovated to create a more usable public space and include climate-appropriate and native vegetation relevant to interpretive themes of the tar pits. This differs from the original Alternative 3, which replaced the open courtyard with research laboratory space.
- The structural space frame that supports the frieze (the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped, as had been proposed in the original Alternative 3. Instead, the existing space frame and open-air grid roof would remain intact as it is currently but would be repainted and repaired.
- The Page Museum and the new museum building would be connected only with a covered, open-air breezeway; the original Alternative 3 proposed a physical connection/joining of the two buildings. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway. The open-air breezeway that is proposed in the Refined Alternative 3 is a contrast to the previous concept of an enclosed entrance space joining the two buildings, which was proposed by the original Alterative 3. This change in the Refined Alternative 3 design means the connection between the two buildings would be scaled down, and demolition at the northwest corner of the Page Museum would be reduced, thereby retaining more of the original character-defining features and materials of the historical Page Museum resource.
- Removal of a portion of the berm would be focused at the northwest corner to accommodate a new entrance to the Page Museum, and modification of the west and north sides of the berm would still be necessary, albeit in a scaled down manner. The modifications would result in a new version of the berm that would allow for an Americans with Disabilities Act (ADA) ramp up to the terrace level on the west, and a change in elevation on the north allowing for access to the new entrance.
- As described above, the on-site surface parking would be reconfigured to complement the adjusted building footprint. The original Alternative 3 proposed two driveways along 6th Street and one driveway on South Curson Avenue for public vehicular access to the parking lot. However, it has been determined that it would be operationally preferred to eliminate the

driveway at the far western end of the parking lot on 6th Street. The result is that Alternative 3 would have one driveway on 6th Street and one driveway on South Curson Avenue. This modification has been further addressed in the Transportation analysis contained in Section 6.4.4.2, below.

- The programming for interior spaces of the Page Museum and the new museum building would be revised, resulting in changes to the location of the theater, classrooms, the retail store, the café, and other interior elements. The Page Museum would also feature less staff office space than originally proposed.
- The canopy above the existing main entrance to the Page, which was envisioned in the proposed project and the original Alternative 3, would not be included in Refined Alternative 3, and would be replaced with trees to shade the proposed stepped seating.
- The reduced footprint of Refined Alternative 3 would require less ground disturbance during construction and would result in less soil import and export. The features retained by Refined Alternative 3 would be maintained and repaired as needed.
- Like the project, Refined Alternative 3 would include renovations to address deferred maintenance of the building and systems and to meet modern seismic, electrical, building code standards, and universal design standards.

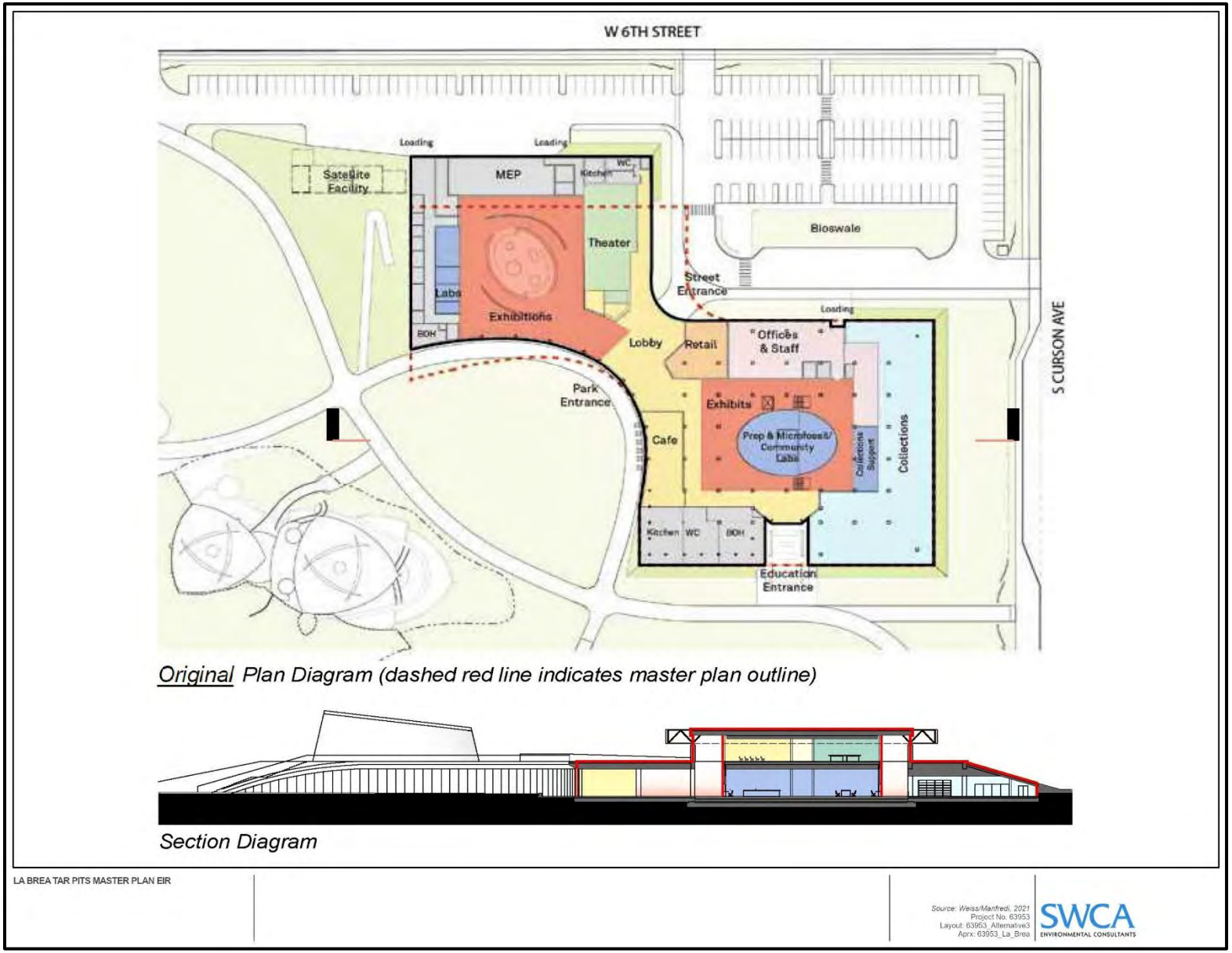

Figure 6-3. Original Alternative 3: Museum plan and section diagrams.

Figure 6-4. Refined Alternative 3: Hancock Park site plan.

LA BREA TAR PITS MASTER PLAN EIR

Note: This illustration is intended to be conceptual only. Modifications could occur through the project's design development process, which would occur after the Los Angeles County Board of Supervisors certifies the EIR and approves the concept plans.

Source: Weiss/Manfredi, 2023
Project No. 63953
Layout: 63953_Alt 3 Illustrative Aerial
Aprx: 63953_La_Brea

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Figure 6-5. Refined Alternative 3: Aerial illustration.

LA BREA TAR PITS MASTER PLAN EIR

Note: This illustration is intended to be conceptual only. Modifications could occur through the project's design development process, which would occur after the Los Angeles County Board of Supervisors certifies the EIR and approves the concept plans.

Source: Weiss/Manfredi, 2023
Project No. 63953
Layout: 63953_Alt 3 Atrium Lecture
Aprx: 63953_La_Brea

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Figure 6-6. Refined Alternative 3: Courtyard.

Aside from the modifications discussed above, Alternative 3 would be similar to the project, as outlined in Chapter 3, Project Description, and Table 6-1. Table 6-8 provides a summary of the project components of Alternative 3 that are different from the project.

Table 6-8. Overview of Alternative 3 Project Components Different from the Project

Project Component	Description
Page Museum Renovations	Renovate the existing building in the same footprint (approximately 63,200 square feet) while incorporating a series of design refinements to reduce impacts on certain primary character-defining features.
New Museum Building	Construct a new two-story 40,000-gsf museum building with a slightly adjusted footprint to the north and west while narrowing the transition area connection to the Page Museum.
Pedestrian Path and Recreation Areas	Expand the Central Green area by approximately 4,000 square feet due to the adjusted footprint of the new museum building.
Circulation and Parking	Reconfigure parking lot, extending it west of the new museum building footprint while maintaining the existing number of on-site parking spaces. This would require removing and, where possible, relocating existing trees on-site.

6.4.4.1 Relationship to Project Objectives

Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would meet all of the project objectives. Table 6-9 outlines this alternative's ability to attain the basic project objectives outlined above and in Chapter 3, Project Description.

Table 6-9. Attainment of Project Objectives—Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green

Project Objective	Does the Alternative Attain the Project Objective?
Renovate and expand the existing museum structure to address deferred maintenance of the building envelope and systems, to meet modern seismic, electrical, building code standards, and universal design standards, and to meet sustainability goals consistent with the County's sustainability plan (County of Los Angeles 2019).	**Yes.** This alternative would allow for renovating the Page Museum to address the deferred maintenance of the building envelope and systems to meet modern electrical and building code standards as well as seismic standards. This alternative would also include sustainability strategies designed to improve stormwater management, reduce heat island effect, provide more shade, and reduce light pollution to further the sustainability of the County's sustainability plan.
Provide expanded collections storage facilities that enable access for scientific research, and preserve, protect, and allow future growth of the museum's world-class collections.	**Yes.** This alternative would include constructing an additional 2,000 square-foot satellite maintenance and support building dedicated to ~~fossil~~ storage, maintenance, and service facilities along the northern boundary of the project site.
Provide expanded state-of-the-art laboratory research facilities to accommodate internationally significant and advanced research in paleontology.	**Yes.** This alternative would allow for renovating the Page Museum and constructing a new museum building, adding an additional 40,000 square feet of museum space to support expanded laboratory research facilities.
Provide state-of-the-art exhibition facilities and learning environments within the park and museum to enrich the visitor experience and to support active educational and public programming.	**Yes.** This alternative would include renovating the Page Museum and constructing a new museum building, adding an additional 40,000 square feet of museum space to provide space for additional exhibitions, facilities, or enhanced learning environments. In addition, this alternative would allow for renovating the existing facilities at all the tar pit locations throughout the project site to allow for improved interpretive signage and viewing areas to further enrich the visitor experience and to support active educational programming.

Project Objective	Does the Alternative Attain the Project Objective?
Improve access and entry for different visitor types, increase connections between the museum and the park, as well as support increased visitation, special events, and revenue-producing amenities within the park and museum.	**Yes.** This alternative would include enhanced entrances to the project site at the Wilshire and 6th Street Gateways and would also reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking all the existing elements of the park. A pedestrian walking path would be constructed across the project site with interpretive signage and explanations related to the former industrial heritage of the site. The project site is currently served by a complete network of sidewalks around the project site block and adjacent street network, with signalized intersections and crosswalks. This alternative would also establish a new school drop-off/loading area on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Expand the museum exhibits, educational classrooms, collection spaces, offices, and laboratory research facilities in one unified, cohesive facility, with the fewest impacts to historical resources possible.	**Yes.** This alternative would expand museum facilities through the construction of the new museum building. The renovated Page Museum and new museum building would be connected via a central lobby area and an integrated organization of exhibits and collections, helping to create connection and cohesion between the two museum spaces. The design refinements presented in this alternative would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District in such a way that decreases the overall severity of the significant and unavoidable historical resources impacts.
Create a central entrance to the museum facilities to enhance the visitor experience of the museum and Hancock Park.	**Yes.** This alternative would result in a renovated Page Museum and new museum building with a central entry point accessible from the project's parking lot as well as from the Central Green. The central entrance would lead to the museum lobby, which would provide a space for visitors to circulate and become familiar with organization of the museum's exhibits and collections both inside the museum spaces as well as the outdoor spaces within Hancock Park.
Preserve and protect the National Natural Landmark—La Brea Tar Pits—to allow access for future research and excavation, support cultural and educational interpretation, and enable the ongoing natural processes of the asphaltic seeps.	**Yes.** This alternative would allow for renovating and expanding the existing Page Museum and the remainder of the project site within Hancock Park in a way that would further the fundamental mission of La Brea Tar Pits as a site and facility dedicated to research, education, and exhibition. Under this alternative, the project site would continue to be recognized and protected as a National Natural Landmark. Furthermore, this alternative would result in the preservation of several character-defining features of the Page Museum and the La Brea Tar Pits Historic District. Specifically, the central courtyard of the Page Museum would remain as an open courtyard, the existing space frame of the frieze would not be altered or capped, the Page Museum and the new museum would only be connected by a covered open-air breezeway, and demolition of the northwest corner of the Page Museum would be reduced.
Redesign and renovate the Hancock Park community park green space as an expression of the goals of the County of Los Angeles's General Plan Conservation and Natural Resources Element and the City of Los Angeles's Open Space and Conservation Elements of the General Plan, to increase sustainable landscape and site design, to support passive recreational use, to increase the legibility of this important cultural destination, and to enhance connections to the quickly evolving Miracle Mile neighborhood.	**Yes.** This alternative, like the project, would redesign and renovate the Hancock Park community park green space to include a landscape design and planting scheme that would address the realities of Los Angeles's current and projected climate and aim to ease water consumption and ensure appropriate maintenance. This alternative would include a 4,000-square-foot expansion of, and improvements to, the existing multi-purpose grass lawn, the Central Green, which would provide a setting for community activities, passive recreational uses, events, and public gatherings. This alternative would also install a new welcome pavilion with a canopy and shade trees at Wilshire Gateway, and a shaded welcome area at the 6th Street Gateway to increase the legibility within the Miracle Mile neighborhood.

6.4.4.2 Comparison of Significant Effects of the Alternative to the Project

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar types of construction activities, duration, and equipment as the project. Upon project completion, this alternative would result in similar land uses and operational activities as proposed by the project.

Further, Refined Alternative 3 does not differ significantly from the original Alternative 3 that was described in the Draft EIR. None of the conditions for recirculation of the Draft EIR specified in State CEQA Guidelines 15088.5 have been met, and this new information merely amplifies and expands upon the broad intent of the original Alternative 3. The adjustments made in the Refined Alternative 3 do not constitute "significant" new information because no additional substantial environmental effect of the project has been identified, nor has the severity of an environmental impact changed.

AESTHETICS

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in changes to the building footprints, adjustments to the site design in the northeastern portion of the project site, and would slightly modify some of the visual characteristics of the museum buildings on the project site when compared to the project. Like the project, this alternative's changes in site design would be visible directly from adjacent off-site locations, including high-rise residential and commercial buildings. However, due to the topography of the project site and relative lack of buildings on the site compared with the surrounding dense urban development, view changes would typically occur at limited vantage points, as opposed to along extensive roadway segments or from entire large geographic areas. This alternative would adjust the footprint for the new museum building, shifting it further north allowing for more space and a narrower transition connection between the Page Museum and the new museum building. This refinement would reduce the visual competition between the two buildings and would preserve more of the existing berm along the western side of the Page Museum. While the new museum footprint would be adjusted, it would still be two stories in height, as proposed by the project. This alternative would also adjust the materiality of the new museum atrium feature to ensure that it complements the materiality of the Page Museum.

Like the project, this alternative would not have a substantial effect on a scenic vista or damage scenic resources within a State Scenic Highway, as no such resources have been identified near the project site and changes to the existing visual character of the project site would integrate with the surrounding urban development along Wilshire Boulevard and the park setting of Hancock Park. Like the project, implementation of this alternative would change the overall project site design and result in modifications to the visual characteristics of the project site, but not in such a way that it would adversely alter or degrade the existing visual character or scenic quality of the project site and would be consistent with the applicable policies that govern scenic quality in both County and City plans. This alternative would create new sources of light and glare, similar to the project, and would include the same mitigation measures as the project to address potential issues related to this issue. In addition, with implementation of the project's mitigation measures to address light and glare, this alternative would not contribute to cumulative impacts related to aesthetics.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to aesthetics would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the aesthetics analysis. Refined Alternative 3 merely includes further detail and

refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would result in less structural changes to the existing buildings, which would naturally result in less changes to the aesthetic character of the site. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect impacts to aesthetics.

AIR QUALITY

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar types of construction activities, duration, and equipment as the project. Upon project operation, this alternative would result in similar land uses as proposed by the project. Like the project, this alternative would be subject to consistency with the air quality standards and the land use assumptions identified in the SCAQMD's AQMP and SCAG's regional plans and policies. As identified for the project, this alternative would also implement mitigation to reduce construction-related air pollutant emissions. Operational emissions may vary slightly when compared to the project given the expanded footprint of the museum building; however, as shown in Section 5.2, Air Quality, the project is significantly below the established SCAQMD's significance thresholds, and this alternative would not result in a considerable change from the anticipated uses within the project's site plan that would increase daily operations in such a manner to exceed the maximum daily operational emissions set forth by SCAQMD's significance thresholds. In addition, this alternative would implement the project's mitigation measure which incorporates a number of key control measures identified by the SCAQMD to ensure this alternative would not conflict with an applicable air quality plan, generate short- or long-term criteria pollutant emissions in exceedance of SCAQMD significance thresholds, expose sensitive receptors to substantial concentrations of pollutant emissions, or result in adverse odors or other emissions. In addition, with implementation of the project's mitigation measure to reduce construction-related air pollutant emissions, this alternative would not contribute to cumulative impacts related to air quality.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to air quality would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the air quality analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would replace the connection point between the Page Museum and the new museum with an open-air breezeway, which would reduce the amount of demolition necessary at the northwest corner of the Page Museum. Naturally, emissions associated with construction may be reduced by this change. This would be offset any increased emissions resulting from the reconfiguration of the parking lot. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect impacts to air quality.

BIOLOGICAL RESOURCES

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would allow for modifications to the project's site plan, resulting in similar types of construction activities, duration, and equipment as the project. The overall area of ground disturbance during the construction of this alternative would be similar to that of the project. Future operational conditions under this alternative would result in similar land uses as proposed by the project; however, this alternative

would result in the gain of 4,000 square feet of open space area to be added to the Central Green over what is proposed by the project.

This alternative, like the project, could result in adverse effects during the construction process on one species, the federal candidate monarch butterfly, either directly or through habitat modifications. In addition, this alternative could result in impacts to regulated aquatic resources habitat associated with Oil Creek and could also result in removing or relocating the oak trees on-site, thereby conflicting with the County of Los Angeles Oak Tree Ordinance. Like the project, this alternative would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Given the similar nature of ground disturbance, construction activities, and future operational conditions, this alternative would implement the same mitigation measures to address potential impacts as the project. In addition, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to biological resources.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to biological resources would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the biological resources analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would reduce the number of trees to be removed or relocated from between 150 and 200 trees, down to between 130 and 160 trees. The refinements would also result in the addition of between 320 and 360 new trees. Impacts to the local habitats supported by the site would remain the same. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect impacts to biological resources.

CULTURAL RESOURCES – ARCHAEOLOGICAL RESOURCES

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include grading, excavation, and other earthwork activities similar to the extent proposed by the project throughout most of the project site. As such, there would be similar potential to disturb known or unknown archaeological resources, including human remains, within the project site. This alternative would implement the same project mitigation measures to reduce this alternative's potential impacts to less-than-significant levels. In addition, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to archaeological resources.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to archaeological resources would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the archaeological resources analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would result in the same level of ground disturbance and would not result in any additional earthwork activities. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect the impacts to archeological resources.

CULTURAL RESOURCES – HISTORICAL RESOURCES

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would refine and decrease some of the changes to character-defining features to both the Page Museum and La Brea Tar Pits Historic District. ~~Adjusting the building footprint to the north and west of the project's proposed footprint would allow for a greater separation of the new museum from the existing Page Museum, which would contribute to retaining the visual primacy of the Page Museum in the context of the La Brea Tar Pits Historic District.~~

~~Further, by narrowing the transition area connection between the two buildings, less of the character-defining berm would be removed from the Page Museum site, which would contribute in a small degree to lessening the impact to both the Page Museum and the La Brea Tar Pits Historic District.~~

~~In addition, design refinements to the materiality and size of the expansion atrium pop-up, aimed at better complementing the frieze, and detailing the second-floor glass enclosure underneath the Page Museum frieze to be as transparent as possible, would reduce impacts on certain primary character-defining features of the Page Museum.~~

These design refinements would contribute to retaining the visual primacy of the Page Museum in the context of the La Brea Tar Pits Historic District. There would be a greater separation of the new museum building from the existing Page Museum, in part because the new museum building's footprint would be adjusted to the north and west, and in part because the connection point for the Page Museum and the new museum building would be decreased to a breezeway rather than the broad, sweeping enclosed hyphen that would physically connect the two buildings into a single and cohesive envelope.

Further, by decreasing the connection point between the two buildings to a breezeway, less of the character-defining berm, which currently goes around the full extent of the Page Museum, would be removed. Removal of a portion of the berm would be focused at the northwest corner to accommodate a new entrance to the Page Museum from the breezeway. The west and north sides of the berm would be modified adjacent to the new, scaled back northwest corner entrance, which would result in a slightly altered new version of a berm. This would allow for the addition of an ADA ramp up to the terrace level on the west side of the Page Museum, and a change in elevation on the north side to allow for access to the new entrance while also retaining most of the berm in its existing condition. These design refinements would contribute, in a small degree, to lessening the impact to both the Page Museum and the La Brea Tar Pits Historic District.

After completion of the Draft EIR, the Foundation considered the EIR evaluation and the comments made by the commenting entities during the Draft EIR public review period. As a result, this section of the EIR expands the consideration of Alternative 3. A refined version of Alternative 3 is presented earlier in this chapter in Figures 6-4, 6-5, and 6-6. The refined version of Alternative 3 does not create additional historical impacts when compared to the original Alternative 3 concept. In fact, the refined version of Alternative 3 further reduces impacts to character-defining features of the Page Museum and the La Brea Tar Pits Historic District. Specifically:

- The central, open courtyard of the Page Museum, which contributes to the indoor-outdoor integration of the museum and is a primary character-defining feature, would no longer be covered and converted to indoor space; it would remain as an open courtyard. The landscaping and hardscaping features of the courtyard would be renovated to create a more usable public space and include climate-appropriate and native vegetation relevant to interpretive themes of the tar pits. This differs from the original Alternative 3, which replaced the open courtyard with research laboratory space.

- The structural space frame that supports the frieze (the open-air, steel-grid roof that enhances the indoor-outdoor integration of the Page Museum and is a primary character-defining feature) would not be altered or capped, as had been proposed in the original Alternative 3. Instead, the existing space frame and open-air grid roof would remain intact as it is currently but would be repainted and repaired.
- The Page Museum and the new museum building would be connected only with a covered, open-air breezeway; the original Alternative 3 proposed a physical connection/joining of the two buildings. An entrance would be incorporated into the northwestern corner of the Page Museum to provide access to the breezeway. The open-air breezeway that is proposed in the Refined Alternative 3 is a contrast to the previous concept of an enclosed entrance space joining the two buildings, which was proposed by the original Alterative 3. This change in the Refined Alternative 3 design means the connection between the two buildings would be scaled down, and demolition at the northwest corner of the Page Museum would be reduced, thereby retaining more of the original character-defining features and materials of the historical Page Museum resource.
- Removal of a portion of the berm would be focused at the northwest corner to accommodate a new entrance to the Page Museum, and modification of the west and north sides of the berm would still be necessary, albeit in a scaled down manner. The modifications would result in a new version of the berm that would allow for an Americans with Disabilities Act (ADA) ramp up to the terrace level on the west, and a change in elevation on the north allowing for access to the new entrance.
- The canopy above the existing main entrance to the Page, which was envisioned in the proposed project and the original Alternative 3, would not be included in Refined Alternative 3, and would be replaced with trees to shade the proposed stepped seating.

~~With these changes, the design refinements presented in Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District. However, the character-defining berm around the Page Museum would still largely be removed and the new museum annexed to it. Considered in combination, the removal of the character-defining berm around the Page Museum, along with the other site plan changes, would continue to result in a significant and unavoidable impact to historical resources. However, the overall severity of the significant and unavoidable historical resources impacts would be reduced because of the narrowing the transition area connection between the two buildings and the design refinements to the materiality and size of the expansion atrium pop-up, aimed at better complimenting the frieze. With respect to cumulative impacts, this alternative would contribute to cumulative impacts related to historical resources, like the project, although cumulative impacts would be decreased in overall severity.~~

The design refinements presented in Refined Alternative 3 would lessen impacts to character-defining features of the Page Museum. One of the primary character-defining features of the Page Museum is its visual primacy on the grounds of the Tar Pits; the design refinements presented in the refined version of Alternative 3 would result in less of an impact to the Page Museum's visual primacy. The Page Museum would be connected to the new museum building only by a covered open-air breezeway. Demolition would be reduced at the northwest corner of the Page Museum where a new entrance would be created. In addition, the building's central open courtyard would remain an open courtyard and the structural space frame that supports the frieze would remain intact as it is currently but would be repainted and repaired on an as-needed basis. Most of the character-defining berm around the Page Museum would remain but would be modified. Removal of a portion of the berm would be focused at the northwest corner where the new entrance to the Page Museum would be created. Modification of the west and north sides of the berm would result in a new version of the berm that would allow for the ADA ramp up to the terrace level on the west and a change in elevation on the north allowing for access to the new entrance. Refined

Alternative 3 would reduce impacts to the Page Museum to the extent that the building would continue to convey its historic significance and retain its eligibility as a historical resource.

Considered in combination, the removal of the character-defining berm at the northwest corner, the new Page Museum entrance at the northwest corner, modification of the western and northern portions of the berm, construction of the new museum building, and other site plan changes would continue to result in a significant and unavoidable impact to the La Brea Tar Pits historic district. However, the overall severity of the significant and unavoidable impacts to the historic district would be reduced because of the increased separation of the new museum building from the Page Museum, and the design refinements that retain more of the Page Museum's character-defining features such as the existing structural space frame, frieze, and courtyard.

When the changes in effect to the various character-defining features of the two historical resources are considered in combination, impacts of Refined Alternative 3 related to historical resources would be *decreased* in comparison to the project. ~~Although impacts would be decreased in overall severity, Alternative 2, Maintain Central Atrium Pleistocene Garden, would continue to result in significant and unavoidable impacts to the historic resources of the Page Museum and the La Brea Tar Pits Historic District.~~

GEOLOGY AND SOILS

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include grading, excavation, and other earthwork activities similar to the extent proposed by the project throughout most of the project site. Like the project, this alternative would be subject to all applicable regulations, including the applicable provisions in the Alquist-Priolo Earthquake Fault Zoning Act, Seismic Safety Act, Seismic Hazards Mapping Act, the California Building Code, and the 2020 County of Los Angeles Building Code. As with the project, this alternative would include construction activities on soils with existing artificial fill that may not be suitable to support foundations, slabs on grade, paving, or new compacted fills and could cause geologic instability at the project site related to subsidence (i.e., compressible and collapsible soils) and expansive soils. This alternative would implement the same project mitigation measures to reduce potential impacts related to subsidence, as well as compressible, collapsible, and expansive soils, to less-than-significant levels. In addition, this alternative would not contribute to cumulative geotechnical or soils-related hazards.

Similar to the project, all ground-disturbing activities associated with the construction of this alternative have the potential to impact subsurface paleontological resources given the high paleontological sensitivity of the project site. Paleontological resources may be impacted by the construction or implementation of this alternative regardless of the depth of grading and/or excavation activities. Any fossils encountered during ground-disturbing activities could be at risk for damage or destruction from such activities depending on the nature of the fossil encountered. This alternative would require implementing the same project mitigation measures to reduce potential impacts on paleontological resources to less-than-significant levels. With implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to paleontological resources.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to geology and soils would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the geology and soils analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would result in the same level of

ground disturbance and would not result in any additional earthwork activities. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect the impacts to geology and soils.

GREENHOUSE GAS EMISSIONS

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar types of construction activities, duration, and equipment as the project. Upon project operation, this alternative would result in similar land uses as proposed by the project. Given that this alternative would result in similar construction and operational conditions as the project, this alternative would generate similar GHG emissions. This alternative would also incorporate the project's mitigation measure related to eliminating natural gas infrastructure and increasing electric vehicle charging stations. Like the project, this alternative would not generate GHG emissions above established SCAQMD thresholds.

Given that the operation of the facilities at the project site would be similar to the project under this alternative, it would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions. Like the project, this alternative would include components that would further the GHG reduction targets set forth in the applicable plans, policies, regulations, or recommendations of an agency adopted to reduce GHG emissions (see Section 5.7, Greenhouse Gas Emissions). Specifically, this alternative would include components that would further the GHG reduction targets set forth in the SCAG 2020-2045 RTP/SCS related to mobility and GHG reductions. The project's mitigation measure involving the development of a TDM program for employee and visitor vehicle trips to increase alternative modes of transportation, such as walking, bicycling, public transit, and rideshare, would further consistency with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions. In addition, within implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to GHG emissions.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to GHG emissions would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the greenhouse gas analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would replace the connection point between the Page Museum and the new museum with an open-air breezeway, which would reduce the amount of demolition necessary at the northwest corner of the Page Museum. Naturally, emissions associated with construction may be reduced by this change. This would offset any increased emissions resulting from the reconfiguration of the parking lot. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect impacts to greenhouse gas emissions.

HAZARDS AND HAZARDOUS MATERIALS

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include grading, excavation, and other earthwork activities similar to the extent proposed by the project throughout most of the project site. When compared to the project, this alternative has similar potential for construction-related activities to uncover subsurface hazards (i.e., subsurface

methane gas produced from naturally occurring petroleum fields) or create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials.

Under this alternative, like the project, the project site would continue to be subject to the naturally occurring tar seeps, and current strategies for managing this issue would remain in place (see Section 5.8.1.4, Hazards and Hazardous Materials, Tar Seeps). In addition, the existing high concentration of subsurface methane gas at the project site would require ongoing control measures to ensure a properly designed methane mitigation system would provide a barrier for hazardous vapors. Due to the high potential for elevated concentrations of methane gas at the project site, operational impacts of this alternative related to the release of hazardous materials into the environment would be similar to the project and would include the project's operational mitigation measure to address this impact. Like the project, this alternative could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school and would include the project's mitigation measures to address construction and operational impacts associated with this issue. This alternative would not create a significant hazard to the public or the environment on a site which is included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. Further, and consistent with the project, this alternative would not be developed within 2 miles of a public airport or public-use airport and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Additionally, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to hazardous materials.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to hazards and hazardous materials would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the hazards and hazardous materials analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would result in the same level of ground disturbance and would not result in any additional earthwork activities. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect the impacts to hazards and hazardous materials.

HYDROLOGY AND WATER QUALITY

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include grading, excavation, and other earthwork activities similar to the extent proposed by the project throughout most of the project site. While this alternative would adjust the building footprint for the new museum, it would be the same size as proposed by the project (40,000 square feet). The shifting of the building north would allow for approximately 4,000 square feet of open space area to be added to the Central Green. Overall, the area of pervious surfaces in this alternative would be slightly increased when compared to the project due to this gain of open space area. This increase in pervious surfaces is negligible and would not result in substantial changes or improvements to drainage patterns or runoff rates when compared to the project.

Like the project, this alternative would result in earthwork activities that would require soil to be excavated and transported off-site and similar dewatering practices as the project would occur under this alternative due to the presence of naturally occurring tar (petroleum) in the subsurface soils. Like the project, compliance with the requirements of the LARWQCB (CWA NPDES Program and Porter-

Cologne Act waste discharge requirements), Construction General Permit, and County stormwater regulations would be sufficient to address the potential for the buildout of the project to violate water quality standards or waste discharge requirements during construction activities. This alternative would implement the three LID BMPs in accordance with the Los Angeles County LID Standards Manual (Los Angeles County Department of Public Works 2014), as outlined in Section 5.9, Hydrology and Water Quality.

This alternative would implement the project's proposed LID BMPs, including the project's three proposed biofiltration areas, and the project's related mitigation measure for non-structural BMPs to further reduce the volume of runoff or improve the quality of runoff from the project site and maximize the percolation of rainfall into the groundwater basin and proposed permeable landscape areas. Similar to the project buildout, this alternative would not adversely affect local groundwater levels or deplete groundwater supplies. While the modifications to the northeastern corner of the project site would occur under this alternative, it would result in a similar overall area of impervious surfaces when compared to the project and, like the project, would be designed to capture, filter, and reduce the volume of any additional runoff from the project's proposed impervious surfaces in a way that mimics, as well as improves, existing drainage patterns. The project site is not in a flood hazard zone or tsunami zone and the risk of a seiche is low. Therefore, there would be no risk of releasing pollutants due to project inundation by these hazards, similar to the project. Lastly, given that this alternative would be subject to compliance with existing applicable regulatory requirements and would implement the project's LID BMPs, this alternative would not conflict with or obstruct the implementation of a water quality control plan or a sustainable groundwater management plan. Additionally, with implementation of the project's LID BMPs and mitigation measure, this alternative would not contribute to cumulative impacts related to hydrology and water quality.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to hydrology and water quality would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the hydrology and water quality analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would result in a similar level of ground disturbance and would not result in any additional earthwork activities. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect the impacts to hydrology and water quality.

LAND USE AND PLANNING

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include renovations to the Page Museum aimed at preserving some of the identified character-defining features while also providing the expanded new museum facilities and the same programming proposed by the project. Like the project, this alternative would not physically divide an established community as all project activities would occur within the existing boundary of the project site and would not introduce features that would implement barriers or divide the established uses within the project site or the greater area of Hancock Park and the surrounding neighborhood. Like the project, this alternative would also result in the project's significant and unavoidable impacts related to inconsistencies with applicable policies pertaining to the alteration of designated historical resources (i.e., the La Brea Tar Pits Historic District ~~and the Page Museum~~). However, this alternative includes design refinements that would lessen certain impacts to character-defining features to both the Page Museum and

the La Brea Tar Pits Historic District. These refinements would reduce the overall severity of the project's impacts to historical resources, serving to further support applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan (County of Los Angeles 2015, City of Los Angeles 2001a, 2001b). However, because impacts to historical resources would continue to be significant and unavoidable, a full consistency determination with these applicable land use policies may not be achieved in this alternative. In addition, and like the project, this alternative would also contribute incrementally toward cumulative impacts on historical resources and related land use policies protecting these resources (i.e., County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan).

Therefore, Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to land use and planning would be *decreased* in comparison to the project; however, this alternative would not fully avoid the project's significant and unavoidable impacts related to inconsistencies with applicable land use plans and policies as they pertain to the alteration and preservation of designated historical resources.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the land use and planning analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum, which is a historical resource. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect impacts to land use and planning.

NOISE AND VIBRATION

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include similar types of construction activities and equipment as the project. This alternative could generate a substantial increase in ambient noise levels near the project, which could affect noise-sensitive land uses. The project's mitigation measures would be included to reduce construction-related noise for the duration of the construction phase of this alternative, like the project. Once operational, this alternative, like the project, would establish stationary on-site noise sources at the project site as well as contribute to off-site roadway traffic noise. This alternative would include new stationary noise sources similar to the project, including parking lot facility noise, mechanical equipment (i.e., dry coolers and emergency generators), loading and waste compacting activities, and activities associated with the use of outdoor spaces (e.g., outdoor café located on the center terrace on the west side of the Page Museum Page Museum; Pit 91 outdoor classroom), and roadway traffic noise sources. Given that the project would result in similar museum-related uses, operational noise from this alternative would be similar to the project. Like the project, this alternative would not result in generating excessive ground-borne vibration or ground-borne noise levels. Given that the project site is not near a private airstrip or within the boundaries of an airport land use plan, this alternative would have similar impacts related to airport noise as the project. Like the project, this alternative would not contribute considerably to cumulative noise and/or vibration impacts.

Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to noise would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the noise and vibration analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. Further, the refinements would not interfere with

implementation of the proposed mitigation measures, and the refinements would not affect impacts to noise and vibration.

RECREATION

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in an increase of approximately 4,000 square feet of open space area added to the Central Green. Similar to the project, this alternative would not result in a new or permanent population (including employees and visitors) that would use the site for recreation or increase the use of nearby parks or recreational facilities; therefore, it would not result in an associated increase in the use of nearby existing parks and recreational facilities such that substantial physical deterioration of any one facility would occur or be accelerated. Since this alternative would result in the same improvements and enhancements to the existing passive recreational uses and outdoor spaces as the project, this alternative would result in similar physical effects on the environment during construction and would implement the project's mitigation measures to reduce construction impacts. As with the project, this alternative would continue to provide publicly accessible open space areas within the project site. Like the project, with implementation of the project's mitigation measures to address construction impacts associated with adverse physical effects on the environment, this alternative would not contribute to cumulative impacts related to recreation.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to recreation would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the recreation analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. Further, the refinements would not interfere with implementation of the proposed mitigation measures, and the refinements would not affect impacts to recreation.

TRANSPORTATION

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in an adjusted footprint of the new museum building with the same square footage as proposed by the project. Given the museum square footage was used, in part, to estimate the net increase in project-generated trips along with the average visitor trip length (see Section 5.13, Transportation), this alternative would likely result in similar estimated regional VMT as that estimated for the project. While the project's mitigation measure to reduce employee and visitor VMT and support multimodal connectivity would be included for this alternative, like the project, it may be insufficient to reduce VMT to less-than-significant levels. Thus, this alternative would not address the project's significant and unavoidable impact related to increased VMT, and the impacts of this alternative would be similar to the project for this issue.

Similar to the project, this alternative could result in an impact related to consistency with transportation plans, programs, ordinances, or policies as they relate to LAMC ordinances for vehicle parking supply, bicycle parking supply, and TDM. This alternative would result in similar inconsistencies as the project related to the GHG reduction targets set forth in the SCAG 2020-2045 RTP/SCS. The project's mitigation measure to implement a TDM program would also be included in this alternative to reduce museum employee and visitor vehicle trips and increase the use of alternative modes of transportation, such as walking, bicycling, public transit, and rideshare.

Similar to the project, this alternative includes a new driveway on 6th Street that would provide access to the parking lot and follows guidance for placement along an Avenue II frontage. The refinements to Alternative 3 removed a second new driveway on 6th Street and reduce the impact to curb parking and number of conflict points with pedestrians and bicyclists along 6th Street. The removal of the second driveway does not result in additional impacts to transportation or emergency access for the site.

Similar to the project, this alternative would not include components that would substantially increase hazards due to a design feature. Lastly, this alternative would result in similar impacts related to inadequate emergency access during construction and operation and would include implementing the project's mitigation measures to reduce impacts. With respect to cumulative impacts, this alternative would result in increased VMT and would contribute to cumulative transportation impacts, like the project. Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to transportation resources would be *similar* in comparison to the project. Impacts of Alternative 3 related to transportation, specifically the increase in regional VMT associated with the alternative, would remain significant and unavoidable and would occur to a similar degree as compared to the proposed project. The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the transportation analysis.

TRIBAL CULTURAL RESOURCES

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would include grading, excavation, and other earthwork activities similar to the extent proposed by the project. As such, there would be similar potential to disturb known or unknown cultural resources, including human remains, within the project site. This alternative would include implementation of the same project mitigation measures to reduce this alternative's potential impacts to less-than-significant levels. In addition, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to tribal cultural resources.

Therefore, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to tribal cultural resources would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the tribal cultural resources analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. The refinements would result in a similar level of ground disturbance and would not result in any additional earthwork activities. Further, the refinements would not interfere with implementation of the proposed mitigation measures. By further preserving the existing character-defining features of the Page Museum, the refinements would not affect the impacts to tribal cultural resources.

UTILITIES AND SERVICE SYSTEMS

Refined Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in a similar project site design as the project, except for the adjusted footprint for the new museum building. While the footprint would be adjusted in this alternative, it would be the same size as the building proposed by the project. As such, this alternative would result in similar demand for utilities and service systems as the project. Since project impacts related to utilities identified the potential to include construction of new or expanded sewer system facilities, and this alternative proposes similar building sizes and an overall similar site design as the project, it would implement the same project mitigation to address the potential need for constructing new or expanded sewer system facilities. Like the project, this alternative would conform to the demographic projections from SCAG's 2020-2045

RTP/SCS. Since the project site is currently located in the City's service area, it is considered to have been included in the LADWP's water supply planning efforts. Thus, the impacts of this alternative related to the water supply would be similar to the project. This alternative would result in similar generation of solid waste due to the similar building square footages associated with this alternative and, like the project, would be consistent with the applicable regulations associated with solid waste and would promote compliance with the Integrated Waste Management Act, Assembly Bill 939; Mandatory Commercial and Multi-Family Recycling, Assembly Bill 341; and California Integrated Waste Management Act of 1989, Assembly Bill 1826. In addition, with implementation of the project's mitigation measures, this alternative would not contribute to cumulative impacts related to utilities and service systems. Overall, impacts of Alternative 3, Adjusted Footprint to Reduce Contact with Page Museum and Expand Central Green, related to utilities and service systems would be *similar* in comparison to the project.

The refinements to Alternative 3 that occurred after the Draft EIR public review period do not change the conclusions of the utilities and service systems analysis. Refined Alternative 3 merely includes further detail and refinements to the design to better incorporate the theme of the alternative, which is to reduce the impacts to the character-defining features of the Page Museum. Further, the refinements would not interfere with implementation of the proposed mitigation measures, and the refinements would not affect impacts to utilities and service systems.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The State CEQA Guidelines require an analysis of alternatives to identify an Environmentally Superior Alternative among the alternatives evaluated in the EIR. The Environmentally Superior Alternative is the alternative that would minimize adverse impacts on the environment. Based on the evaluation of the alternatives in this chapter and the comparison of impacts, as summarized in Table 6-10, both the No Project/No Build Alternative and Alternative 1, Renovate the Page Museum Only, would minimize the project's adverse impacts on the environment in the same manner. As directed by the State CEQA Guidelines Section 15126.6(e)(2):

- "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives."

Therefore, Alternative 1, Renovate the Page Museum Only, would be the Environmentally Superior Alternative because it would be the built alternative that minimizes the project's adverse impacts on the environment. In addition, Alternative 1 would meet one of the project objectives and partially achieve two of the project objectives. However, it would not achieve most of the nine identified project objectives.

Table 6-10. Comparison of Impacts Among Alternatives

Issue Area	No Project/ No Build Alternative	Alternative 1: Renovate Page Museum Only	Alternative 2: Maintain Central Atrium Pleistocene Garden	Refined Alternative 3: Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green
Aesthetics	Decreased	Decreased	Similar	Similar
Air Quality	Decreased	Decreased	Similar	Similar
Biological Resources	Decreased	Decreased	Similar	Similar
Cultural Resources – Archaeological Resources	Decreased	Decreased	Similar	Similar

Issue Area	No Project/ No Build Alternative	Alternative 1: Renovate Page Museum Only	Alternative 2: Maintain Central Atrium Pleistocene Garden	Refined Alternative 3: Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green
Cultural Resources – Historical Resources	Decreased; would avoid the project's significant and unavoidable impact	Decreased; would avoid the project's significant and unavoidable impact	Similar; impacts would continue to be significant and unavoidable*	Decreased; impacts would continue to be significant and unavoidable†
Geology and Soils	Decreased	Decreased	Similar	Similar
Greenhouse Gas Emissions	Similar	Similar	Similar	Similar
Hazards and Hazardous Materials	Decreased	Similar	Similar	Similar
Hydrology and Water Quality	~~Decreased~~ Similar	Similar	Similar	Similar
Land Use and Planning	Decreased; would avoid the project's significant and unavoidable impact	Decreased; would avoid the project's significant and unavoidable impact	Similar; impacts would continue to be significant and unavoidable	Decreased; impacts would continue to be significant and unavoidable.
Noise and Vibration	Decreased	Decreased	Similar	Similar
Recreation	Similar	Similar	Similar	Similar
Transportation	Decreased; would avoid the project's significant and unavoidable impact	Decreased; would avoid the project's significant and unavoidable impact	Similar; impacts would continue to be significant and unavoidable	Similar; impacts would continue to be significant and unavoidable
Tribal Cultural Resources	Decreased	Decreased	Similar	Similar
Utilities and Service Systems	Decreased	Decreased	Similar	Similar
Meets Project Objectives?	Partially	Partially	Partially	Yes

* The benefits of avoiding the impacts to the Page Museum's character-defining features do not outweigh the additional impacts to the character-defining features of the La Brea Tar Pits Historic District and would not avoid the project's significant and unavoidable impacts related to alterations of historical resources.

† Impacts to certain character-defining features are lessened to both the Page Museum and the La Brea Tar Pits Historic District, thereby reducing the overall severity of the impacts to historical resources; however, it would not avoid the project's significant and unavoidable impacts.

Alternative 1 would avoid the project's significant and unavoidable impact to historical resources as it would result in renovations to the interior of the Page Museum only, while retaining the character-defining features of both the Page Museum and the La Brea Tar Pits Historic District that qualify them as historical resources. Because Alternative 1 would avoid impacts to historical resources, it would also avoid the project's inconsistencies with applicable land use plans and policies. In addition, Alternative 1 would also avoid the project's significant and unavoidable impact related to transportation as it would not result in the project's substantial increase in regional VMT. Alternative 1 would also result in decreased impacts to a majority of the other environmental issues areas listed in Table 6-10 as no grading or other earthwork activities would be necessary, and no other structures would be constructed as a result of this alternative. Further, upon completing this alternative, there would be no changes to the existing land use types or operational characteristics of the project site. As described in Table 6-5, Alternative 1 would meet one of the project objectives related to preserving and protecting the National Natural Landmark—La Brea Tar Pits. Alternative 1 would partially meet two other project objectives related to addressing the deferred maintenance and meeting modern building code standards of Page Museum as well as partially meeting the project objective related to providing state-of-the-art exhibition facilities and learning environments within the museum. While it would not meet most of the project objectives, Alternative 1 is the alternative scenario that reduces the most environmental impacts when compared to the project.

For comparison, Alternative 2, Maintain Central Atrium Pleistocene Garden, would preserve most of the character-defining features of the Page Museum, but it would result in the loss of a greater amount of

open space in the La Brea Tar Pits Historic District due to the increased footprint of the project. As such, the benefits of avoiding the impacts to the Page Museum's character-defining features do not outweigh the additional impacts to character-defining features to the La Brea Tar Pits Historic District and this alternative would not avoid the project's significant and unavoidable impacts related to alterations of historical resources. Since Alternative 2 would not avoid the project's significant and unavoidable impacts to historical resources, it would also result in the project's inconsistencies with applicable land use plans and policies. In addition, Alternative 2 would not avoid the project's substantial increase in regional VMT and would still result in significant and unavoidable impacts related to this issue. Alternative 2 would also result in similar impacts as the project to the other environmental issues areas listed in Table 6-10 as this alternative would result in similar types of construction activities and operational uses as proposed by the project. As described in Table 6-7, Alternative 2 would meet seven project objectives and partially meet the remaining two objectives due to the loss of open space as a result of the expanded museum footprint.

Refined Alternative 3, Adjust Footprint to Reduce Contact with Page Museum and Expand Central Green, would result in similar environmental impacts as the project for each issue area analyzed in this EIR, as shown in Table 6-10, with the exception of historical resources and land use and planning. ~~While~~ Refined Alternative 3 would lessen certain impacts to character-defining features to both the Page Museum and the La Brea Tar Pits Historic District thereby reducing the overall severity of the impacts to historical resources; however, it would not avoid the project's significant and unavoidable impacts. One of the primary character-defining features of the Page Museum is its visual primacy on the grounds of the Tar Pits; the design refinements presented in the refined version of Alternative 3 would result in less of an impact to the Page Museum's visual primacy. Refined Alternative 3 would reduce impacts to the Page Museum to the extent that the building would continue to convey its historic significance and retain its eligibility as a historical resource. However, the site plan changes would continue to result in a significant and unavoidable impact to the La Brea Tar Pits Historic District. The overall severity of the significant and unavoidable impacts to the historic district would be reduced because of the separation of the new museum building from the Page Museum, the narrowing of the transition area connection between the two buildings, and the design refinements that retain more of the Page Museum's character-defining features such as the existing structural space frame, frieze, and courtyard.

Similarly, the design refinements in this alternative would help to further support the land uses plans and policies applicable to the project as they relate to the protection and alternation of historical resources, but not in such a way to avoid the project's related significant and unavoidable impacts. This alternative would also result in the project's significant and unavoidable impacts related to increased regional VMT. However, Refined Alternative 3 is the alternative that meets all project objectives by providing an adjusted museum footprint and incorporating a series of design refinements that would support the basic objectives of the project.

Based strictly on an analysis of the relative environmental impacts, Alternative 1, Renovate the Page Museum Only, is considered the Environmentally Superior Alternative. The Foundation and the Museum of Natural History, as a departmental unit of the County, will consider the whole of the record when considering the project including, but not limited to, public comment and testimony ~~related to the size and design of the residence~~. The Foundation and the Museum of Natural History may select the project as proposed, an alternative, or a specified combination of particular elements identified in the alternatives, as the approved project. In all scenarios, the Mitigation Monitoring and Reporting Program (MMRP) would be applied to the approved project.

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CHAPTER 7. OTHER CEQA CONSIDERATIONS

This chapter discusses other potential environmental effects for which CEQA requires analysis, in addition to the specific issue areas evaluated in Chapter 5, Environmental Impact Analysis. These additional effects include the potential for the project to result in growth-inducing impacts, significant irreversible environmental changes, significant and unavoidable environmental impacts, and effects found not to be significant.

7.1 GROWTH-INDUCING IMPACTS

State CEQA Guidelines Section 15126.2(e) requires that an EIR provide a discussion of the potential growth-inducing impacts of the proposed project. Growth-inducing impacts could be caused by projects that foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth-inducing impacts can also be caused by removing obstacles to population growth, by population increases that require the construction of new community services facilities, or by introducing population or other growth in an isolated area. In addition, pursuant to this section, growth in any area must not be assumed as necessarily beneficial, detrimental, or of little significance to the environment.

Projects that physically remove obstacles to growth, or projects that indirectly induce growth, are those that may provide a catalyst for future unrelated development in an area. However, the project would not involve development of infrastructure or roadways that could indirectly lead to population growth. Although site access improvements and landscaping along Wilshire Boulevard, West 6th Street, and South Curson Avenue are planned as part of the project, the project would not extend an existing roadway facility into an area that is not currently provided vehicular access. As a result, the project would not result in indirect population growth by providing vehicular access to an area presently lacking such access.

During project construction, a temporary workforce would be needed to construct the new and renovated museum buildings and related on-site improvements. The project would create temporary construction-related work. However, the work requirements of most construction projects are highly specialized such that construction workers remain at a job site only for the time in which their specific skills are needed to complete a particular phase of the construction process, and the number of construction workers needed during any given period would largely depend on the specific stage of construction. As such, construction workers would not be expected to relocate to the project vicinity as a direct consequence of working on the project, as these short-term positions are anticipated to be filled primarily by construction workers who reside in the project vicinity. Therefore, the project would not be considered to be growth-inducing from a short-term employment perspective. Currently, the staff at the site is 25 employees. The proposed expansion would increase the Page Museum square footage by approximately 67%, so it is estimated that the employees at the site would increase by a similar percentage. Thus, once the project is operational, the project is estimated to result in an increase of approximately 20 employees; however, this increase in employees is well within local and regional growth projections for population (see Chapter 4, Environmental Setting). In addition, the project would not directly result in the addition of new residents to the area because the project would not involve residential development.

The project site is located within an urban area that is currently served by existing utilities and infrastructure. The project would include necessary infrastructure improvements as discussed in Section 5.15, Utilities and Service Systems, including the replacement of existing water piping within the project site and the installation of two 6-inch sewer lines to be installed at the southeast corner of the site—one beneath the George C. Page Museum entrance and one just east of Lake Pit (KPFF Consulting Engineers

2021). Both sewer lines would connect to the existing sewer main along South Curson Avenue. While the project would require local infrastructure to connect the project site to the mainlines, such improvements would be limited to serving project-related demand and would not necessitate major local or regional utility infrastructure improvements that have not otherwise been accounted for and planned for on a regional level.

The project would not remove obstacles to population growth and would not cause an increase in population such that new community facilities or infrastructure would be required outside of the project site. Finally, the project is not expected to encourage or facilitate other activities that could significantly affect the environment. For these reasons, the project would not be significantly growth inducing.

7.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

State CEQA Guidelines Section 15126.2(c) requires an EIR to describe any significant impact, including those which can be mitigated but not reduced to a less-than-significant level. The section also requires that where there are impacts that cannot be alleviated without imposing an alternative design, their implications, and the reasons why the project is being proposed, notwithstanding their effect, should be described. Table 7-1 provides a summary of the impacts associated with the project that were concluded to be significant and unavoidable. These impacts are also described in detail in Chapter 5, Environmental Impact Analysis, of this EIR.

Table 7-1. Significant and Unavoidable Impacts Resulting from the Project

Environmental Issue Area	Impact	Reason for Significance Determination
Cultural Resources – Historical Resources	**CR-HIST Impact 1:** As a result of project construction, the project would cause a substantial adverse change in the significance of a Historical Resource pursuant to Section 15064.5 of the State CEQA Guidelines. Specifically, the project would cause a substantial adverse change in the significance of two identified historical resources: the La Brea Tar Pits Historic District and the George C. Page Museum. Construction impacts would be significant. Project operation would not cause a substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5. No operational impacts would occur.	**Significant and unavoidable**. The proposed alterations to the Page Museum during project construction would compromise its historic integrity to the point that the historical resource would no longer convey the reasons for its significance. In addition, the project construction would result in a comprehensive redesign of Hancock Park, which would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a California Register of Historical Resources- and locally eligible historic district. The loss of eligibility for the resource represents material impairment and an impact on the environment. Construction impacts would be significant. While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less-than-significant levels while meeting the project objectives and keeping the primary elements of the Master Plan; therefore, construction impacts of the project would remain *significant and unavoidable* after mitigation.

Environmental Issue Area	Impact	Reason for Significance Determination
Land Use and Planning	**LUP Impact 2:** Implementation of the project would result in the alteration of designated historical resources and would be potentially inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's General Plan Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources.	**Significant and unavoidable**. The project would result in the alteration of designated historical resources, the La Brea Tar Pits Historic District and the Page Museum, which is inconsistent with the objectives, goals, and policies of the County's General Plan Conservation and Natural Resources Element, the City's Conservation Element, and the Wilshire Community Plan as they pertain to the protection of designated historical resources (County of Los Angeles 2015, City of Los Angeles 2001a, 2001b). While implementation of project Mitigation Measures CR-HIST/mm-1.1 through CR-HIST/mm-1.5 would reduce impacts, the project would alter these resources in such a way that they would no longer convey the reasons for their significance within the parameters of the design and key features envisioned in the Master Plan. There are no mitigation measures that would reduce these impacts to less than significant while meeting the project objectives and keeping the primary elements of the Master Plan; therefore, impacts of the project would remain significant and unavoidable after implementation of the recommendations, creating inconsistencies with the applicable land use objectives, goals, and policies set forth in the County of Los Angeles General Plan, the City of Los Angeles General Plan, and the Wilshire Community Plan. Impacts would remain *significant and unavoidable*.
Transportation	**TRA-Impact 2:** Operation of the project would result in a net increase in vehicle miles traveled (VMT) and would result in a substantial increase in VMT.	**Significant and unavoidable**. The project would result in an average visitor trip length that is higher than the average recreation trip length. Visitor travel trips to the museum are approximately 196% longer than the average recreation trip in Los Angeles and Orange Counties. Given that museum visitor trips are longer than regional recreation trip lengths, additional visitor trips to the project site due to implementation of the project would result in a net increase in total VMT. While the project's mitigation measure TRA/mm-1.1 would aim to reduce employee and visitor VMT and support multimodal connectivity, it may be insufficient to reduce VMT to less-than-significant levels and there are no additional feasible mitigation measures to reduce the impact. Therefore, operation of the project would result in a substantial increase in VMT and would remain *significant and unavoidable* after mitigation.

Note: The LUP Impact 2 is a consistency analysis of the applicable land use plans, policies, and regulations, and considers the holistic impacts associated with implementation of the project; it does not provide separate construction and operation analyses or conclusions.

7.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

State CEQA Guidelines Section 15126.2(d) identifies significant irreversible environmental changes as the use of nonrenewable resources during the initial and continued phases of a proposed project that may be irreversible, since a large commitment of these resources makes removal or nonuse thereafter unlikely. Irreversible environmental changes may also result from environmental accidents associated with the project. In accordance with this section of the State CEQA Guidelines, this section of the EIR evaluates whether the project would result in the irretrievable commitment of resources or would cause irreversible changes in the environment.

The project would necessarily consume a limited amount of slowly renewable and non-renewable resources that could result in irreversible environmental changes. This consumption would occur during construction of the project and would continue throughout its operational lifetime. The development of the project would require a commitment of resources that would include: 1) building materials and

associated solid waste disposal effects on landfills; 2) water; and 3) energy resources (e.g., fossil fuels) for electricity, natural gas, and transportation. As demonstrated below, the project would consume a limited commitment of natural resources and would not result in significant irreversible environmental changes.

7.3.1 Commitment to Resources

The project would result in expansion and upgrades for the La Brea Tar Pits complex and the 13-acre portion of Hancock Park, including renovations to the Page Museum. Construction of the project would irreversibly commit construction materials and non-renewable energy resources (e.g., fossil fuels, wood, etc.). Non-renewable resources used during the construction of development within the project site could no longer be used for other purposes. Consumption of building materials and energy is associated with all development projects in the region, and these commitments of resources are not unique or unusual to the project. Construction of residential and commercial structures would be subject to the California Building Code (CBC), which regulates the method of use, properties, performance, and types of building materials used in construction. Construction equipment would be subject to state and local fuel efficiency standards and idling restrictions.

An important consideration for this analysis is that La Brea Tar Pits, including the Page Museum, are current County facilities that consume environmental resources under baseline conditions. After new facilities are constructed, the project would continue to rely on similar resources as pre-project conditions. This reliance on resources would occur with or without project construction during normal operations of La Brea Tar Pits and the Page Museum.

7.3.1.1 Solid Waste

The project's impacts regarding solid waste are discussed in Section 5.15, Utilities and Service Systems. As discussed therein, pursuant to Senate Bill 1374, during construction of the project, the project would implement a construction waste management plan to recycle and/or salvage a minimum of 75% of non-hazardous demolition and construction debris. Thus, the consumption of nonrenewable building materials such as lumber, aggregate materials, and plastics would be reduced. The project would also comply with Assembly Bill (AB) 939, AB 341, AB 1826, and City of Los Angeles (City) waste diversion goals, as applicable, by providing clearly marked, source-sorted receptacles to facilitate recycling.

7.3.1.2 Water

Consumption of water during construction and operation of the project is also addressed in Section 5.15, Utilities and Service Systems. As evaluated therein, given the temporary nature of construction activities, the short-term and intermittent water use during construction of the project would be less than the proposed water consumption at the project site, and the project's temporary and intermittent demand for water during construction would be met by Los Angeles Department of Water and Power's (LADWP's) available supplies during each year of project construction. While operation of project would result in an increase in long-term water demand for consumption, operational uses, maintenance, and other activities on the project site, the project would be consistent with the City's existing land use designation; therefore, the water demand associated with the project was considered in the demand anticipated by LADWP's 2020 Urban Water Management Plan. As confirmed in a letter provided by LADWP dated October 28, 2022, LADWP expects to have adequate water supplies to meet all its demands until at least 2045, including those of the proposed project (LADWP 2022).

7.3.1.3 Energy Resources

Project operation would continue to expend nonrenewable resources that are currently consumed within Los Angeles County. These include energy resources such as electricity and natural gas, petroleum-based fuels required for vehicle trips, fossil fuels, and water. Fossil fuels would represent the primary energy source associated with both construction and ongoing operation of the project, and the existing, finite supplies of these natural resources would be incrementally reduced.

The project has been designed and would be constructed to incorporate environmentally sustainable building features and construction protocols required by the California Green Building Standards Code (CALGreen). These standards would minimize energy and water usage and waste and, thereby, reduce associated greenhouse gas (GHG) emissions and help minimize the impact on natural resources and infrastructure. The project would include energy-saving measures, including enhanced daylighting; rainwater collection leading to bioswales; a sloped green roof; rooftop solar photovoltaic panels; heating, ventilation, and air conditioning (HVAC) systems that would be sized and designed in compliance with CALGreen to maximize energy efficiency caused by heat loss and heat gain; and new and existing tree canopies to protect building walls from sun exposure and provide shade for the ground area. Daylighting is the controlled admission of natural light, direct sunlight, and diffused skylight into a building to reduce electric lighting and save energy. By providing a direct link to the dynamic and perpetually evolving patterns of outdoor illumination, daylighting helps create a visually stimulating and productive environment for building occupants, while reducing as much as one-third of total building energy costs. These measures were generally accounted for based on compliance with 2019 Title 24 standards. Furthermore, the project would incorporate design features, such as solar photovoltaic panels, to reduce the amount of electricity demand from City utilities. The project would include water sustainability features, which would include, but not be limited to, the installation of low-flow toilets, low-flow faucets, low-flow showers, and other energy and resource conservation measures. In addition, the project would provide sustainability features, such as stormwater capture and reuse system and drought-tolerant landscaping, to reduce the project's outdoor water demand, thereby reducing the project's GHG emissions associated with water conveyance and wastewater treatment.

The project would introduce strategies that would reduce reliance on private automobiles and vehicle miles traveled (VMT) through implementation of mitigation measure TRA/mm-1.1 which would require the development and implementation a Transportation Demand Management Program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare. Furthermore, the project would comply with the California Air Resources Board (CARB) Climate Change Scoping Plan, the Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Title 24 Building Energy Efficiency Standards and CALGreen, the County of Los Angeles General Plan, and the City's Green New Deal.

7.3.2 Environmental Accidents

The project's impacts related to hazards and hazardous materials are discussed in Section 5.8, Hazards and Hazardous Materials. Construction of the proposed project would also result in the short-term use of construction-related hazardous substances (e.g., gasoline, fuels, solvents, paints, oils, etc.) during the estimated 36-month construction phase of the project. The use of these substances could lead to upset conditions as a result of accidental spill or release. Any hazardous substances used during project construction would be required to be used, transported, and disposed of in accordance with Occupational Safety and Health Administration (OSHA) Process Safety Management Standard (California Code of Regulations [CCR] 29.1910.119) and CCR Title 22 Division 4.5. Adherence to existing state

requirements would minimize the potential for the project to result in upset or accident conditions related to construction-related hazardous substance use.

7.3.3 Conclusion

Based on the above, project construction and operation would require the irretrievable commitment of limited, slowly renewable, and nonrenewable resources, which would limit the availability of these resources and the project site for future generations or for other uses. However, the consumption of such resources would not be considered substantial and would be consistent with regional and local growth forecasts and development goals for the area. The loss of such resources would not be highly accelerated when compared to existing conditions and such resources would not be used in a wasteful manner. Therefore, although irreversible environmental changes would result from the project, such changes are concluded to be less than significant, and the limited use of nonrenewable resources that would be required by project construction and operation is justified.

7.4 ENVIRONMENTAL EFFECTS FOUND NOT TO BE SIGNIFICANT

State CEQA Guidelines Section 15128 requires an EIR to contain a statement briefly indicating the reasons that various potential significant effects of a project were determined not to be significant and, therefore, were not further discussed in the EIR. Based on preliminary analysis and discussions with the Los Angeles County Museum of Natural History Foundation, it was determined that the project would not result in significant impacts related to agricultural and forestry resources, energy, mineral resources, population and housing, public services, and wildfire. Therefore, the analysis of these issue areas is not as intensive in this EIR as that described for other resources included in Chapter 5, Environmental Impact Analysis. In accordance with State CEQA Guidelines Section 15128, the following sections include a brief evaluation and substantiation of why these impacts have been found not to be significant.

7.4.1 Agricultural and Forestry Resources

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

d) Result in the loss of forest land or conversion of forest land to non-forest use?

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The project site is located in an urban area within the city of Los Angeles. It is currently developed with uses that benefit the public, including the Page Museum and other associated buildings, facilities, recreation areas, and a surface parking area. While the project site is owned by the County of Los Angeles

(County), it is located within the jurisdictional boundaries of the City of Los Angeles, and as such, it is identified in the City General Plan and the Wilshire Community Plan with a land use designation of Public Facilities (PF) and an associated zoning designation of Public Facilities, Height District 1, Development Limitation (PF-1D).

No agricultural uses or operations occur on-site or within the vicinity of the project site. Neither the project site nor the surrounding area is zoned for agricultural or forest uses, and no agricultural or forest lands occur within or in the vicinity of the project site. Therefore, the project would not convert designated farmland pursuant to the Farmland Mapping and Monitoring Program to non-agricultural use; conflict with existing zoning for agricultural use, or a Williamson Act contract; conflict with existing zoning for, or cause rezoning of, forest land, timberland or timberland zoned Timberland Production; result in the loss of forest land or conversion of forest land to non-forest use; or involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural use or conversion of forest land to non-forest use. *No impacts* related to agricultural and forestry resources would occur.

Since the project would not result in impacts related to agricultural and forestry resources, it could not contribute to cumulative impacts related to these resources. No cumulative impacts related to agricultural and forestry resources would occur.

7.4.2 Energy

Would the project:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The analysis provided in this section is based on the *Energy Analysis Report for the La Brea Tar Pits Master Plan*, prepared by SWCA Environmental Consultants (SWCA) dated October 2022 and included as Appendix L. The Energy Analysis Report estimated energy consumption calculations using CalEEMod Version 2022.1. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. Details regarding CalEEMod assumptions for the project are presented in the Energy Analysis Report and in the *La Brea Tar Pits Master Plan Air Quality and Greenhouse Gas Technical Report* (SWCA 2022a, 2022b; see Appendices L and C, respectively). This analysis addresses the requirements of the State CEQA Guidelines Appendix F (Energy Conservation).

CONSUMPTION OF ENERGY RESOURCES

Construction

During construction of the project, electricity would be consumed, on a limited basis, to power lighting, electric equipment, and supply and convey water for dust control and for an on-site construction trailer. Electricity would be supplied to the project site by LADWP and would be obtained from the existing electrical lines that connect to the project site. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease

upon completion of construction. Electricity use from construction would be short term, limited to working hours, used for necessary construction-related activities, and would represent a small fraction of the project's net annual operational electricity. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. Furthermore, the electricity used for off-road light construction equipment would have the co-benefit of reducing construction-related air pollution and GHG emissions from more traditional construction-related energy in the form of diesel fuel.

During project construction, on- and off-road vehicles would consume an estimated annual average of approximately 142,095 gallons of gasoline and 272,696 gallons of diesel (SWCA 2022a). Project construction activities would last for approximately 4 years. Construction of the project would use fuel-efficient equipment consistent with state and federal regulations, such as fuel efficiency regulations in accordance with the CARB Pavley Phase II standards, the anti-idling regulation in accordance with Section 2485 in 13 CCR, and fuel requirements in accordance with 17 CCR Section 93115. The project would benefit from fuel and automotive manufacturers' compliance with Corporate Average Fuel Economy (CAFE) standards, which would result in more efficient use of transportation fuels (lower consumption). As such, the project would indirectly comply with regulatory measures to reduce the inefficient, wasteful, and unnecessary consumption of energy, such as petroleum-based transportation fuels. While these regulations are intended to reduce construction emissions, compliance with the anti-idling and emissions regulations discussed above would also result in fuel savings from the use of more fuel-efficient engines.

In addition, the project would divert mixed construction and demolition debris to City-certified construction and demolition waste processors using City-certified waste haulers, consistent with the Los Angeles City Council approved Ordinance No. 181519 (City of Los Angeles Municipal Code Chapter VI, Article 6, Section 66.32 6.32.5). Diversion of mixed construction and demolition debris would reduce truck trips to landfills, which are typically located some distance away from city centers and would increase the amount of waste recovered (e.g., recycled, reused, etc.) at material recovery facilities, thereby further reducing transportation fuel consumption.

Based on the analysis above, construction would use energy only for necessary on-site activities and to transport construction materials and demolition debris to and from the project site. As discussed above, idling restrictions and the use of cleaner, energy-efficient equipment and fuels would result in less fuel combustion and energy consumption, and thus minimize the project's construction-related energy use.

Operation

During operation of the project, energy would be consumed for multiple purposes, including, but not limited to, HVAC, refrigeration, lighting, and the use of electronics, equipment, and machinery. Energy would also be consumed during project operations related to water usage, solid waste disposal, and vehicle trips. Development of the project would result in an annual estimated energy demand of 1,082,928 kilowatt-hours (kWh) per year and require 155,576 gallons of gasoline and 4,493 gallons of diesel per year (SWCA 2022a).

The project would be designed to meet the State and County green building requirements and include the installation of additional features to reduce energy use throughout the buildings. The project includes the incorporation of several energy-efficient features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and incorporation of rooftop solar photovoltaic panels onto the buildings, where possible. Daylighting is the controlled admission of natural light, direct sunlight, and diffused-skylight into a building to reduce electric lighting and save energy. By providing a direct link to the dynamic and perpetually evolving patterns of outdoor illumination, daylighting helps create a visually stimulating and productive environment for building

occupants, while reducing as much as one-third of total building energy costs. Water conservation measures could include the use of drought-tolerant planting, installation of dual plumbing in order to use reclaimed water for toilet flushing, use of restaurant faucets of a self-closing design, and stormwater retention through a biofiltration flow-through system to treat the first flush of stormwater runoff before it is captured in below grade cisterns, and used on-site for toilets, urinals, and landscape irrigation. These features would further maximum energy efficiency.

With compliance with Title 24 standards and applicable CALGreen requirements, at buildout, the project would result in a projected net increase in the on-site annual demand for electricity totaling 1,082,928 kWh for the project (SWCA 2022a). The project would include energy-saving measures, including natural light to be harvested for the main spaces using large expanses of glass and skylights; daylighting systems to coordinate the levels of artificial lighting; HVAC systems that would be sized and designed in compliance with CALGreen to maximize energy efficiency caused by heat loss and heat gain; and new and existing tree canopies to be used to protect building walls from sun exposure and provide shade for the ground area. These measures were generally accounted for based on compliance with Title 24 standards. In addition to compliance with CALGreen, the project would also incorporate rooftop solar photovoltaic panels onto the buildings, where possible.

Further, it is important to note that the total net project energy demand does not reflect the fact that project operational-related energy would likely be lower, as the project would provide sustainability features that would reduce the project's indoor and outdoor water demand. These measures include rainwater collection leading to bioswales and drought-tolerant landscaping, resulting in a reduction in water demand and less use of pesticides. These measures were conservatively not accounted for since a specific outdoor water reduction value could not conclusively be calculated.

Based on the LADWP 2017 Power Strategic Long-Term Resource Plan, LADWP forecasts that its total energy sales in the 2028–2029 fiscal year (the project's buildout year) will be 24,341 gigawatt hours (GWh) of electricity (LADWP 2017). Thus the project-related annual electricity consumption of 1.13 GWh per year would be less than 0.005% of LADWP's projected sales in 2028. As previously described, the project incorporates a variety of energy and water conservation measures and features to reduce energy usage and minimize energy demand. Therefore, with the incorporation of these measures and features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of electricity.

The project would increase the demand for natural gas resources. With compliance with Title 24 standards and applicable CALGreen requirements, at buildout, the project is projected to generate a net increase in the on-site annual demand for natural gas totaling 3,745,669 cubic feet. Southern California Gas Company (SoCalGas) accounts for anticipated regional demand based on various factors, including growth in employment by economic sector, growth in housing and population, and increasingly demanding State goals for reducing GHG emissions. SoCalGas accounts for an increase in employment and housing between 2018 to 2035. The project forecasted annual consumption would fall within SoCalGas' projected consumption for the area and would be consistent with SoCalGas' anticipated regional demand from population or economic growth (SWCA 2022a). As would be the case with electricity, the project would comply with the applicable provisions of Title 24 and CALGreen in effect at the time of building permit issuance to minimize natural gas demand. As such, the project would minimize energy demand. Therefore, with the incorporation of these measures and features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of natural gas.

During operations, project-related traffic would result in the consumption of petroleum-based fuels related to vehicular travel to and from the project site. A majority of the vehicle fleet that would be used by project visitors and employees would consist of light-duty automobiles and light-duty trucks, which

are subject to fuel efficiency standards. The project's estimated annual net increase in petroleum-based fuel usage would be 155,576 gallons of gasoline and 4,493 gallons of diesel for the project (SWCA 2022a). Based on the California Energy Commission's (CEC's) California Retail Fuel Outlet Annual Reporting (CEC 2022), Los Angeles County consumed 3,559,000,000 gallons of gasoline and 563,265,306 gallons of diesel fuel in 2019.

The project would support statewide efforts to improve transportation energy efficiency and reduce transportation energy consumption with respect to private automobiles for the reasons provided below. The project would not conflict with the SCAG 2020-2045 RTP/SCS goals and benefits intended to improve mobility and access to diverse destinations, provide better "placemaking," provide more transportation choices, and reduce vehicular demand and associated emissions. The project would support these strategies by creating a community serving recreational development comprising recreational uses (including a museum, park, and café) that offer employment and other community-serving opportunities. The project supports the development of a balanced mixed of uses by co-locating complementary land uses on an infill project site that is in close proximity to existing off-site commercial and residential uses, being located within 0.25 mile of off-site commercial and residential uses, and located within an identified high-quality transit area (HQTA) in a highly walkable area well-served by public transportation (refer to the Air Quality and Greenhouse Gas Technical Report [SWCA 2022b] for additional information regarding the SCAG 2020-2045 RTP/SCS). The project would concentrate recreational and athletic facility uses within an HQTA in an urban infill location in proximity to multiple public transit stops. There would be pedestrian entry gates along the perimeter of the project site that would provide access to the park, museum, and landscaped areas. The project would minimize vehicle trips and VMT by virtue of being in a location that has existing high-quality public transit (with access to existing regional bus and rail service), employment opportunities, restaurants and entertainment, all within walking distance—and by including features that support and encourage increase transit use, pedestrian activity, and other non-vehicular transportation.

Additionally, the project design would provide for the installation of the conduit and panel capacity to accommodate electric vehicle charging stations for a minimum of 10% of the parking spaces pursuant to CALGreen. Based on the above, the project would minimize operational transportation fuel demand consistent with state, regional, and city goals.

Conclusion

As demonstrated by the previous analysis, the project would not cause wasteful, inefficient, or unnecessary consumption of energy during construction or operation. The project's energy usage during peak and base periods would also not conflict with electricity, natural gas, and transportation fuel future projections for the region. During operations, the project would comply with and exceed existing minimum energy-efficiency requirements, such as the Title 24 standards and CALGreen. In summary, the project's energy demands would not significantly affect available energy supplies and would comply with existing energy efficiency standards. Therefore, the project would not cause wasteful, inefficient, and unnecessary consumption of energy and impacts related to energy use during construction and operation would be *less than significant*.

Since the project would result in less than significant impacts related to energy use during construction and operation, it could not contribute to cumulative impacts related to wasteful, inefficient, or unnecessary consumption of energy resources. No cumulative impacts to energy would occur.

CONFLICTS WITH PLANS FOR ENERGY EFFICIENCY

The analysis for the project's consistency with appliable plans for energy efficiency considers the project holistically. This approach is consistent with the plans and policies, which also consider the project holistically (i.e., the plans and policies generally do not segregate impacts by construction and operation). The project's consistency analysis with appliable plans for energy efficiency is described below.

The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. A detailed discussion of the project's comparison with the applicable actions and strategies in the City's Green New Deal is provided in the Air Quality and Greenhouse Gas Technical Report (SWCA 2022b). The project is designed in a manner that is consistent with and not in conflict with relevant energy conservation plans that are intended to encourage development that results in the efficient use of energy resources. The project would comply with applicable regulatory requirements for the design of new buildings, including the provisions set forth in the Title 24 standards and CALGreen. Electricity and natural gas usage during project operations would be minimized through incorporation of applicable Title 24 standards and applicable CALGreen requirements. Furthermore, the project incorporates energy-conservation measures beyond regulatory requirements, including solar panels that would offset some of its overall energy usage with on-site renewable electricity. The project would also provide sustainability features that would reduce the project's indoor and outdoor water demand. The project would also be consistent with and not conflict with regional planning strategies that address energy conservation.
As part of the approach, the SCAG 2020-2045 RTP/SCS focus on reducing fossil fuel use by decreasing VMT, encouraging the reduction of building energy use, and increasing use of renewable sources would be followed. The project's design and its location on an infill site within an HQTA in proximity to transit; its proximity to existing off-site retail, restaurant, entertainment, commercial, and job destinations; and its walkable environment would achieve a reduction in VMT.

Conclusion

In addition, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The project would implement project design features and incorporate water conservation, energy conservation, landscaping, and other features consistent with applicable actions and strategies in the City's Green New Deal. The project would also be consistent with and not conflict with regional planning strategies that address energy conservation. As part of the approach, the SCAG 2020-2045 RTP/SCS focus on reducing fossil fuel use by decreasing VMT, encouraging the reduction of building energy use, and increasing use of renewable sources would be followed. The project's design would comply with existing energy standards and incorporate project design features to reduce energy consumption. Therefore, the project would not conflict with energy conservation plans and impacts would be *less than significant*.

Since the project would result in less than significant impacts related to conflicts with energy conservation plans, it could not contribute to cumulative impacts related to this issue. No cumulative impacts related to conflicts with energy conservation plans would occur.

7.4.3 Mineral Resources

Would the project:

a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

The project site is located within an urban area that has been previously disturbed by development, and no mineral extraction operations currently occur on the project site. While the project site is owned by the County, it has a City zoning designation of Public Facilities, Height District 1 (PF-1D). The project site is not located within a County- or City-designated Mineral Resource Zone where significant mineral deposits are known to be present, or within a mineral producing area as classified by the California Geologic Survey (City of Los Angeles 2001). The project site is also not located within a City-designated oil field or oil drilling area. Thus, the project would not result in the loss of availability of a mineral resource that would be of value to the region or the state. The project would also not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, there would be *no impacts* related to mineral resources.

Since the project would not result in impacts related to mineral resources, it could not contribute to cumulative impacts related to these resources. No cumulative impacts related to mineral resources would occur.

7.4.4 Population and Housing

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project does not include housing and thus would not directly introduce a new residential population that would contribute to population growth in the vicinity of the project site. While construction of the project would create temporary construction-related jobs, the work requirements of most construction projects are highly specialized such that construction workers remain at a job site only for the time during which their specific skills are needed to complete a particular phase of the construction process.
The project would draw from the existing regional pool of construction workers who typically move from project to project as work is available. Project-related construction workers would not be anticipated to relocate their household's permanent place of residence as a consequence of working on the project and, therefore, no new permanent residents are expected to be generated during construction of the project.
In addition, the project involves the development of a new museum building, which would add approximately 20 new employment opportunities to the area; however, this increase in employees is well within local and regional growth projections for population (see Chapter 4, Environmental Setting).
In addition, the project would be in a generally developed area with an established network of roads and other urban infrastructure and would not require the extension of such infrastructure in a manner that

would indirectly induce substantial population growth. Thus, the project would not induce population growth and *no impact* would occur.

The project site does not contain any residential structures and no people live on the site under existing conditions. The project does not include the addition of a residential component and, as such, no changes to existing conditions related to housing would occur. Therefore, implementation of the project would not displace substantial numbers of existing housing or people and would not necessitate the construction of replacement housing elsewhere; *no impacts* would occur.

Since the project would not result in impacts related to population and housing, it could not contribute to cumulative impacts related to population growth or the displacement of substantial numbers of existing housing or people. No cumulative impacts related to population and housing would occur.

7.4.5 Public Services

Would the project:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

i. Fire protection

ii. Police protection

iii. Schools

iv. Parks

v. Other public facilities

The project is not expected to induce population growth as it would not include residential uses, therefore it is expected that there would be no net increase in population growth. The project does not include direct or indirect construction of housing, public services, or schools. The project would not require the provision of new or additional public services, as discussed below.

FIRE PROTECTION

The Los Angeles Fire Department (LAFD) is responsible for providing fire protection services to the project site. The nearest LAFD fire station serving the project site is Fire Station 61, located at 5821 West 3rd Street, approximately 0.8 mile northeast of the project site. The project does not involve the development of residential uses, which typically generate a greater demand for public services compared to non-residential uses. The proposed museum building may temporarily increase the daytime population when the project is initially complete and temporarily generate an increased demand for fire protection and emergency medical services. However, the daytime population would be expected to stabilize over time such that the demand for fire protection and emergency medical services is comparable to existing conditions. The project would be designed to incorporate all County Fire Code and Building Code requirements as applicable, regarding structural design, building materials, site access, fire flow, storage and management of hazardous materials, and alarm and communications systems, etc. Compliance with applicable County Fire Code and Building Code requirements, along with compliance with

recommendations from the County Fire Department and LAFD, would ensure that adequate fire prevention features would be provided that would reduce any potential increased demand for fire protection and emergency medical services.

Regarding emergency access and response times during operation, the project would maintain the existing circulation adjacent to the project site and would not include the permanent closure of any adjacent roads or install barriers along adjacent roads which could impede emergency access. Furthermore, while the project could temporarily generate additional traffic in the vicinity of the project, pursuant to Section 21806 of the California Vehicle Code, the drivers of emergency vehicles have a variety of options for avoiding traffic, such as using their sirens and flashing lights to clear a path of travel or driving in the lanes of opposing traffic. The project-related traffic is not anticipated to impair the LAFD from responding to emergencies at the project site or the surrounding area. Thus, *no impacts* to fire protection services would occur.

Since the project would not result in impacts related to fire protection services, it could not contribute to cumulative impacts related to this issue. No cumulative impacts related to fire protection services would occur.

POLICE PROTECTION

The Los Angeles Police Department (LAPD) is responsible for providing police protection services to the project site. The nearest LAPD police station serving the project site is the Wilshire Community Police Station, located at 4861 Venice Boulevard, approximately 2 miles southeast of the project site.
The project does not involve the development of residential uses, which typically generate a greater demand for public services compared to non-residential uses.

During construction, construction sites can be sources of nuisances and hazards and invite theft and vandalism. Given the existing project site operations and in accordance with standard construction industry practices, the potential for theft of construction equipment and building materials would be minimized using security fencing, lighting, locked entry, and security patrol of the project site and construction areas. Upon project completion, the project may temporarily increase the daytime population within the Wilshire Community Police Station's service area when the project is initially complete.
The temporary daytime population projected to be generated by the project could contribute to an increase in the demand for police protection services as provided by the Wilshire Community Police Station. However, the daytime population and associated demand for police protection services is expected to drop back to average attendance over time. In addition, the project does not include any residential uses, which typically have a higher direct demand on police protection services. Therefore, the project would not directly affect the existing officer-to-resident ratio or the crimes-per-resident ratio citywide or within the Wilshire Community Police Station service area. Nevertheless, to help reduce any on-site increase in demand for police services, the project would implement comprehensive safety and security features to enhance public safety and reduce the demand for police services.

Regarding emergency access and response times during operation, the project would maintain the existing circulation adjacent to the project site and would not include the permanent closure of any adjacent roads or install barriers along adjacent roads which could impede emergency access. Furthermore, while the project could temporarily generate additional traffic in the vicinity of the project, pursuant to Section 21806 of the California Vehicle Code, the drivers of emergency vehicles have a variety of options for avoiding traffic, such as using their sirens and flashing lights to clear a path of travel or driving in the lanes of opposing traffic. The project-related traffic is not anticipated to impair the LAPD from responding to emergencies at the project site or the surrounding area. Thus, *no impacts* to police protection services would occur.

Since the project would not result in impacts related to police protection services, it could not contribute to cumulative impacts related to this issue. No cumulative impacts related to police protection services would occur.

SCHOOLS

Implementation of the project would not create a direct demand for public school services as the subject property would contain non-residential uses and would not generate any school-aged children requiring public education. Furthermore, implementation of the project would improve the educational experience for school visits by the Los Angeles Unified School District and other educational organizations. Thus, the project would not result in the need for new or altered school facilities. Thus, *no impacts* to schools would occur.

Since the project would not result in impacts related to schools, it could not contribute to cumulative impacts related to this issue. No cumulative impacts related to schools would occur.

PARKS

Parks and recreational facilities in the vicinity of the project site are primarily operated and maintained by the Los Angeles Department of Recreation and Parks. Nearby public parks and recreational facilities and the anticipated impacts of the project are discussed in Section 5.12, Recreation. While the project site provides existing uses that benefit the public and passive recreational opportunities including open space, it is not designated as parkland and is not managed by the respective parks and/or recreation departments of either the County or the City. Implementation of the project would allow for the continued provision of passive outdoor space at Hancock Park, including Central Green, plazas/welcome pavilions, and a pedestrian bridge and walking path. The project would not include residential uses and implementation of the project would not generate a new residential population that would regularly use nearby parks and recreational facilities. As such, the project would not impact or contribute to the County's or the City's parkland ratios. *No impacts* to parkland ratios would occur.

Since the project would not result in impacts related to parkland ratios, it could not contribute to cumulative impacts related to this issue. No cumulative impacts related to parkland ratios would occur.

OTHER PUBLIC FACILITIES

The closest public library serving the project site is the Fairfax Branch Library located at 161 South Gardner Street, approximately one mile north of the project site. The project would introduce a new museum building and employees to the project site, which could result in an incremental increase in demand for other public facilities, such as library services. However, it is not anticipated to require or result in the construction of new or physically altered public facilities such as libraries. Furthermore, the project does not propose the development of residential uses; therefore, implementation of the project would not result in a direct increase in the number of residents within the service area of the Fairfax Branch Library. Thus, *no impacts* to libraries would occur.

Since the project would not result in impacts related to libraries, it could not contribute to cumulative impacts related to this issue. No cumulative impacts related to libraries would occur.

7.4.6 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project site is surrounded by a variety of urban land uses and is not classified by the California Department of Forestry and Fire Protection (CAL FIRE) as located within a Very High Fire Hazard Severity Zone in a State Responsibility Area or Local Responsibility Area (CAL FIRE 2022). Therefore, the project would not interfere with emergency response or evacuation plans during wildfires, exacerbate wildfire risks, require the installation of wildfire prevention infrastructure, or expose people or structures to post-fire flooding or landslides. Therefore, the project would have *no impacts* related to wildfire and this issue area was not further evaluated in this EIR.

Since the project would not result in impacts related to wildfire, it could not contribute to cumulative impacts related to this issue. No cumulative impacts related to wildfire would occur.

CHAPTER 8. REFERENCES AND REPORT PREPARATION

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8.3 REPORT PREPARATION

8.3.1 CEQA Lead Agency

County of Los Angeles
Museum of Natural History
900 Exposition Boulevard
Los Angeles, CA 90007

Leslie Negritto, Chief Operating Officer
Dawn McDivitt, Consultant (Prior Chief Deputy Director)

8.3.2 Consultant Support

This EIR has been prepared by SWCA Environmental Consultants (SWCA), in association with the Los Angeles County Museum of Natural History Foundation, under the oversight and on behalf of the County of Los Angeles as the CEQA Lead Agency.

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, CA 91107

Resumes of key staff involved in the preparation of this EIR are included in Appendix M. Other contributors include Shannon and Wilson, Inc.; Leighton Consulting, Inc.; Terra Petra Environmental Engineering; KPFF Consulting Engineers; and Kittelson and Associates.

The following is a list of individuals responsible for preparation of the EIR. Table 8-1 provides a summary of the consultant personnel that contributed to the Draft EIR.

Table 8-1. Consultant Personnel Involved in EIR Preparation

Responsibilities	EIR Preparer
Summary Introduction Project Description Environmental Setting Environmental Impact Analysis Alternatives Analysis Other CEQA Considerations References and Report Preparation Response to Comments	Bobbette Biddulph, Senior Environmental Planner, SWCA John Dietler, Ph.D., RPA, Principal-in-Charge, SWCA Shannon Pagan, Project Environmental Planner, SWCA Danielle Desruisseaux, Project Technical Editor, SWCA Kelly Royce, Associate Project Technical Editor, SWCA Kimberly Proa, Project Formatting Specialist, SWCA Stuart Muerth, Project Environmental Planner, SWCA
Aesthetics	Bobbette Biddulph, Senior Environmental Planner, SWCA Shannon Pagan, Project Environmental Planner, SWCA Kara Laurenson-Wright, Project Environmental Planner, SWCA
Air Quality	Erin Wielenga, Air Quality and Greenhouse Gas Specialist, SWCA Annika Kiemm, Environmental Planner, SWCA
Biological Resources	Robert MacAller, Natural Resources Director, SWCA Jacqueline Worden, Natural Resources Project Manager, SWCA Stuart Muerth, Project Environmental Planner, SWCA
Cultural Resources – Archaeological Resources	John Dietler, Ph.D., RPA, Principal-in-Charge, SWCA Chris Millington, M.A., RPA, Senior Archaeologist, SWCA
Cultural Resources – Historical Resources	Debi Howell-Ardila, Senior Architectural Historian, SWCA Susan Zamudio-Gurrola, Architectural Historian, SWCA Dan Herrick, Architectural Historian, SWCA Garret Root, Architectural Historian, SWCA Leslie Heumann, Architectural Historian and Senior Advisor, SWCA
Geology and Soils	Shannon Pagan, Project Environmental Planner, SWCA Mathew Carson, Lead Paleontologist, SWCA Bill Henry, AICP, Quality Assurance/Quality Control, SWCA
Greenhouse Gas Emissions	Erin Wielenga, Air Quality and Greenhouse Gas Specialist, SWCA Brad Sohm, Senior Air Quality and Noise Specialist, SWCA Annika Kiemm, Environmental Planner, SWCA
Hazards and Hazardous Materials	Bobbette Biddulph, Senior Environmental Planner, SWCA Shannon Pagan, Project Environmental Planner, SWCA Brynn McCulloch, Principal Geologist, Leighton Bahar Amoli, Ph.D., P.E., Senior Environmental Engineer, Terra Petra Justin R. Conaway, Vice President, Terra Petra
Hydrology and Water Quality	Shannon Pagan, Project Environmental Planner, SWCA Bill Henry, AICP, Quality Assurance/Quality Control, SWCA Kristen Sharer PE, Associate, KPFF Brian Powers, PE, Principal, KPFF

Responsibilities	EIR Preparer
Land Use and Planning	Bobbette Biddulph, Senior Environmental Planner, SWCA Shannon Pagan, Project Environmental Planner, SWCA
Noise and Vibration	Bobbette Biddulph, Senior Environmental Planner, SWCA Carlos M. Ituarte-Villarreal, Noise Specialist, SWCA Brad Sohm, Senior Air Quality and Noise Specialist, SWCA
Recreation	Shannon Pagan, Project Environmental Planner, SWCA Kara Laurenson-Wright, Project Environmental Planner, SWCA
Transportation	Bobbette Biddulph, Senior Environmental Planner, SWCA Mychal Loomis, PE, Associate Engineer, Kittelson and Associates Michael Sahimi, AICP, Senior Planner, Kittelson and Associates
Tribal Cultural Resources	John Dietler, Ph.D., RPA, Principal-in-Charge, SWCA Chris Millington, M.A., RPA, Senior Archaeologist, SWCA
Utilities and Service Systems	Bobbette Biddulph, Senior Environmental Planner, SWCA Bill Henry, AICP, Quality Assurance/Quality Control, SWCA Shannon Pagan, Project Environmental Planner, SWCA
Graphics and Mapping	Matthew DeFreese, Geospatial Scientist, SWCA Katie Bonser, Geospatial Scientist, SWCA
Technical Editing and Document Production	Danielle Desruisseaux, Project Technical Editor, SWCA Kelly Royce, Associate Project Technical Editor, SWCA Kimberly Proa, Project Formatting Specialist, SWCA

LA BREA TAR PITS MASTER PLAN

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PREPARED BY: SWCA ENVIRONMENTAL CONSULTANTS
320 NORTH HALSTEAD STREET, SUITE 120, PASADENA, CA 91107

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JANUARY 2025

LEAD AGENCY: County of Los Angeles

PROJECT PROPONENT: Los Angeles County Museum of Natural History Foundation on behalf of the County of Los Angeles Museum of Natural History
900 Exposition Boulevard, Los Angeles, CA 90007
Contact: Leslie Negritto, Chief Operating Officer

PREPARED BY: SWCA Environmental Consultants
320 North Halstead Street, Suite 120, Pasadena, CA 91107
(626) 240-0587 | www.swca.com
Contact: Bobbette Biddulph, SWCA Project No. 63953

APPENDIX A

Notice of Preparation and Summary Comment Matrix

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND PUBLIC SCOPING MEETING

DATE: February 14, 2022

TO: Governor's Office of Planning and Research State Clearinghouse, Responsible Agencies, Trustee Agencies, Organizations, and Interested Parties

LEAD AGENCY: County of Los Angeles

PROJECT PROPONENT: Los Angeles County Museum of Natural History Foundation
900 Exposition Boulevard, Los Angeles, CA 90007

SUBJECT: Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meeting for the **Proposed La Brea Tar Pits Master Plan Project**

The County of Los Angeles (County) is the lead agency pursuant to the California Environmental Quality Act (CEQA) and intends to prepare an Environmental Impact Report (EIR) for the proposed La Brea Tar Pits Master Plan Project (project). The County has prepared this notice of preparation (NOP) to provide responsible agencies, trustee agencies, organizations, and other interested parties with information describing the project and to identify the project's probable environmental effects pursuant to State of California requirements. The County seeks input from responsible agencies, trustee agencies, other affected public agencies, the public, and others regarding the scope and contents of the EIR.

The La Brea Tar Pits and the George C. Page Museum (Page Museum), located in portions of the 23-acre Hancock Park, including buildings, facilities, recreation areas, and the tar pits, are owned by the County but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the Natural History Museums of Los Angeles County (NHMLAC), including the La Brea Tar Pits and Page Museum.

PROJECT LOCATION AND OVERVIEW

As shown in Figures 1 and 2, the La Brea Tar Pits Master Plan property (project site) is located at 5801 Wilshire Boulevard in the Miracle Mile neighborhood of Los Angeles. The 13-acre project site occupies the eastern and northeastern portions of the 23-acre Hancock Park. The project site broadly encompasses what is known as the La Brea Tar Pits, which includes the Page Museum; the physical tar pit features located within the Hancock Park grounds, some of which are

research sites; the concession and public restroom building; a multipurpose lawn, recreation areas, and landscaped features throughout the park; and a surface parking lot.

The Los Angeles County Museum of Art (LACMA) is adjacent to the project site and also partially within Hancock Park; LACMA's facilities are not included in the project.

The La Brea Tar Pits Master Plan site is bounded by Wilshire Boulevard to the south, West Sixth Street to the north, South Curson Avenue to the east, and LACMA to the west. Also located to the west and just beyond LACMA's facilities are the Academy Museum of Motion Pictures and South Fairfax Avenue.

PROJECT DESCRIPTION

The proposed project would renovate the existing Page Museum and add a new one-story museum building toward the northwest, increasing the total museum square footage from 63,000 gross square feet (gsf) to 105,000 gsf (Figure 3). The new museum building would include a lobby and exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock.

The renovation of the Page Museum would remove the vegetation in the existing central atrium and improve the facility to allow for additional exhibition, classroom, and laboratory spaces. The renovation would also allow much of the collection space to be reorganized and enlarged to provide better display of the collections to the public. As part of the project, a café could be added to the outdoor terrace on the western side of the Page Museum.

The existing parking lot would be shifted to the northeast. However, it is not anticipated that there would be a substantial change in the amount of parking provided. The project would add new landscaping and vehicle access lanes to the parking lot, with an additional pedestrian entrance to the museum leading from the parking lot. A new 2,000-gsf support building would be constructed for additional exhibit, presentation, storage, administration, and research space directly west of the parking lot.

The project would add the following improvements to Hancock Park: a pedestrian path (improving pedestrian circulation within the project site), additional seating and rest areas, a Wilshire Gateway entry plaza at the southeastern corner of the site, a 6th Street Gateway entry plaza at the northwestern corner of the site, a pedestrian bridge over the Lake Pit, three pavilions with canopies, and new and enhanced recreation areas. Enhanced landscaping would also be provided, including native vegetation plantings and a garden bioswale to improve stormwater infiltration.

The phasing and the timing of construction to be proposed is currently under study by the NHMLAC and will be further detailed in the EIR. However, it is expected that construction would be completed in approximately 7 to 10 years. Construction activity is not anticipated to occur consistently over this duration, but rather would

be phased as funding becomes available. Limiting construction impacts to the community will be an important consideration in the determination of the final construction plan.

PROBABLE ENVIRONMENTAL EFFECTS OF THE PROJECT

Based on a preliminary review of the proposed project and consistent with Section 15060(d) of the CEQA Guidelines, the County has determined that a comprehensive EIR will be prepared for the project. Therefore, all of the topics identified in Appendix G of the CEQA Guidelines (the initial study checklist) will undergo study in the EIR.

The environmental effects to be analyzed in the EIR will include, but are not limited to, the following:

Transportation: A transportation impact analysis will be prepared for the EIR to describe the existing local and regional transportation network and to evaluate the proposed project's construction-related and operations-related traffic impacts for vehicular, transit, bike, and pedestrian circulation. The EIR will analyze whether the project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities. The project's impacts to traffic and transportation and their level of significance will be assessed in detail in the EIR.

Paleontological Resources: Hancock Park and the La Brea Tar Pits were designated as a National Natural Landmark in 1962, due to the world-famous asphalt tar pits and because of the site's important history related to Pleistocene animal fossils. The site is recognized for having the largest and most diverse assemblage of extinct plants and animals in the world and continues to support active discovery and research related to the asphalt tar pits. Subsurface paleontological resources could be discovered during construction of project components, particularly during excavation for construction of the new museum building. The potential for impacts to paleontological resources will be evaluated in the EIR and appropriate discovery and treatment measures will be developed and presented in the EIR.

Cultural Resources: The EIR will provide an assessment of the potential effects of the project on cultural resources. The EIR will include an inventory of archaeological, historic, and culturally sensitive resources and will describe the potential for cultural resources to be adversely impacted during construction or operation of project components, particularly during excavation for the construction of the new museum building. Consideration will be given to the potential for effects on the historic sensitivity of the project site and its features. Specifically, Hancock Park and the La Brea Tar Pits were designated as eligible for listing in the National Register of Historic Places in 1984.

Tribal Cultural Resources: In accordance with Assembly Bill 52 (Government Code Section 65352.4), the Native American Heritage Commission and any tribes it identifies will be contacted and consulted about the presence of traditional lands or cultural places in the proposed project vicinity; potential impacts to tribal cultural resources will be identified in the EIR.

Air Quality: Construction of the project would generate emissions from construction equipment exhaust, earth movement, construction workers' commutes, and material hauling. The EIR will provide an estimate of construction-related emissions as well as long-term operational emissions of project components. The EIR will also provide an evaluation of the project's consistency with regional air quality attainment plans and the potential health impacts associated with project construction and operation emissions to local and regional sensitive receptors.

Greenhouse Gas Emissions: The EIR will provide a quantification of greenhouse gas emissions associated with proposed construction and operation in terms of carbon dioxide equivalent emissions. The estimated greenhouse gas emissions will be compared to regional thresholds of significance and impacts will be identified. The proposed project's consistency with the County's Community Climate Action Plan and other applicable plans will also be addressed.

Noise: The EIR will identify sensitive noise receptors and sources of noise and vibration in the project area and will analyze short-term construction and long-term operational noise and vibration impacts, where feasible. The construction analysis will use established modeling methods (e.g., the Federal Highway Administration Roadway Construction Noise Model and the Federal Transit Administration Noise and Vibration Manual). The EIR will provide an analysis of the project's potential to generate substantial temporary or permanent increases in ambient noise levels near the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies.

Geology and Soils: The EIR will provide an analysis of geologic hazards, including the potential for seismic hazards, such as rupture of a known earthquake fault, seismic ground shaking, or seismic-related ground failure, including liquefaction, landslides, substantial erosion or the loss of topsoil, lateral spreading, subsidence, collapse, and expansive soils.

Hazards and Hazardous Materials: The project site is not located on a list of hazardous waste sites compiled pursuant to Government Code Section 65962.5 (i.e., the Cortese List). However, further analysis of hazardous materials will occur to support the EIR. The EIR will describe the existing hazardous materials conditions on and adjacent to the project site, including the potential for existing soil or groundwater contamination, and will identify hazardous impacts from both construction and operations. Specifically, the EIR will analyze whether the project

would create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

NOTICE OF SCOPING MEETING

The County will conduct two virtual public scoping meetings to solicit oral and written comments from interested parties as to the appropriate scope and content of the EIR.

All interested parties are invited to attend one of the scoping meetings to assist with identifying issues to be addressed in the EIR. Both scoping meetings will include a brief presentation of the project to be addressed in the EIR and will provide attendees with an opportunity to provide input on the scope of the EIR. Each scoping meeting will provide the same presentation. Participants that register will be able to join either meeting. The following meeting start times are available:

- **Wednesday, March 2, 2022, 2:30 p.m.**
- **Wednesday, March 2, 2022, 5:30 p.m.**

To join at either of these times, please register at the following link to receive the Zoom connection information:

https://swca.zoom.us/webinar/register/WN_LgiNknH7StmHTjCCZAP0Yg

Live language interpretation of the presentation and scoping meeting input will be provided in Spanish and Korean during the scoping meeting. Interpretation in other languages can be made available at the meeting upon request. Please submit interpretation requests at least 7 business days in advance of the meeting date to Richard Hayden at reimagine@tarpits.org.

PUBLIC REVIEW PERIOD

The County has made this NOP available for public review and comment pursuant to the CEQA Guidelines Section 15082(b). The County is seeking input from public agencies and members of the public on the intended scope and contents of the environmental information and analysis in the EIR. Due to the time limits mandated by state law, written comments must be sent via United States Postal Service or email within 30 days, postmarked or emailed no later than **5:30 p.m. Pacific Time on Wednesday, March 16, 2022**.

Any comments provided should identify specific topics of environmental concern and the reason for suggesting the study of these topics in the EIR. All comments will be considered in defining the scope of the EIR in accordance with State and County environmental guidelines.

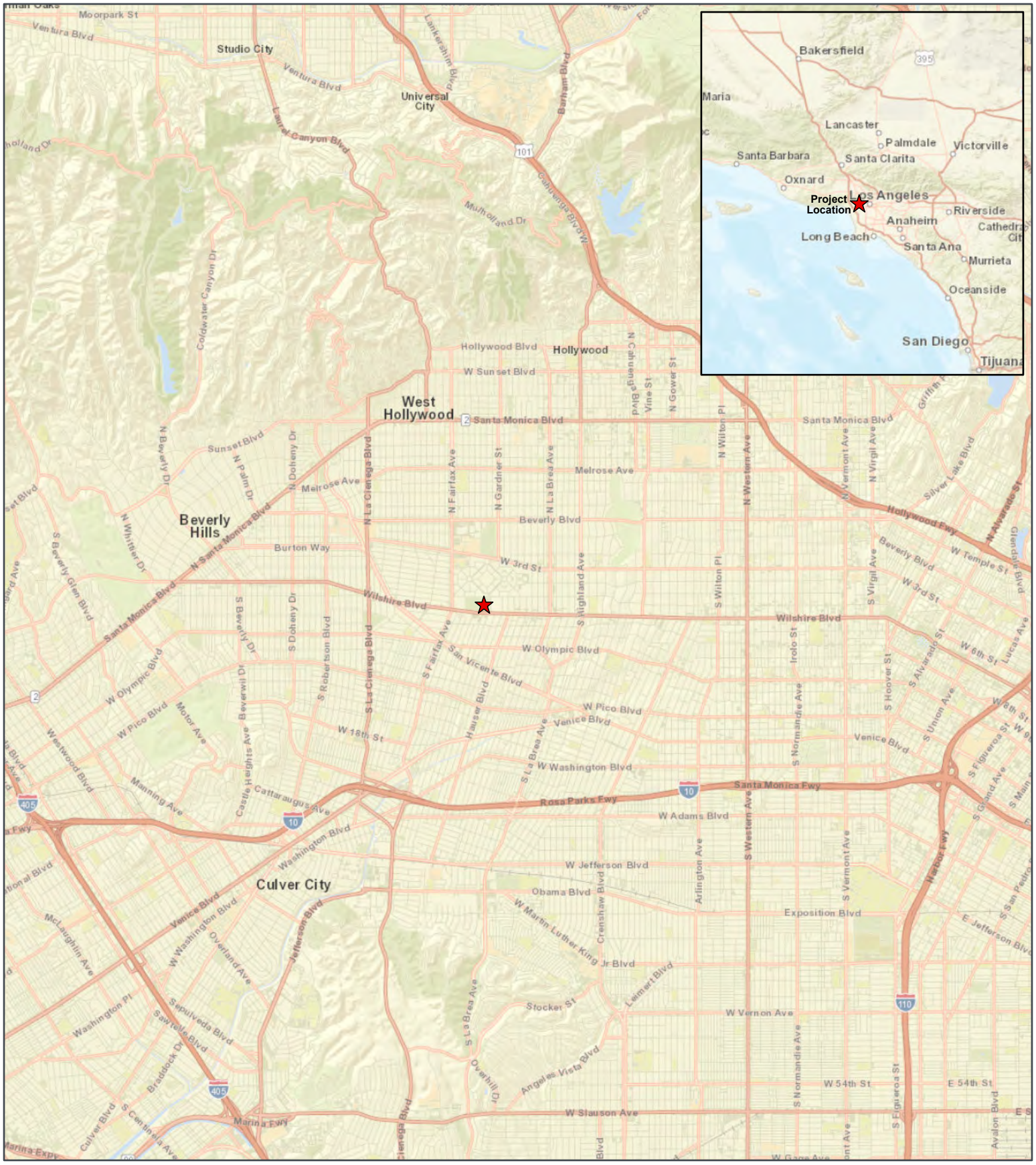
Please direct all written comments to the following address:

Richard Hayden, Assistant Deputy Director
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007
reimagine@tarpits.org

DOCUMENT AVAILABILITY

This NOP and additional information regarding the La Brea Tar Pits Master Plan Project is available for review at **tarpits.org/reimagine**

Thank you for your participation in the environmental review of this project.



LA BREA TAR PITS MASTER PLAN

Vicinity Map
Figure 1

★ Project Location

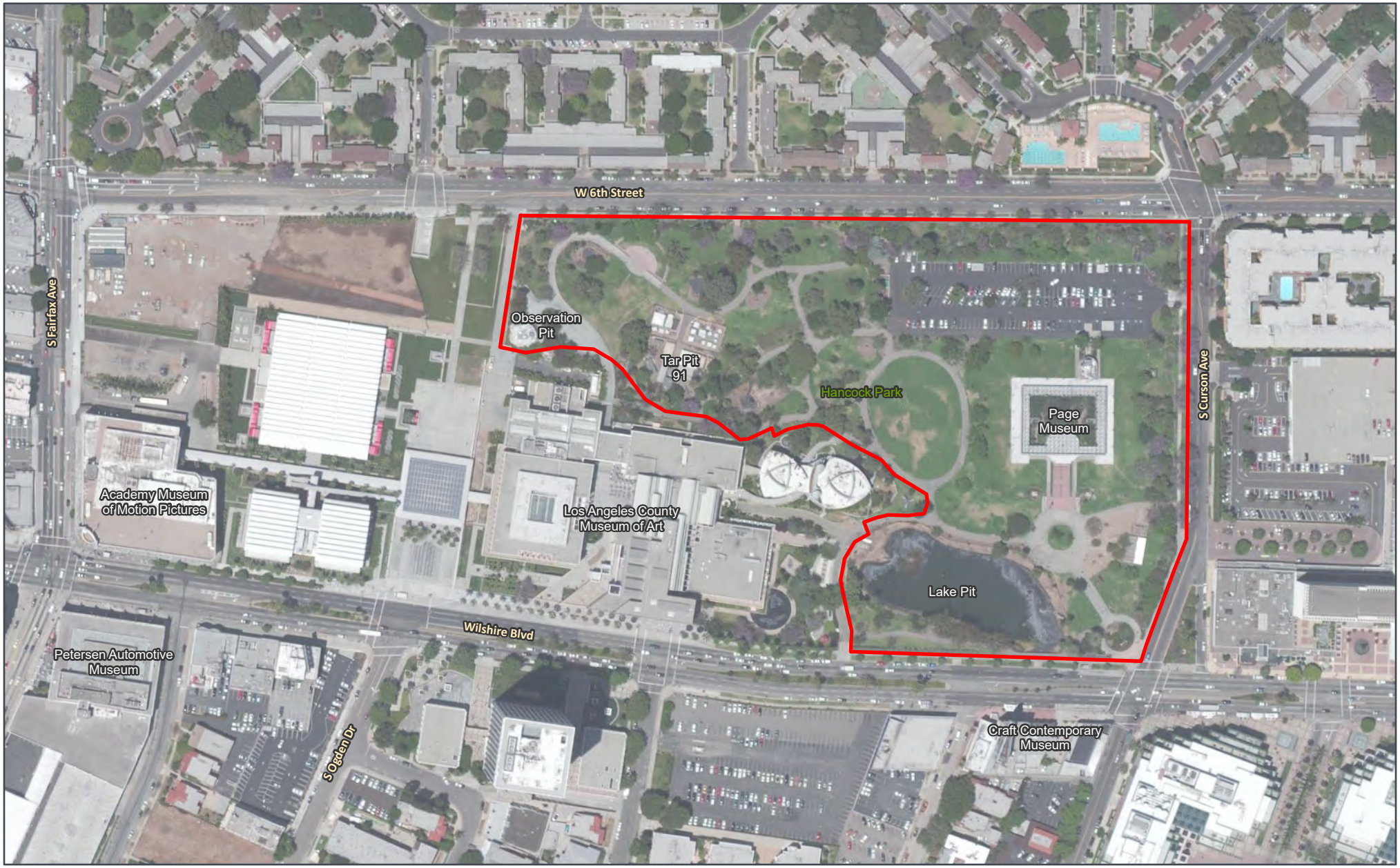
Los Angeles County, CA
WGS 1984 Web Mercator
Auxiliary Sphere
34.067°N 118.3497°W

0 4,000 8,000 Feet
0 1,000 2,000 Meters

N

1:100,000

Base Map: ESRI ArcGIS Online, accessed February 2022
Updated: 2/2/2022
Project No. 63953
Aprx: 63953_La_Brea
Layout: 63953_LaBrea_Vicinity



LA BREA TAR PITS MASTER PLAN

Location Map
Figure 2

Project Area

Los Angeles County, CA
NAD 1983 UTM Zone 11N
34.0637°N 118.3576°W

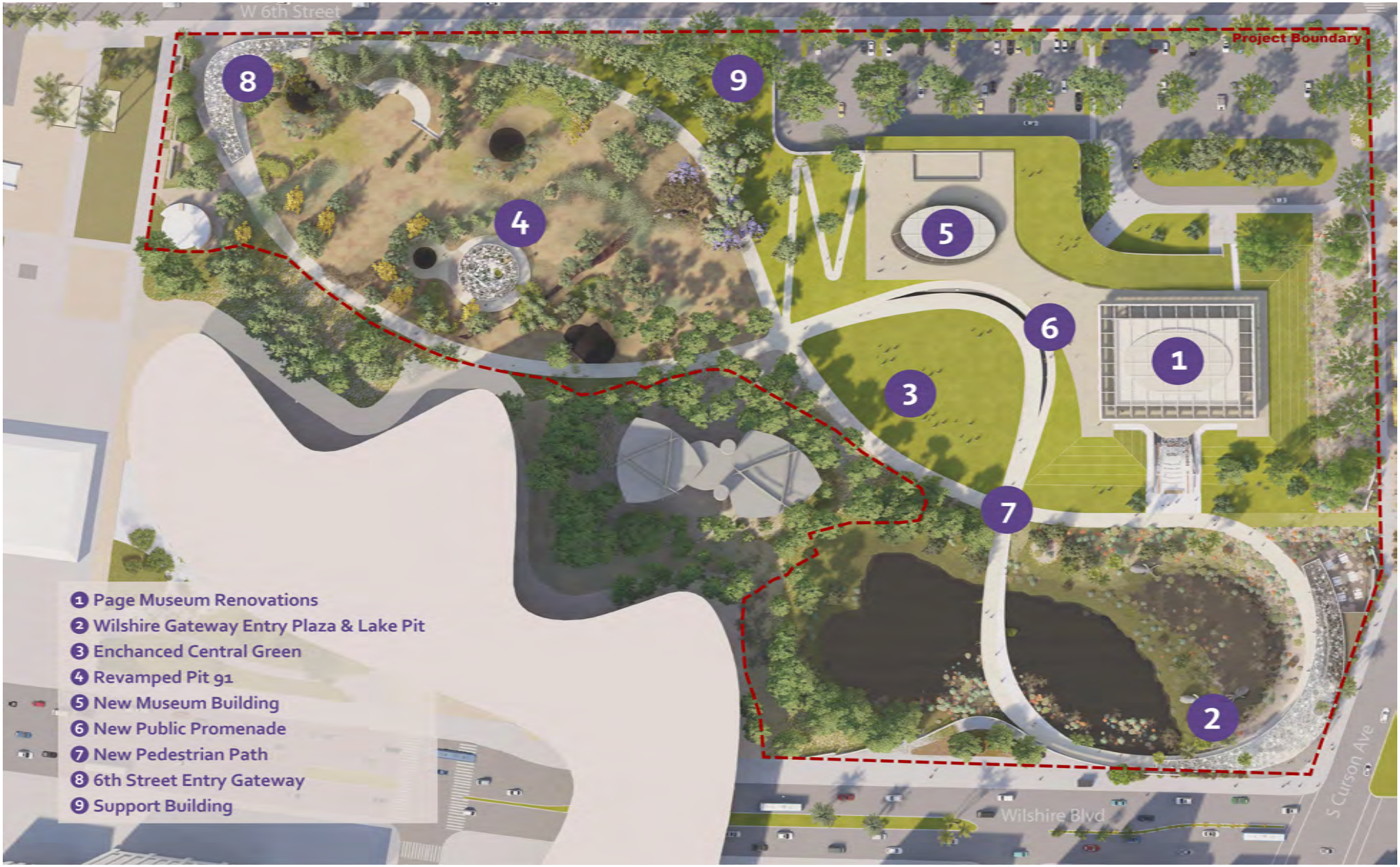
0 110 220 Feet
0 25 50 Meters

N

1:2,850

Base Map: ESRI ArcGIS Online, accessed February 2022
Updated: 2/2/2022
Project No. 63953
Layout: 63953_LaBrea_Location
Aprx: 63953_La_Brea

SWCA



LA BREA TAR PITS MASTER PLAN

Conceptual Site Plan
Figure 3

Los Angeles County, CA
34.0637°N 118.3576°W

N

Base Map: Weiss/Manfredi, 2021
accessed February 2022
Updated: 2/2/2022
Project No. 63953
Layout: 63953_LaBrea_SitePlan
Aprx: 63953_La_Brea

SWCA

La Brea Tar Pits Master Plan EIR
Summary Matrix of Written Comments on the NOP and Verbal Comments from Public Scoping Meetings

Broad Topic	Comment Summary	Type	Date of Comment	EIR Section
Tribal Cultural Resources	Comment letter includes information about compliance with Assembly Bill 52, Senate Bill 18, and tribal consultation.	AGENCY	2/16/2022	Section 5.14: Tribal Cultural Resources
Recreational Amenities	Commenter supports inclusion of a children's playground within the project site.	INDV	2/17/2022	Not a comment on environmental impact analysis.
Construction	Commenter asked about timing and length of construction activities.	INDV	02/21/2022; 2/23/2022	Chapter 3: Project Description
Construction; Design	Commenter asked about length of construction activities. Commenter suggests the museum create a "hall of La Brea" to showcase resources found on site and a "bird hall" to showcase bird fossils found on site.	INDV	2/22/2022	Chapter 3: Project Description Not a comment on environmental impact analysis.
Public Scoping	Commenter asked about timing and registration of public scoping meeting.	INDV	2/24/2022	Chapter 1: Introduction
Design	Commenter requests the museum design "reference other tar pits of the world" and other fossil localities in California.	INDV	2/25/2022	Not a comment on environmental impact analysis.
Landscaping; Design; Public Transit; Lighting	Commenter requests native and drought-conscious landscaping. Commenter is interested in further details regarding the design of the Lake Pit pedestrian bridge. Commenter encourages bicyclist accessibility and parking. Requests more public transit accessing the site, notably the Metro 720 express bus line. Commenter expressed concern regarding light pollution coming from the site.	INDV	3/2/2022	Chapter 3: Project Description The design of a possible pedestrian bridge over the Lake Pit is at the conceptual stage only and no further details are discussed in the EIR. Section 5.13: Transportation Section 5.1: Aesthetics
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/3/2022	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/3/2022	Not a comment on environmental impact analysis; however, the

Broad Topic	Comment Summary	Type	Date of Comment	EIR Section
				project does include a possible small dog park.
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/3/2022	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Recreational Amenities	Commenter discourages inclusion of a dog park within the project site, supports focus on the "science, sustainability, and general park space."	INDV	3/4/2022	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Recreational Amenities	Commenter discourages inclusion of a dog park within the project site due to odor and nuisance.	INDV	3/4/2022	The project does include a possible small dog park. Section 5.2 Air Quality (re: Odor impact analysis)
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/4/2022	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Lighting; Landscaping; Public Transit	Commenter requests a meeting with NHM staff to discuss design. Commenter expresses concern regarding light pollution, supports replacement of trees, and expresses support for current efforts to improve public transportation/circulation and pedestrian pathways in the vicinity.	INDV	3/9/2022	Section 5.1: Aesthetics, Section 5.3: Biological Resources, and Section 5.14: Transportation
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/10/2022	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/10/2022	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/11/2022	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Recreational Amenities	Commenter supports inclusion of a dog park within the project site.	INDV	3/12/2022	Not a comment on environmental impact analysis; however, the

Broad Topic	Comment Summary	Type	Date of Comment	EIR Section
				project does include a possible small dog park.
Biological Resources; Landscaping	Comment letter states Monarch Butterfly meets CEQA definition of threatened or endangered species; recommends survey, analysis, and mitigation. Comment notes potential for nesting birds on site; recommends avoidance and mitigation measures. Comment recommends DEIR contain landscaping plan and replacement tree species list. Project should include only native species. Comment recommends inclusion of infectious tree disease management plan or pest management mitigation measures. Comment recommends DEIR discuss rodenticide use. DEIR should contain biological baseline assessment.	AGENCY	3/14/2022	Section 5.3: Biological Resources
Public Transit, Transportation	Comment letter recommends DEIR include information/analysis on existing and planned transit services and facilities in the project vicinity. Comment recommends transit-oriented planning and design, provides recommendations and resources.	AGENCY	3/16/2022	Section 5.14: Transportation
Air Quality	Comment letter provides input on the content and format of the air quality and greenhouse gas analyses.	AGENCY	3/15/2022	Section 5.2: Air Quality
Design, Historic Resources	Comment letter recommends comprehensive analysis of impacts to historic resources and inclusion of historic preservation objectives and goals. Comment requests additional coordination with the project team.	ASSOCIATION	3/16/2022	Section 5.5: Cultural Resources, Historical Resources

Broad Topic	Comment Summary	Type	Date of Comment	EIR Section
Landscaping; Design; Lighting Recreational Amenities	Comment letter provides input on the design of the pedestrian pathways and landscaping of the project. Comment expresses concern regarding removal of trees, the re-conception of the Space Frame and Frieze around the interior atrium, and light pollution. Comment supports inclusion of a dog park on the project site.	ASSOCIATION	3/17/2022	Chapter 3: Project Description, Section 5.1: Aesthetics, and Section 5.3: Biological Resources
Landscaping; Design; Lighting	Commenter appreciates the open space of the project site and emphasizes retaining trees on site. Recommends planting native trees for shade over pedestrian pathways. Comment expresses concern regarding light pollution.	INDV	3/17/2022	Section 5.1: Aesthetics, and Section 5.3: Biological Resources
Landscaping; Design	Commenter expresses appreciation for the existing style/architecture of the Page Museum. Commenter notes the sump pump on northwest side of the building isn't working and the pedestrian walkways need to be resurfaced. Commenter appreciates the landscape art (Mammoth/Mastodon statues) and Amphitheater. Commenter states removing any trees on site would be unfortunate.	INDV	3/30/2022	Section 5.3: Biological Resources (re: tree removal)
Design	Comment supports inclusion of a dog park on the project site.	INDV	3/2/22	Not a comment on environmental impact analysis; however, the project does include a possible small dog park.
Design	Commenter requests expanded park hours.	INDV	3/2/22	Not a comment on the environmental impact analysis. Not addressed in the EIR.
Design	Commenter interested in further details regarding the design of the Lake Pit pedestrian bridge.	INDV	3/2/22	The design of a possible pedestrian bridge over the Lake Pit is at the conceptual stage only and no further details are discussed in the EIR.

Broad Topic	Comment Summary	Type	Date of Comment	EIR Section
Biological Resources; Landscaping	Commenter expresses information about tree removal and replacement.	INDV	3/2/22	Section 5.3: Biological Resources
Biological Resources	Commenter expresses support for rabbit population in the park.	INDV	3/2/22	Not a comment on the environmental impact analysis. Not addressed in the EIR.
Lighting	Commenter expresses concern regarding light pollution.	INDV	3/2/22	Section 5.1: Aesthetics
Bike Accessibility	Commenter inquired about bike accessibility within the park pathways.	INDV	3/2/22	Section 5.14: Transportation
Security	Commenter asks about security measures being considered as part of the project.	INDV	3/2/22	Not a comment on the environmental impact analysis. Not addressed in the EIR.
Design	Commenter asks about changes to the content of the exhibits.	INDV	3/2/22	Chapter 3: Project Description
Design	Commenter asks for details regarding the proposed change in museum size and footprint.	INDV	3/2/22	Chapter 3: Project Description
Cumulative Construction Impacts	Commenter asks about impacts of other nearby construction projects.	INDV	3/2/22	Chapter 4: Environmental Setting
Parking and Traffic	Commenter inquires about parking spaces and school bus access. Commenter also asks about traffic impacts.	INDV	3/2/22	Section 5.14: Transportation
Design	Commenter asks about plans to alter the lake pit.	INDV	3/2/22	Chapter 3: Project Description
Design	Commenter asks if park will expand in size.	INDV	3/2/22	Not a comment on the environmental impact analysis. However, for informational purposes it is noted that Chapter 3: Project Description describes all the components of the proposed Master Plan. Expansion of the park is not included in the proposed project.

APPENDIX B

La Brea Tar Pits Loops and Lenses Master Plan and Concept Design Summary Booklet

Master Plan and Concept Design
March 2023

La Brea Tar Pits
Loops and Lenses

Prepared by **WEISS / MANFREDI** for the Natural History Museums of Los Angeles County

Master Plan and Concept Design
March 2023

La Brea Tar Pits
Loops and Lenses

Prepared by **WEISS / MANFREDI** for the Natural History Museums of Los Angeles County

Prepared for the Natural History Museums of Los Angeles County

La Brea Tar Pits & Museum
5801 Wilshire Blvd
Los Angeles, CA 90036

By Weiss/Manfredi

WEISS / MANFREDI
Architecture/Landscape/Urbanism
200 Hudson St 10th Floor
New York, NY 10013

The possibilities that exist at La Brea Tar Pits have captured our collective imaginations for some time. As we look forward to the next generation of research and public service, the opportunity to reshape this very special place is both thrilling and timely. Building upon the Loops and Lenses competition entry, the La Brea Tar Pits Master Plan and Concept Design seeks to capture the immense potential of transformation with a comprehensive vision that extends the research and programmatic mission of La Brea Tar Pits through a cohesive campus in the heart of Los Angeles.

This master planning effort has benefitted tremendously from the dedicated support and active engagement of the NHMLAC Leadership and Master Planning Team, Board of Trustees, Board Steering Committee, NHMLAC Planning Working Groups, and our strong team of engineering and specialty consultants. In a new framework vision that weaves together a renovated and expanded museum with a rejuvenated park, Weiss/Manfredi is honored to share a Master Plan that will guide this remarkable and unique institution towards the future as a vibrant community asset and an internationally recognized scientific and cultural mecca.

Marion Weiss and Michael A. Manfredi

Loops and Lenses: Master Plan and Concept Design

Discovery and Inspiration 6
Connect the Museum and Park to the Cultural Landscape 15
Enhance Hancock Park's Environmental Identity 22
Magnify the Museum's Visibility 45
Reveal the Museum Collection 58
Capturing Imagination 73

Project Credits 75

Discovery and Inspiration

"Loops and lenses connect and reveal an open-ended journey of discovery and inspiration."

This story begins 20 million years ago. Organisms on the ocean floor were slowly compressed by marine sediments into crude oil. Then came the glacial retreat during the Ice Age, followed by thousands of years of tectonic shifts before oil finally seeped up to the earth's surface and turned into asphalt. It is within these sticky pools of tar that animals and plants are trapped, killed, and ultimately preserved. Over time, the site has become a rich repository of extinct and extant lifeforms on Earth, forming a record of our changing environment. Specimens excavated from the site teach us about the history of the planet and, more importantly, help us imagine our future on Earth in the current Anthropocene era.

Throughout our lives, La Brea Tar Pits has provided an enduring source of wonder and a point of orientation for our own exploration and understanding of the world. Few other parks in the world bring active discovery and raw curiosity into such tantalizingly close reach. Few other museums in the world juxtapose real-time excavation and imaginative display. With all the potential of a phenomenal landmark in place, the site can be further transformed into a cohesive destination that serves both the public and scientists. Already an internationally recognized institution and a key component to the region's cultural milieu, the transformed museum and site must have greater legibility, provide a richly layered visitor experience, and enhance the city with a dramatic new setting for science, education, and public life.

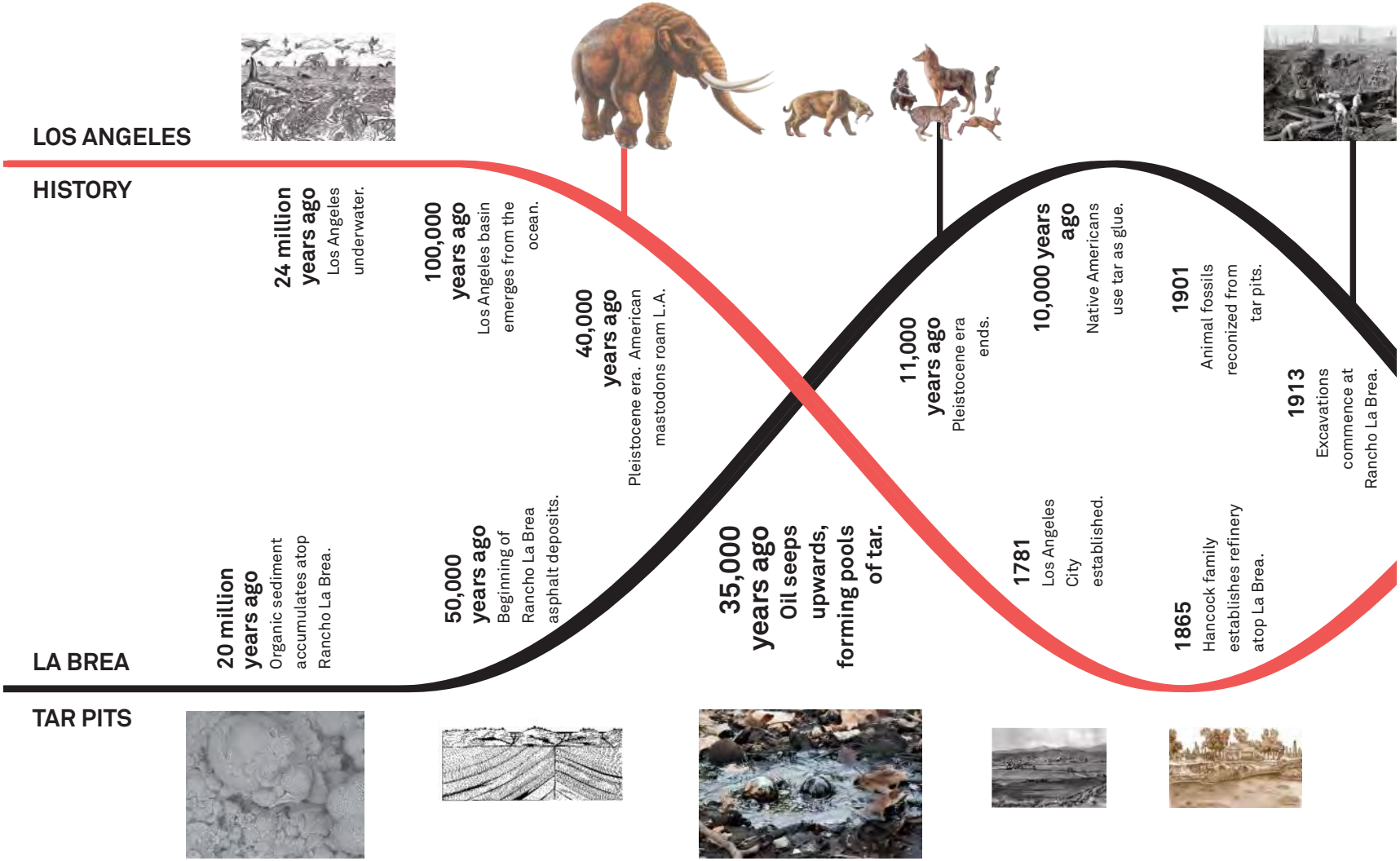
Building upon the Loops and Lenses competition entry, the La Brea Tar Pits Master Plan redefines Hancock Park and the museum as one unified identity. The continuous loops connect the rich but disparate existing structures, enhancing amenities for community and research. The lenses, as framed views throughout the park and museum, bring into focus the museum collection and scientific activities at multiple scales. As flexible armatures, loops and lenses connect and reveal—they form an intimate journey of discovery and inspiration. Together they tell the story of La Brea Tar Pits: the continuum from prehistoric time to our contemporary moment.

FOUR DESIGN PRINCIPLES:

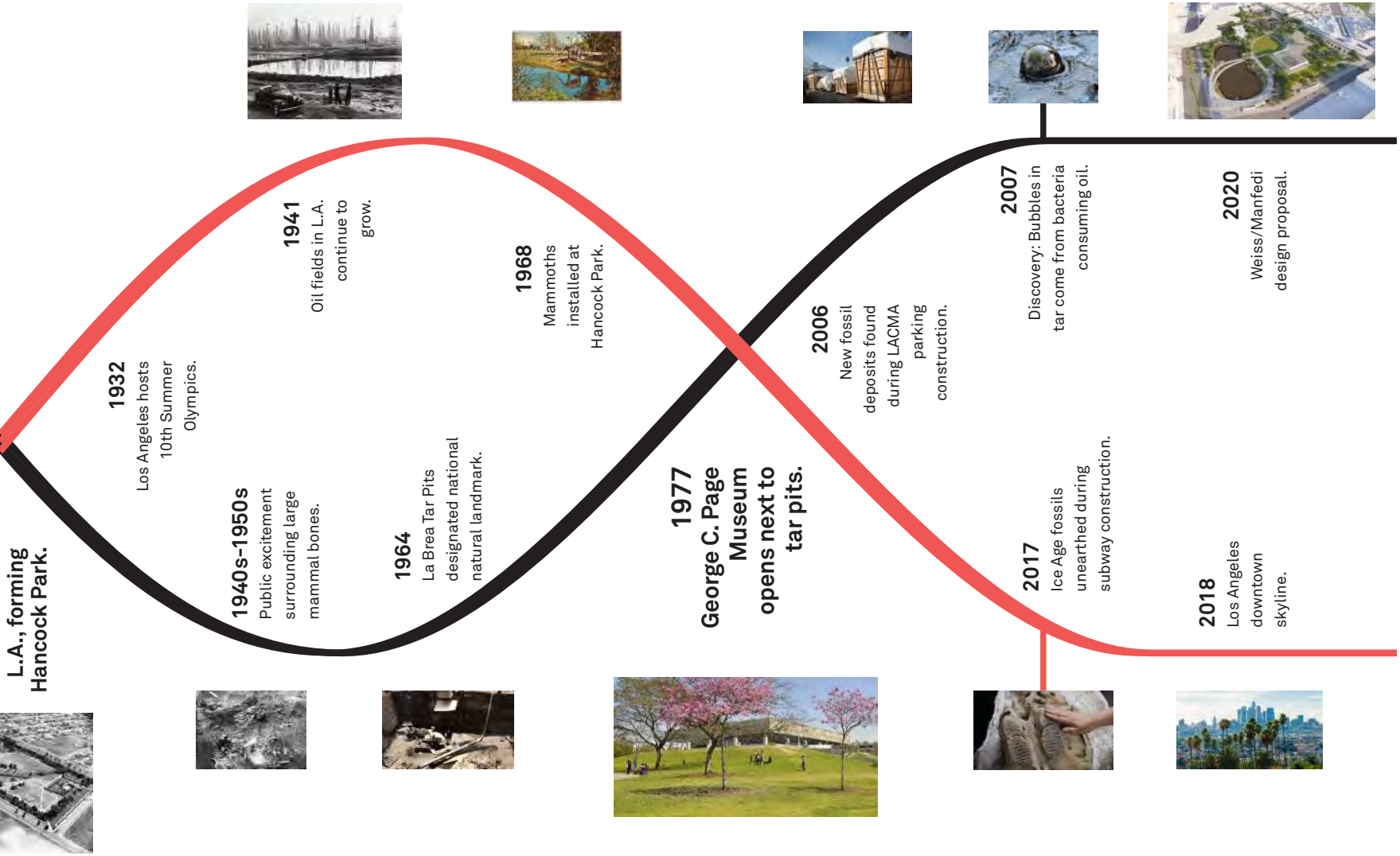
- Connect the Museum and Park to the Cultural Landscape
- Enhance Hancock Park's Environmental Identity
- Magnify the Museum's Visibility
- Reveal the Museum Collection

Connecting Histories
La Brea Tar Pits & L.A.

The paleontological history of the Tar Pits and the relatively short history of Los Angeles have been interconnected in continuous and paradoxical ways. Here, science is literally extracted from this ever-changing site. The La Brea Tar Pits has preserved the flora and fauna from the Pleistocene past in a city committed to inventing the future.



How can these histories connect in new revealing ways?

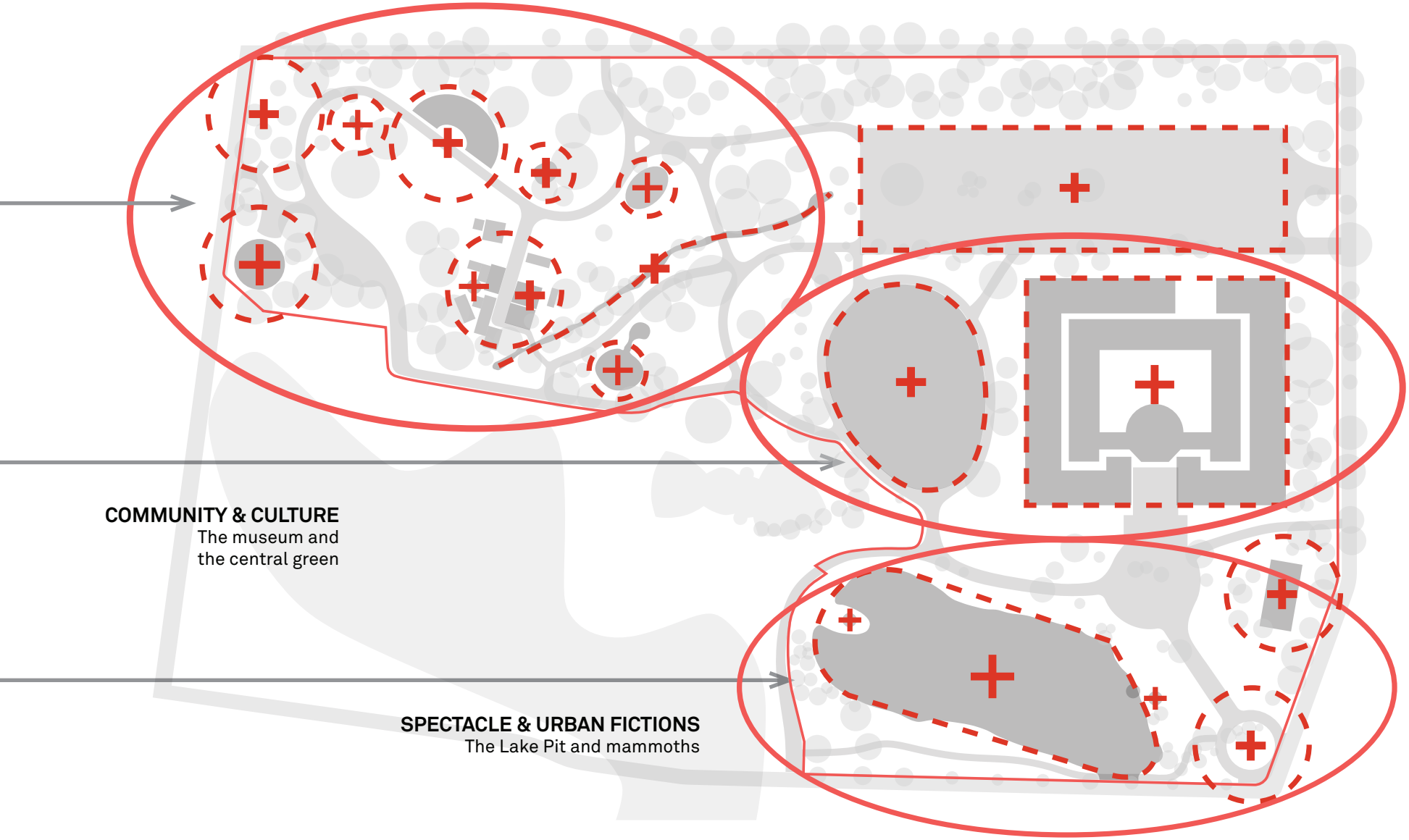


Amplify the Park Identities

The creation of Hancock Park was a gift to the community over 100 years ago. Over time, the park and the museum have evolved idiosyncratically. The existing collection of pathways wander through the park yet fail to create legible connections. However, a collection of latent identities exists on site. “Excavation and discovery” characterize the northwest precinct, “community gathering and the museum” give focus to the center, and “the lake pits and park amenities” are visible from Wilshire Blvd.

RESEARCH & REVELATION
The excavation pits and the Pleistocene Garden

How can we bring into focus and connect the latent identities of each park precinct?

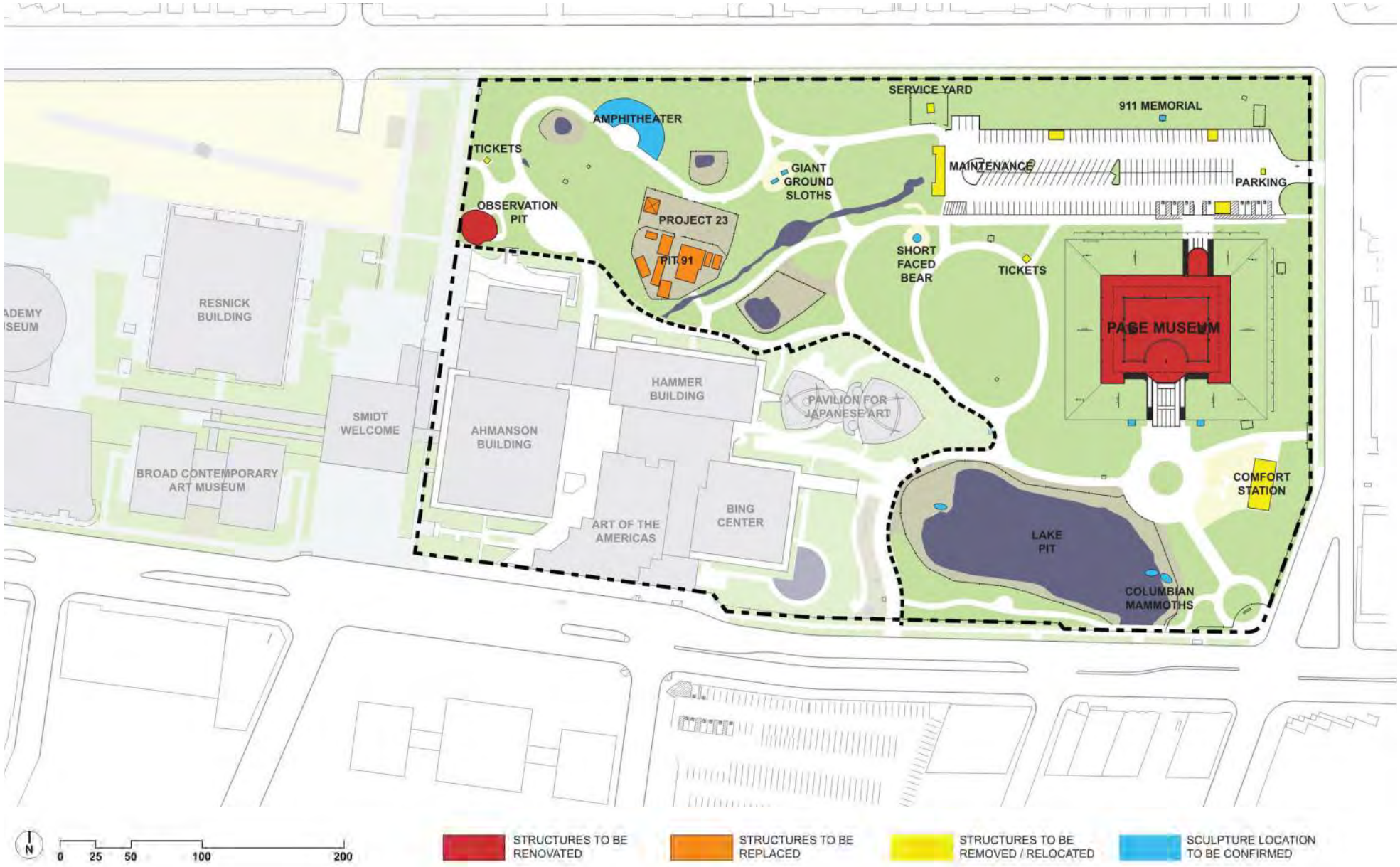


Existing Site
The Museum and Hancock Park

The scope extent of the Master Plan includes the existing museum and Hancock Park.

Site Analysis
Existing Site Structures

Through examination of existing documents and site visits, the structures that exist onsite have been identified.



Site Analysis
Existing Pits and Tar Seeps

Existing tar pits and their potential as future excavation sites have been studied with Research and Collections.

Connect the Museum and the Park to the Cultural Landscape

Loops and Lenses

Hancock Park is the only public greenspace within a 1.5-mile radius. An active excavation landscape unique among public parks, the park's tar seeps occur sporadically. Since 1926, a constellation of structures has been constructed to contain and display this phenomenon as a part of Los Angeles's history. They are distributed at various locations across the site, lacking a shared identity. Understanding the rich overlap between these elements is central to our approach, which seeks to connect and inspire.

The La Brea loops, a triple Möbius that links all the existing elements of the park, aims to redefine Hancock Park as a unified experience. This 1-kilometer pedestrian path unifies the rich yet disparate existing elements of the site: the Lake Pit, the tar pits, the lawn, pavilions, and the museum.

Within the loops are park areas with distinct themes: research and revelation, community and culture, spectacle and urban fiction. The different identities of the loops embody journeys, with programming that appeals to diverse interests—from paleontology to bird-watching, from art to kids' playgrounds. The science walk allows students and curious adults to observe excavation and research in action. Picnic and recreational areas are situated throughout the park. Various park destinations and seating areas along the loop provide more intimate spaces for reflection. At the loop's outward-most points, the path transforms into entry pavilions that provide orientation, legibility, and amenities. Greater visibility from Wilshire Boulevard and the surrounding context further binds La Brea to the community of Los Angeles.

Wilshire Gateway & Lake Pit

At the Wilshire Gateway, a new Entry Canopy defines a welcoming threshold between park and city and enables greater visibility from Wilshire Boulevard and the surrounding context. Under the canopy, a new welcome pavilion and shaded entry plaza provide orientation, spaces for gathering and queuing, and restrooms. Through conversations with the various NHMLAC Working Groups, an enhanced school drop-off was identified, enabling the choreography of student tour itineraries that are distinct from general museum visitors and other tour groups. A picnic area under the canopy and shade trees provides new programming opportunities, from outdoor education and school lunches to orientation and gathering.

The Wilshire Loop features a new garden bioswale that tells a story of sustainability and manages stormwater in an area separate but adjacent to the Lake Pit. Supported by the engineered bioswale site, new plantings form a Pleistocene Garden and create a new, more accurate setting for the relocated iconic mammoths and mastodon sculptures. The loop pathway provides cinematic views of this important new landscape while interpretive signage allows park visitors to imagine a Pleistocene environment, extending the narrative impact of this important gateway to the La Brea Tar Pits. A pedestrian bridge increases the legibility of the Lake Pit bringing park visitors above the lake and the methane bubbles that break its surface. New interpretive opportunities reveal the former industrial heritage of the site and explain the connection between Los Angeles of today and the natural resources that have powered its growth and development.

Research & Revelation

At the 6th Street Gateway, a shaded entrance and welcome pavilion provides orientation, legibility, and amenities. As a visible point of Connection to LACMA and a point of arrival from the residential communities to the north, this new entry will welcome visitors to a shaded park space where community park and recreational needs are balanced with the research activities of La Brea. Under the canopy of shade trees, visitors will find diverse destinations including play areas, picnic areas, seating and interpretation zones at the protected tar seeps, the gentle topography and bioswales along Oil Creek, and the revitalized destinations of the Dorothy Brown Amphitheater, the Observation Pit, and Pit 91. Along the south edge of the loop path, connections will allow access to the LACMA plaza and links to other Hancock park programs and transportation connections.

As the precinct most rich with fossils and active tar seeps, the planning approach to the westernmost Research Precinct involved extensive conversations with Research and Collections. As National Natural Landmarks it is important to preserve the active tar seeps which continue to trap leaves, insects, pollen, and other materials to log an ongoing record of La Brea. As fossil-rich zones, the pits must be protected to allow future excavation and research. As dynamic dig sites, they must continue to be safe and functional facilities that demonstrate the impact of ongoing research to diverse park visitors. Finally, as historic settings, Pit 91 and the Observation Pit must continue to reveal the legacy of the site while adapting to new uses and engaging park programming.

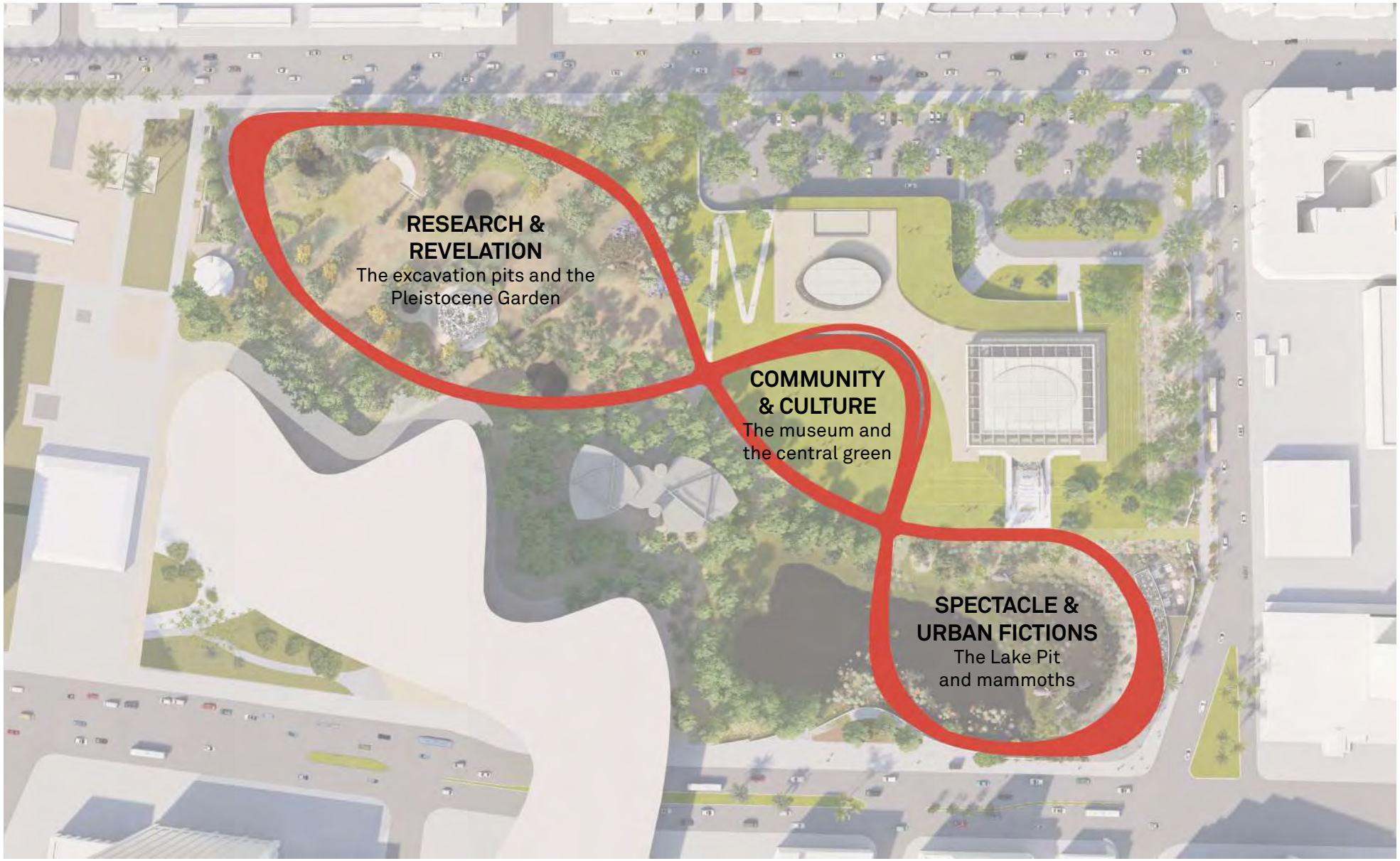
Much of the existing research facility will change, with the activities of excavation and research reorganized to realize opportunities to enhance the public park experience and more effectively supporting the excavation and research process. A key factor in this reorganization involves relocating the storage and excavation of Project 23 materials to space within and adjacent to the expanded museum, while Pit 91 continues to be a key research and interpretation destination in the park.

Central Green

As a site for community and culture, the Central Green provides a destination community lawn that amplifies the rich activities and events that take place in Hancock Park. At the heart of Hancock Park, the Central Green is a point of connection between the other two loops of La Brea Tar Pits, the museum, LACMA, and the Japanese Pavilion. The Central Green is active throughout the day. Early in the morning, as the park opens, the Central Green is a setting for community activities and health and wellness programs. As the day progresses, the lawn comes alive with visiting school children, museum tour groups, and community members. Provisions for improved infrastructure and a drivable path allow increased event opportunities in the park and additional dining opportunities on summer weekends and holidays when the museum visitation increases. In the evening, the green is transformed for events and outdoor film, with the illuminated museum framing a place of connection and wonder.

Site Strategy
Loops & Lenses

The La Brea Loops, a 1-kilometer triple Möbius path, link all existing elements of the park and provide a connected identity.

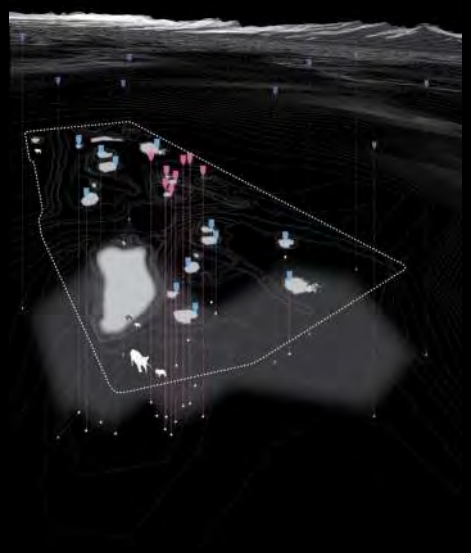


Site Plan

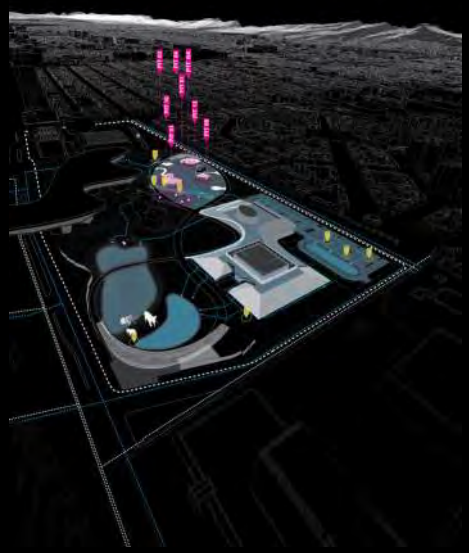
A unified park will express the vitality and critical relevance of La Brea Tar Pits' mission and create a dynamic, actively programmed site.

A Dynamic Site

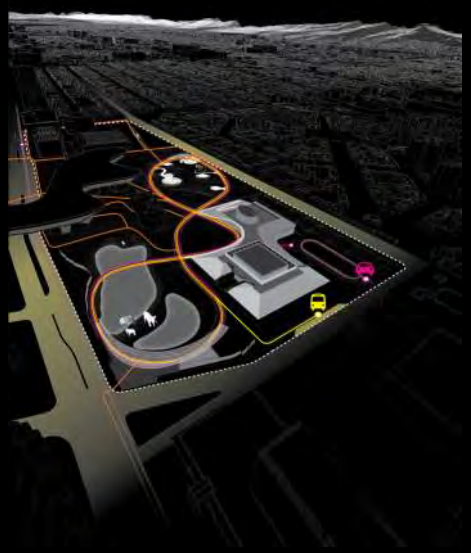
A richly layered site, the reimagined park and museum will create a dynamic setting for science, education, ecology, and public engagement.



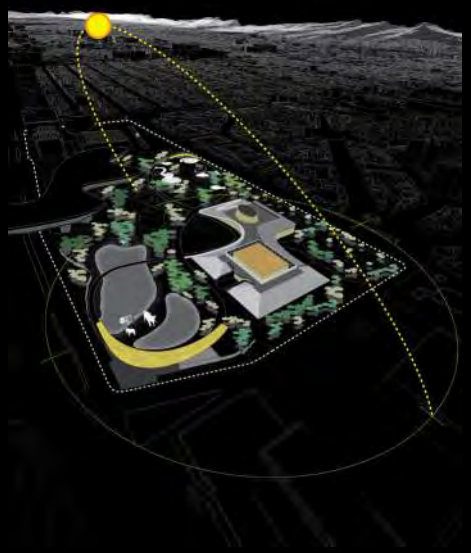
Pre-History
Upswelling forces formed the tar seeps of the Pleistocene



Fluvial Formations
Site morphology formed by water & the dynamics of methane and asphaltic tar



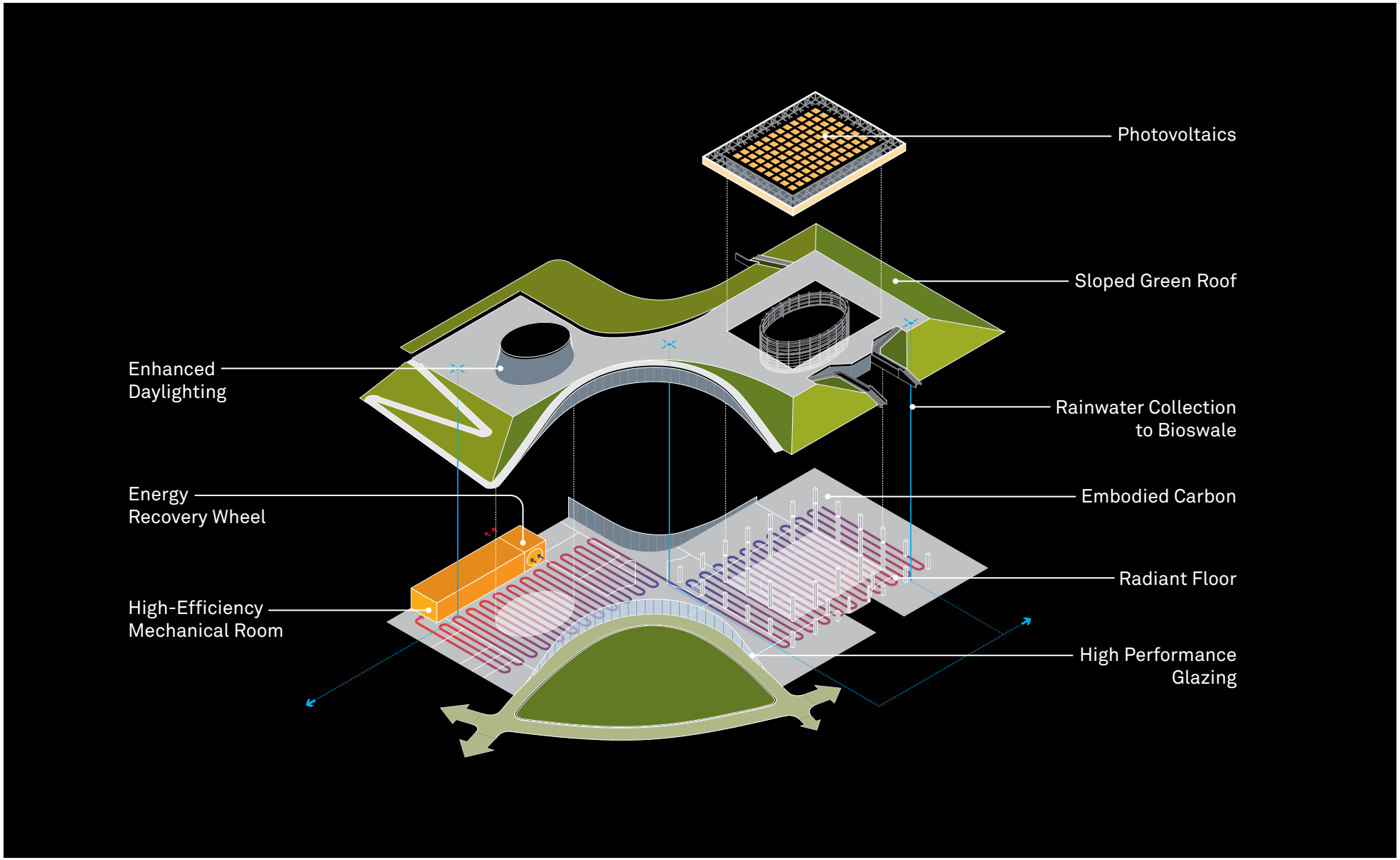
Inhabiting Topography
A public landscape choreographs the diverse communities and activities of L.A.



Sustainable Canopies
New shade structures, solar voltaics, and trees balance the needs for sun and shade

Sustainability Goals

The renovated and enhanced museum will recognize the ambitious goals outlined in L.A. County's "Our County Plan."



Enhance Hancock Park's Environmental Identity

The park areas encircled by the loops are given three distinguishing themes: research and revelation, community and culture, and spectacle and urban fiction. Each with its distinct identity, they serve diverse interests and usage. They are designed to maximize space for community, creating opportunities for the public to engage with the site's natural history.

Within the research loop, reframed and protected pit sites and a new outdoor classroom allow people to better witness active excavation and engage in programs and education under a canopy. The existing lawn is expanded for public recreation, with additional picnic areas around the loop. Various play areas throughout the park provide a space for children to learn about the site's geology through play and tactile experience.

Within the loops are distinct landscape zones, representing different geologic epochs of the site's history and aiming to refine the identity of the park to better tell La Brea's story. The approach to landscape takes advantage of the park's topography and opportunities to manage stormwater and envision a programmatically rich ecosystem that reflects the botanical diversity La Brea has witnessed across several epochs. Extending the story of the botanical fossil record of the museum, the park provides an opportunity to understand plant communities of the past, the impacts of climate change, and the urgency for learning to adapt to the climate of the future. The new park landscape extends from Wilshire Boulevard through the site, forging connections between city and museum, and past, present, and future.

PUBLIC AMENITIES

- Amenity pavilions
- Central lawn
- Café
- Rooftop Terrace
- Expanded Lake Pit
- Bioswales
- Outdoor classrooms
- Picnic areas
- Public art
- Play areas
- Rolling hills
- Observation Pit

Hancock Park Planting Concept
The planting concept for Hancock Park is comprised of three distinct zones encircled by the looping path system. Each loop has its own usage and distinguishing theme—Pleistocene, Holocene, and Anthropocene—representing different geologic epochs in the site's history. A woodland zone along the park's peripheral edges (northern, southern, eastern, and western) provides shade to the picnic areas and the parking lot to the north. These landscape zones are designed to maximize space for community, creating opportunities for the public to engage with the site's natural history and create a distinctive identity for the park to help tell La Brea's story. The planting scheme addresses the realities of Los Angeles's current and projected climate and aims to ease water consumption, ensure appropriate maintenance, promote sustainable growth, and provide a model for resilient site planning in the area.

The Southeastern Loop
The southeastern loop near the corner of Wilshire Boulevard and Curson Avenue encompasses the area surrounding the Lake Pit. The Columbian Mammoth sculptures located in the Lake Pit are an iconic element of Hancock Park and a key part of the story, however the current installation lacks historical accuracy. The concept plan envisions this loop as a Pleistocene environment reminiscent of the climate these animals inhabited. This zone will incorporate a biofiltration area to help manage stormwater and will be planted with low ground cover plant types that would have attracted large herbivores. The proposed ephemeral wetland is a more accurate portrayal of the Pleistocene environment that existed around the tar seeps when the mammoths like those represented would have been trapped. High biodiversity and era-accurate planting will serve an educational narrative in this highly visible entry to the park.

The Western Loop
The western Loop is envisioned as a Holocene landscape consisting of plantings from a warmer era after the ice age. This zone contains historic excavation pits and active research zones, allowing visitors to witness ongoing excavations. Areas of climate-appropriate native plantings ease water consumption, ensure appropriate maintenance, and promote sustainable growth. A forested woodland consisting of Torrey Pine and Coast Live Oak provides shade to the tar pits landscape. These trees have the character and scale to achieve a high-impact landscape to

enhance the identity and experience surrounding the excavations, seeps, and recreational areas. The western loop also contains Oil Creek which will be developed into a biofiltration zone for stormwater management and can support Sequoia and Monterey Pine trees in wetter pockets.

The Central Loop

The central loop is an Anthropocene landscape, engineered to support community engagement. Here a large common lawn adjacent to the museum provides a setting for recreation, events, and public gathering. The lawn and sloped green roof of the museum requires a higher degree of irrigation than the zones at the southeast and west.

Peripheral Edges of the Park

A woodland forest occupies the park's edges to provide shade to the picnic area on Curson Avenue and the parking lot north of the museum, and to provide a visual buffer from the LACMA expansion to the west and south. The palette of Torrey Pine and Coastal Live Oak are extended and support the development of a unified canopy across the site. A biofiltration area is located within the vehicular drop-off loop to manage stormwater flows from the parking lot.

Existing Conditions and Enhancements

Existing trees and plantings throughout the park are scattered and achieve little sense of character or unity. The enhanced character of the park will require new plantings as well as existing trees and plantings that complement the concept design. Species such as the Western Sycamore, California Buckeye, and Redwood should be preserved. Mexican fan palms, agaves, and yuccas will be reduced. The museum expansion and parking lot will require the removal of existing trees on the northern side of the site. Due to the cost and difficulty, it is not recommended to move the existing trees. Replanting the site with new trees is likely to be less costly and new smaller specimen trees will provide value and survive better over time. Current soils on site appear to be suitable for the proposed planting palette and a large renovation of soils is not anticipated, however this will require further evaluation as the project proceeds.

Wilshire Gateway & Lake Pit

A new Pleistocene garden bioswale and entry canopy increases the legibility of the Lake Pit and enables greater visibility from Wilshire Blvd and the surrounding context.

Bridge Across Lake Pit

A pedestrian path brings people above the Lake Pit, a dynamic site for urban fiction and imagination.

Arrival Experience

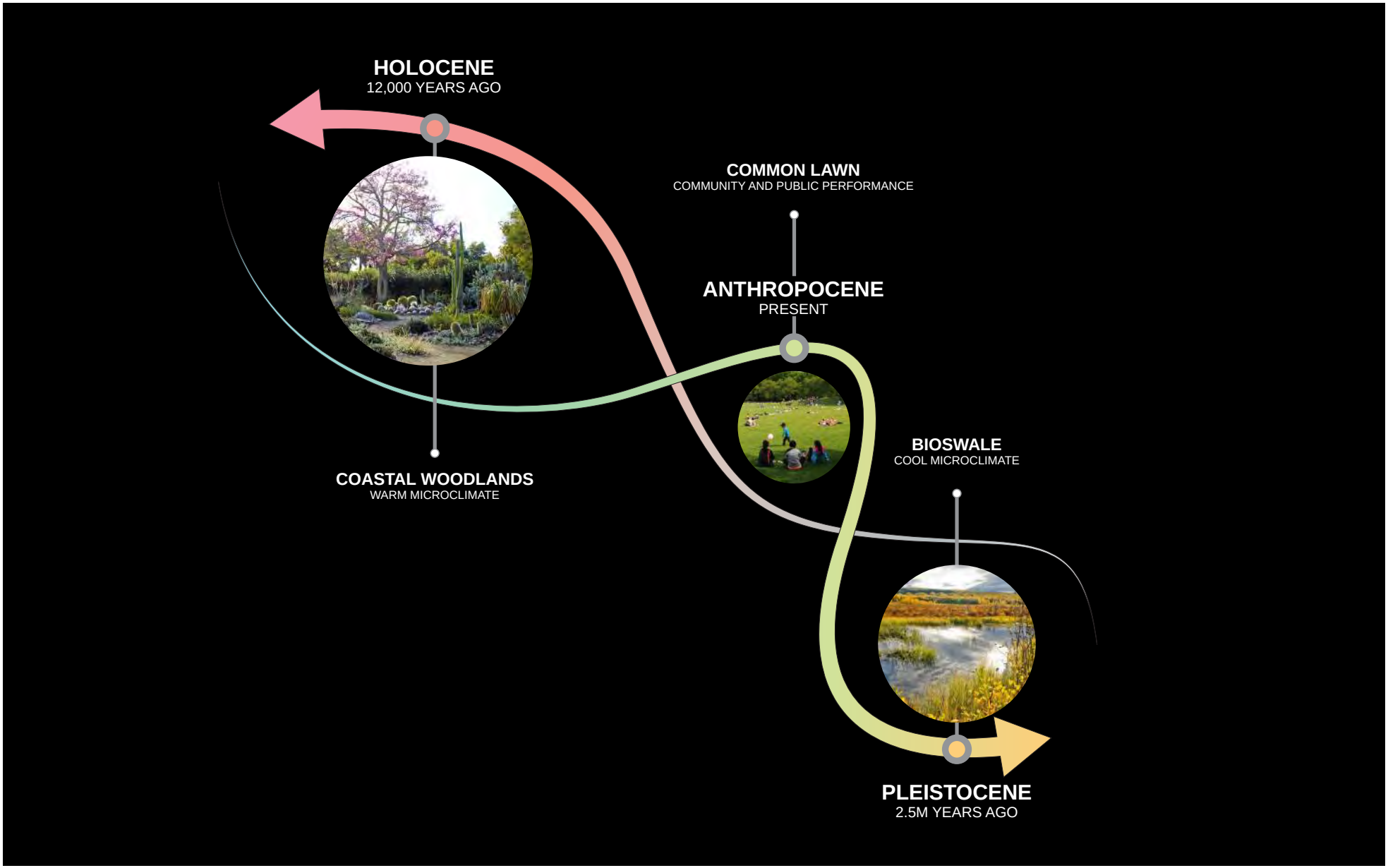
The entry canopy at Wilshire Blvd is the gateway between city and park, providing orientation, legibility, and shade.

Entry Plaza

A new shaded entry plaza at Wilshire Blvd provides framed views with a Pleistocene garden bioswale, sculptures, and interpretive signage.

Landscape Zones
Geologic Epochs

The planting concept for Hancock Park is comprised of three distinct zones, each with its own distinguishing theme representing different geologic epochs.

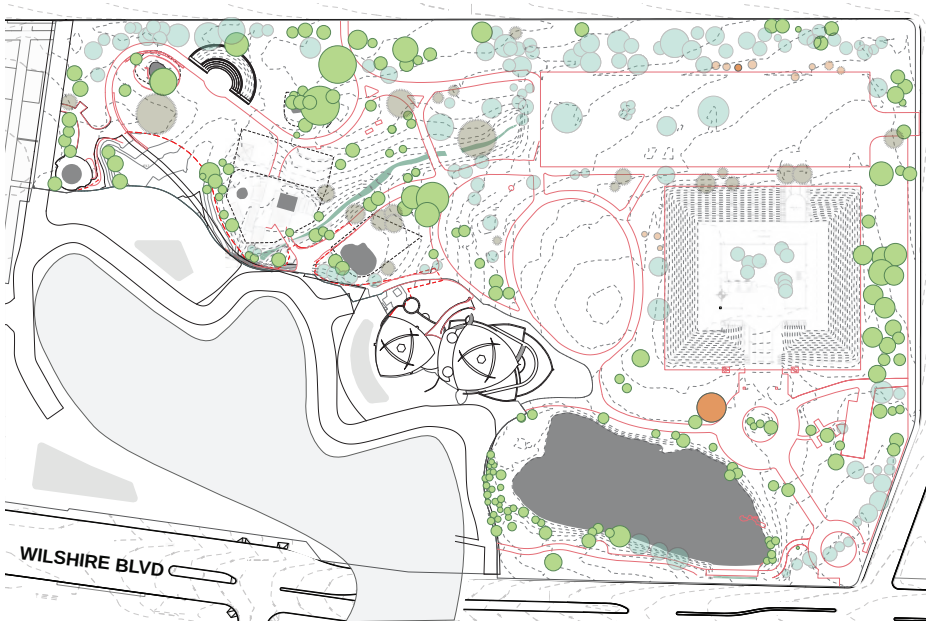


Sustainable Site Strategies

Understanding L.A.'s current and projected climate, the planting strategy aims to ease water consumption, ensure appropriate maintenance, and promote sustainable growth.

Existing, New & Relocated Trees

The planting scheme seeks opportunities to preserve existing trees and to strategically plant new ones.



Existing Trees

- TO REMAIN
- TO BE REMOVED/RELOCATED
- DISEASED TO BE REMOVED
- MEMORIAL TREES TO REMAIN
- MEMORIAL TREES TO BE RELOCATED/REMOVED

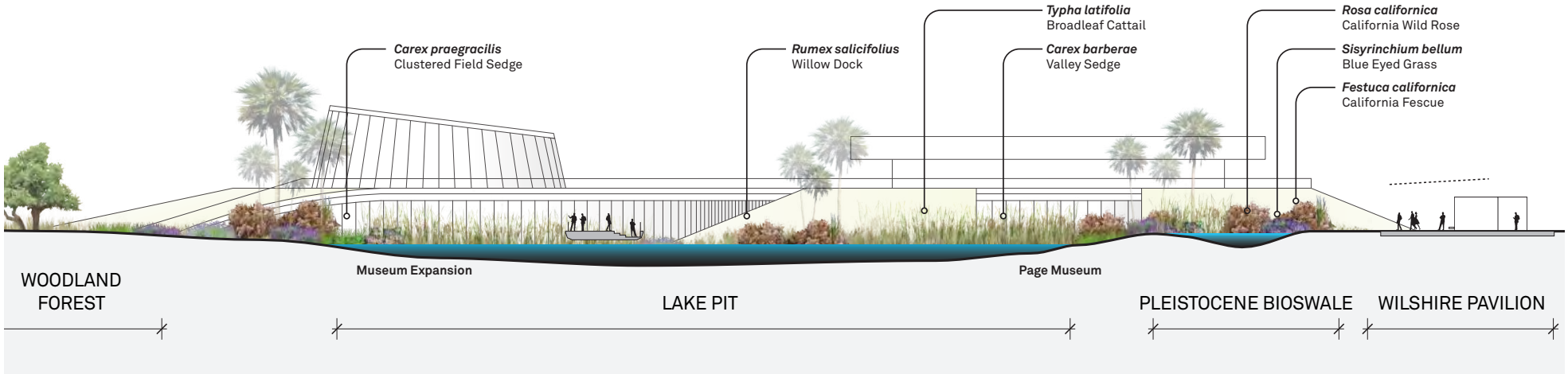
Potential New Trees

*Plans are conceptual and subject to change

- TO REMAIN
- NEW OR RELOCATED TREES

Lake Pit Entry Garden & Pleistocene Bioswale

A new Pleistocene garden bioswale supports sustainable stormwater management and makes the museum's mission visible in the park.



Herbaceous Species:

Anemopsis californica
Yerba Mansa

Hemizonia fasciculata
Clustered Tarweed

Sisyrinchium bellum
Blue Eyed Grass

Claytonia perfoliata
Miner's Lettuce

Cyperus eragrostis
Tall Cuperus

Typha latifolia
Broadleaf Cattail

Rumex salicifoliu
Willow Dock

Festuca californica
California Fescue

Carex barberae
Valley Sedge

Carex praegracilis
Clustered Field Sedge

Woody Species:

Baccharis salicifolius
Seep Willow

Salix exigua
Narrowleaf Willow

Salix goodingii
Goodding's Willow

Rosa californica
California Wild Rose

Sambucus caerulea
Blue Elderberry

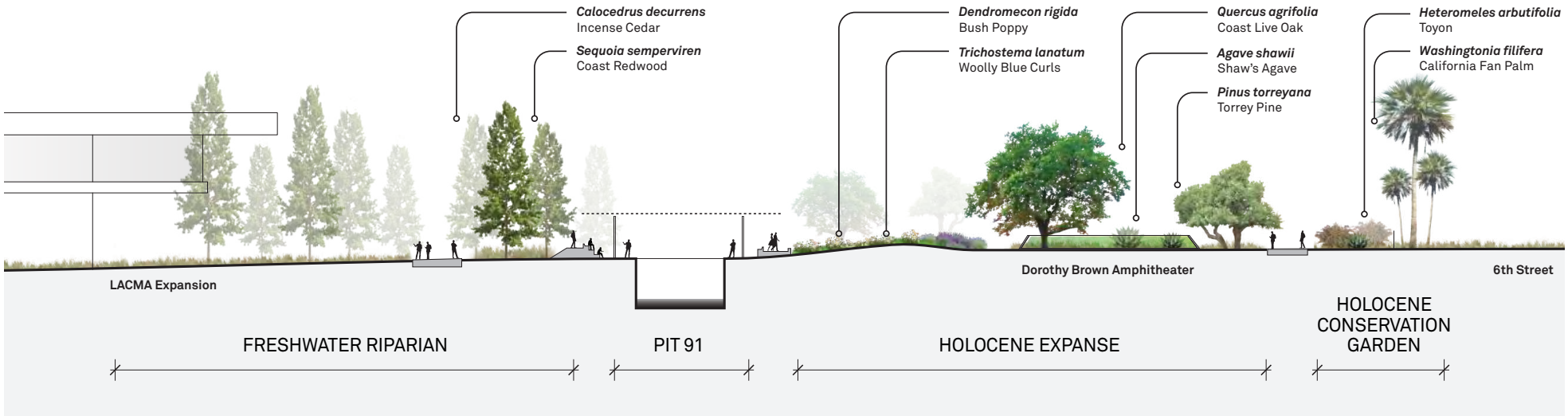
Pluchea sericea
Arrowweed

Salix lasiolepis
Arroyo Willow

Cornus stolonifera
Creek Dogwood

Late Pleistocene-Holocene Expanse

Climate-appropriate native plantings enhance the identity and experience around the tar seeps and throughout the surrounding park.



Trees:

Quercus agrifolia
Coast Live Oak

Pinus torreyana
Torrey Pine

Washingtonia filifera
California Fan Palm

Shrubs:

Arctostaphylos glandulosa
Eastwood Manzanita

Bigberry Manzanita
Arctostaphylos glauca

Artemisia californica
California Sagebrush

Baccharis pilularis
Coyote Brush

Comarostaphylis diversifollia
Summer Holly

Dendromecon rigida
Bush Poppy

Eriogonum arborescens
Santa Cruz Island Buckwheat

Heteromeles arbutifolia
Toyon

Salvia apiana
White Sage

Frangula californica
California Coffeeberry

Prunus ilicifolia
Hollyleaf Cherry

Salvia mellifera
Black Sage

Trichostema lanatum
Woolly Blue Curls

Perennials:

Agave shawii
Shaw's Agave

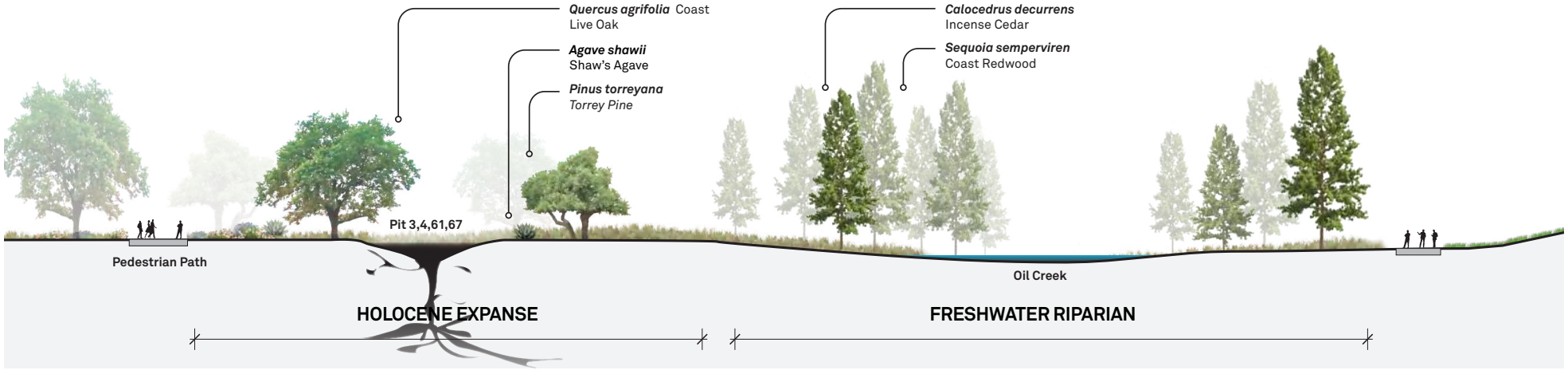
Hesperoyucca whipplei
Our Lord's Candle

Penstemon spectabilis
Showy Penstemon

Mimulus aurantiacus
Bush Monkeyflower

Freshwater Riparian

A forested woodland provides shade around the tar pits, and a new biofiltration zone at Oil Creek manages stormwater, supporting pine trees in wetter pockets.



Trees:

Acer negundo
California Box Elder

Platanus racemose
Western Sycamore

Calocedrus decurrens
Incense Cedar

Pinus radiata
Monterey Pine

Sequoia semperviren
Coast Redwood

Shrubs:

Sambucus caerulea
Blue Elderberry

Salix gooddingii
Goodding's Willow

Salix laevigata
Red Willow

Research & Revelation

The research precinct preserves existing trees and creates new landscape settings for research, learning, and community recreation.

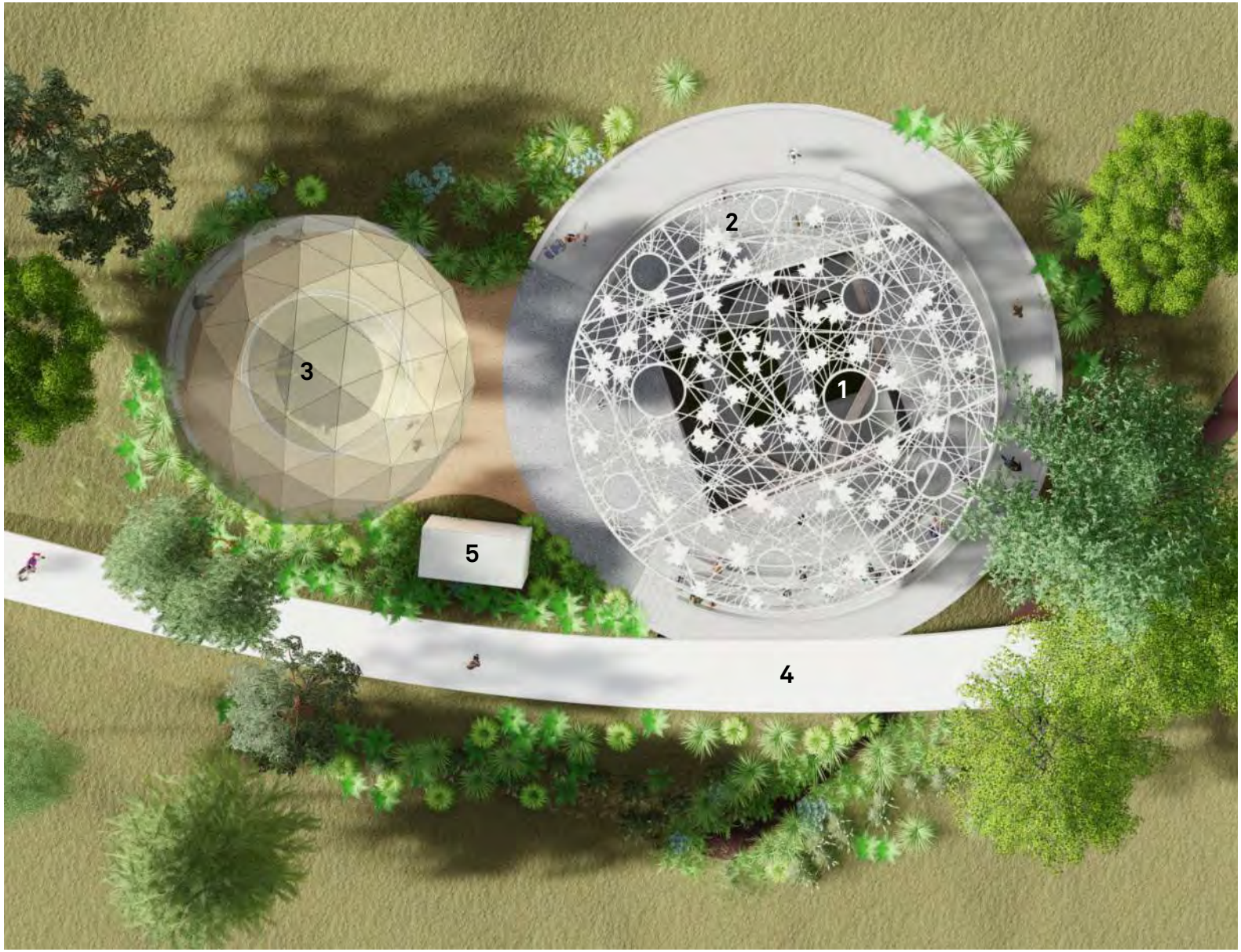
1. 6th Street Entrance
2. Pit 13
3. Pit 9
4. Observation Pit
5. Pit 10
6. Pit 91 Outdoor Classroom
7. Pit 3, 4, 61, 67

6th St Gateway

The entry canopy at 6th St provides orientation, legibility, and shade, while integrating existing trees into the canopy.

Research & Revelation

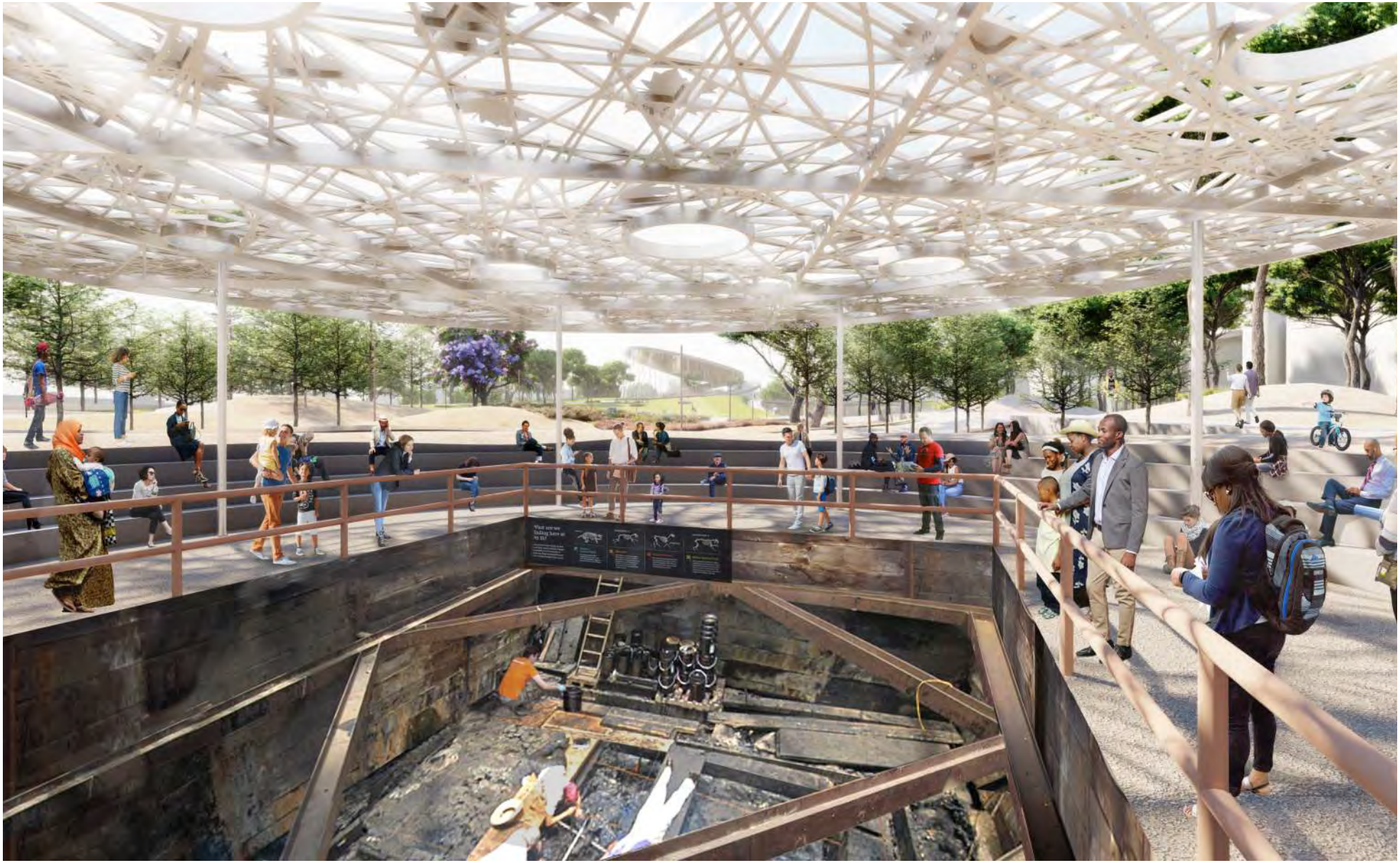
A new shaded classroom at Pit 91 engages park visitors in the process of excavation and sets the stage for future excavation and education opportunities.



1. Pit 91
2. Shaded Outdoor Classroom
3. Potential Future Field Work Area at Pit 10
4. Loop Path
5. Field Storage

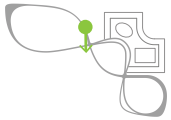
Pit 91

The active excavation sites unique to La Brea place park visitors at the precipice of scientific discoveries.



Play Area

Pit stops for play populate the loop.



Science Walk

Along the loops, the pits reveal scientific discovery to involve and engage the community.

Central Green

A new Central Green enhances Hancock Park's identity as a setting for community engagement.

Digital Mediums

Light projections express the museum's mission and create a place of wonder.

Activating the Site at Night

A digital diorama brings the Pleistocene to life.

Magnify the Museum's Visibility

The design approach to the museum expansion is rooted in close analysis of the existing building, preserving and magnifying its unique strengths. The museum pioneered the idea of exposing active research to the visitor. To further this spirit, our proposal aims to reveal the wealth of the collection and research to the public.

The expansion nearly doubles the current museum's size, sharing the same main and terrace levels as the existing building. A new museum lobby is situated between the two wings, welcoming visitors from the central lawn and from the drop-off and parking area at the northeast corner. Exhibit halls in both wings allow increased visibility of the active research taking place in labs and allow for views into collections storage. Theaters and classrooms adjacent to exhibits further enhance education and interpretation opportunities, extending the impact of a site rich in programs and activities.

The existing terrace on the museum's roof provides vistas of the park's tree canopy. The proposed design expands this terrace twofold, creating an expanded and accessible platform for public engagement and events. Here, the iconic fiberglass frieze of the museum finds its crystalline counterpart in the expansion, revealing La Brea's artifacts through the lens of its glass facade. Park visitors peek into the museum exhibitions, labs, and collections from various locations. Like a magnifying glass, the goal of the exhibitions is to bring artifacts into focus and amplify the telling of La Brea.

Building & Program
The preliminary building program and concept design balances program, use, adjacencies, site constraints, and budget considerations.

Lobby, Retail, and Food Service
The Master Plan includes greatly expanded facilities to support the visitor experience of La Brea Tar Pits. Additional spaces and a better choreographed experience will inspire more people to visit La Brea – and while there, participate in more activities and enjoy a more impactful experience. A central lobby is connected to a drop-off area and the central green. Retail and café off the lobby create a zone of amenities that are available to the public. Considerations for projected visitation and use informed the sizing of café and spaces for catering increase opportunities for events at the museum. Flexible theaters, gallery spaces, and indoor and outdoor gathering spaces have the potential to greatly increase the opportunities to host events at La Brea. The rooftop bar creates a local destination and accessible gathering space on the expanded public plateau.

Exhibitions
A thorough study of existing exhibits and exhibition spaces at the museum led to the incorporation of two new exhibition halls featuring visible connections to labs and collections. Benefiting from input by Museum Content, potential exhibit installations will better tell the story of the Pleistocene, explain the impact of La Brea research, and reveal the depth and significance of the collection. While a comprehensive exhibit design is to be developed in future phases of design, the planned new exhibition halls provide a flexible set of exhibit spaces of different scales and proportions that can accommodate a host of new exhibit and narrative opportunities.

Research & Collections
The Master Plan includes an increase of specialized lab spaces to better support the various processes of research at La Brea Tar Pits. Adjacency of exhibits to labs and collections reveal the staggering scale of the collection and the pipeline of research to museum visitors. Key lab spaces include a new solvent lab and jacket workroom to replace temporary facilities currently located in the park near Pit 91, as well as a new preparation lab, microfossil/community lab, imaging lab, visiting research spaces, and collections storage.

Classrooms & Theaters
The Master Plan include dedicated classrooms, the largest of which can be flexibly used as a multi-purpose space when not used for education functions. A microfossil/community lab provides an interactive classroom/lab setting for school and museum tours. A separate education entrance and lobby connects the education space of the museum to a park itinerary with additional outdoor spaces for learning. Improved theater spaces will increase opportunities for film, performances, lectures, symposia, and events at the museum. Leveraging adjacencies and connections to exhibits, lobby, central lawn, and expanded plateau, the spaces enable the museum to host programs and events of varying types and scales.

Offices, Facilities, & Maintenance
A preliminary staffing projection was developed to test opportunities for enhanced office and staff spaces. The Building Working Group provided extensive feedback on existing operations as well as how operations might be improved in the reimagined museum.

A Flexible Framework
As the program was tested and concept options developed, the Master Plan identified opportunities, clarified priorities, revealed the relative value of program elements, and established a framework for reinvisioning the museum. As the La Brea Tar Pits project progresses and additional program clarifications arise, the Master Plan and Concept Design provides a flexible framework, with opportunities to refine, increase, or scale back program elements as priorities evolve.

Main Level Plan

A central lobby connects the rejuvenated museum and new expansion.

1. Lobby
2. Expansion Exhibit Hall
3. Research Gallery
4. Research Labs
5. Collections Storage
6. Collections Support
7. Offices
8. Café
9. Gift Shop
10. Theater
11. Field Station Labs
12. Back of House
13. Satellite Facility

Northeast Drop-off

The northeast corner becomes a new drop-off to a lobby connected to the park.

Plateau Level Plan

The expanded plateau creates a setting for community engagement, events, and rooftop bar.

1. Expanded Plateau
2. Rooftop Bar
3. Classrooms & Exhibits Below
4. Exhibits Below
5. Green Roof
6. Accessible Ramp
7. Parking
8. Central Green

Expanded Plateau

The museum terrace extends to create an accessible and expansive public destination.

Reveal the Museum Collection

At La Brea, the impact of scale and the reality of the extraordinary can, in one instant of a school field trip, forge a lifelong point of reference for understanding our place in the universe. The museum currently has an invaluable collection of over 3.5 million specimens collected onsite, but only a fraction are currently displayed. The renovated and expanded museum will unpack and reveal more of this immense collection to the public.

At the center of the rejuvenated museum, a new research gallery houses a visible collections exhibit, inspired by the museum's iconic Dire Wolf Wall, that speaks to the immensity of the La Brea collection. Visible labs enable a thematic connection between exhibit material and the processes of excavation, conservation, curation, and research. Views into collections storage reveal a staggering quantity of fossils and artifacts, enabling visitors to comprehend the breadth of the collection as well as the pipeline of research.

With increased volume through a sunken exhibition pit and crystalline lantern, the new expansion exhibition hall allows for a host of new exhibit and education opportunities at multiple scales. Views into field station labs and to the park serve as a reminder of the distinctiveness of La Brea—and of a museum whose mission is profoundly interwoven into the unique history of its one-of-kind site.

Exhibits Connected to the Park

Visually connected to the park, the new Expansion Exhibition Hall enables a variety of scales of new exhibit and education opportunities.

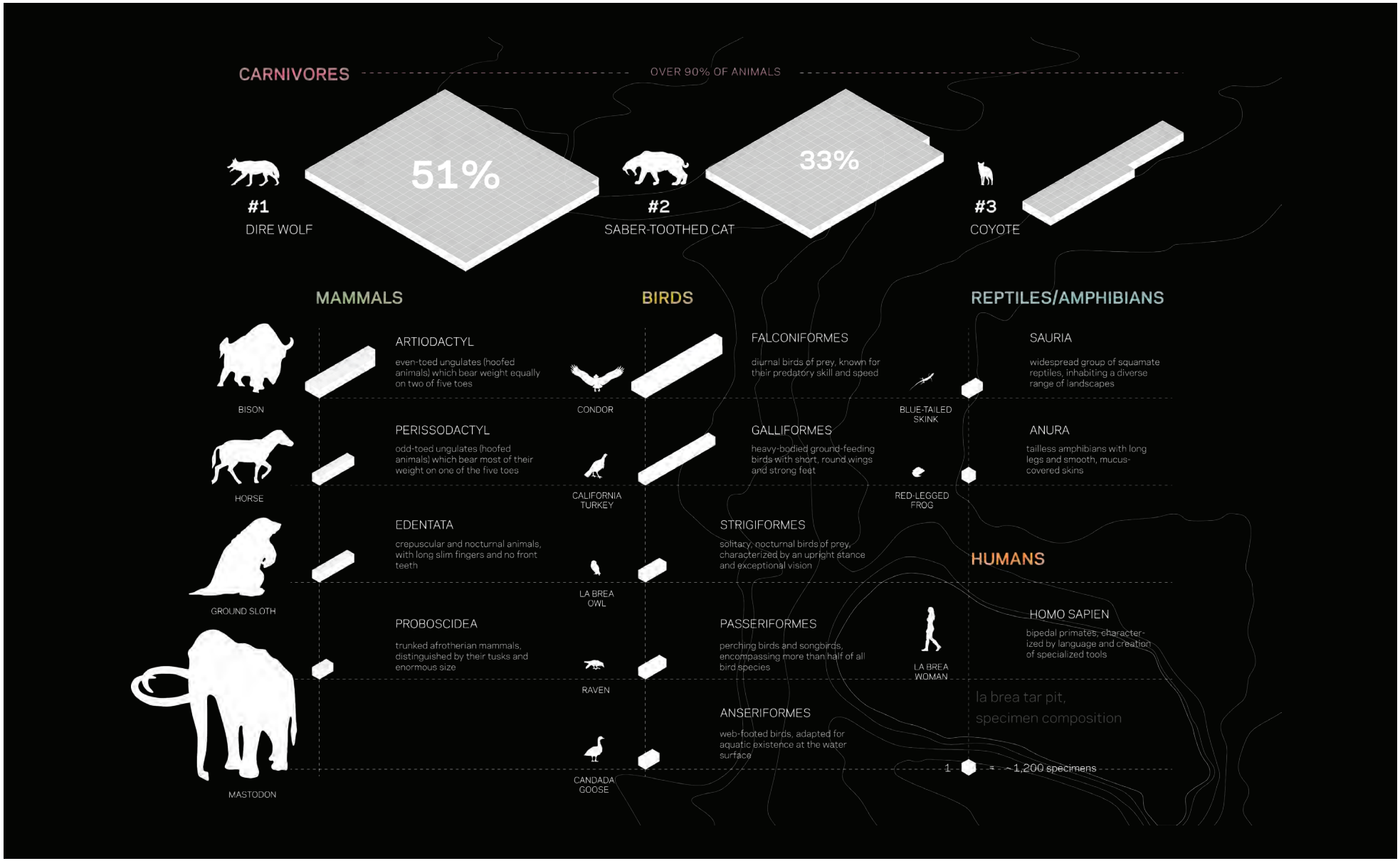
Exhibition & Research

In the Expansion Exhibit Hall, views into Field Station Labs reveal excavation and the process of research.

Excavation close-up: unpacking of Project 23 viewed from exhibitions

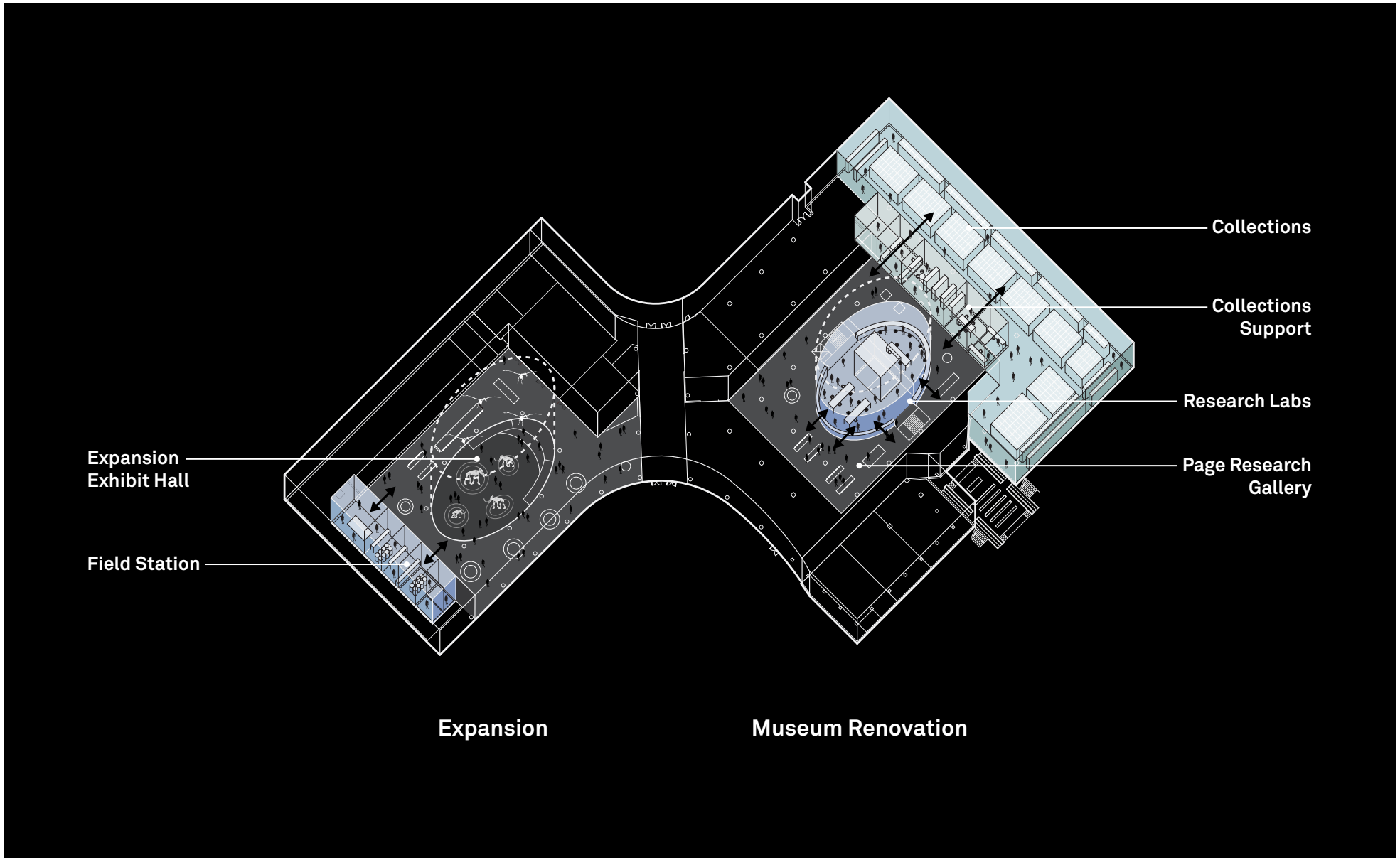
Collection Breakdown

An analysis of the La Brea collection's unique composition tells a larger story about the Pleistocene environment.



Exhibitions & Research

Exhibitions in the renovated museum and expansion are connected to research and collections and provide a range of narrative opportunities.



Exhibitions

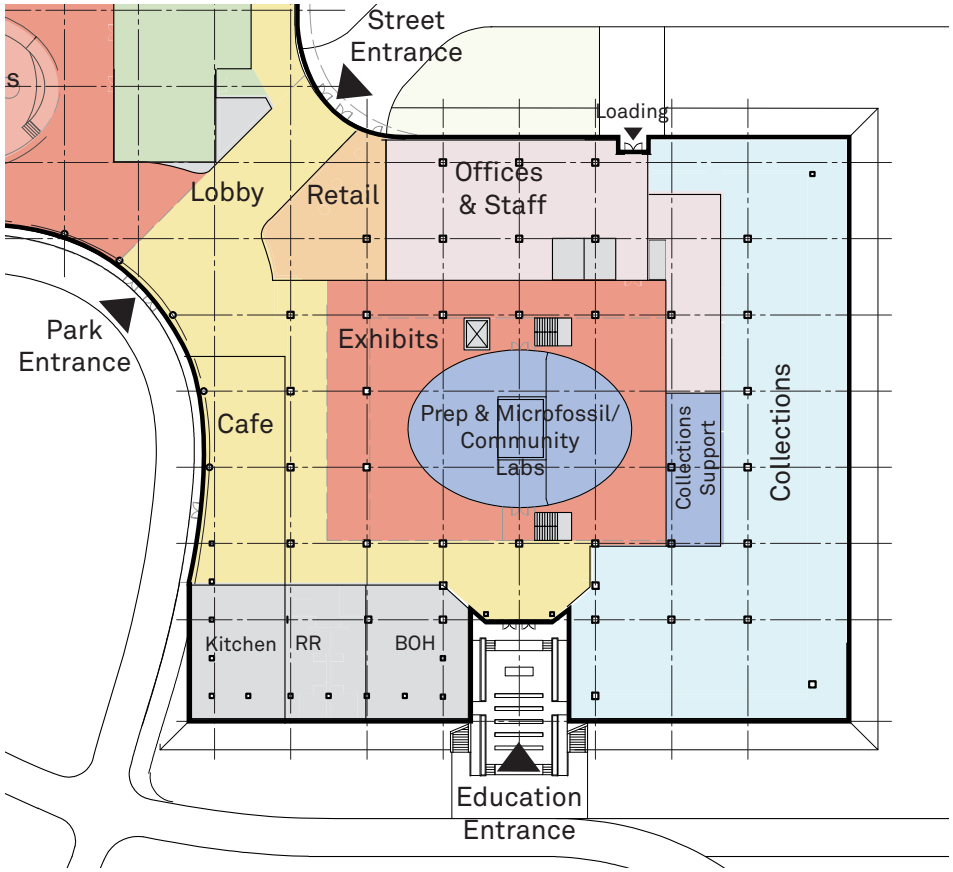
Exhibit opportunties range from large specimen mounts to small-scale interactive collections exhibits that enable new ways to tell the story of La Brea.

Visible Labs & Collections

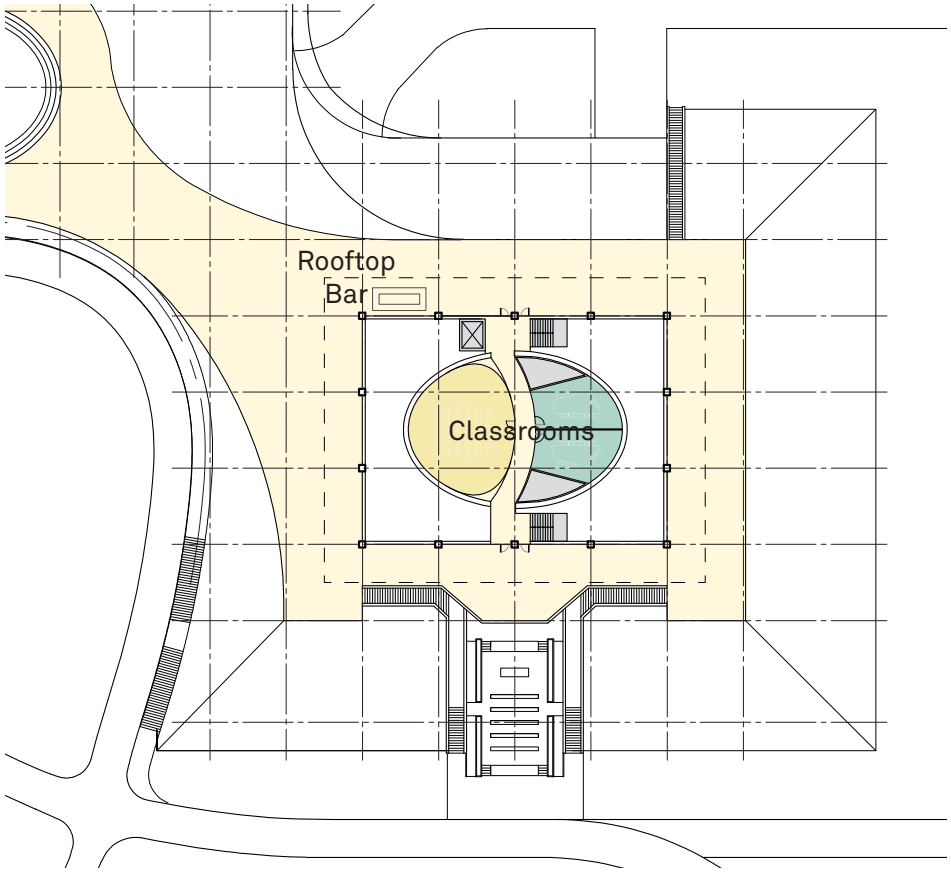
An expanded Fossil Lab and visible collections reveal the impact of research.

Research Gallery
Enlarged Plans

Expanded visible labs and visible collections exhibits reveal the impact of research. Classrooms above have views of exhibits and the park.



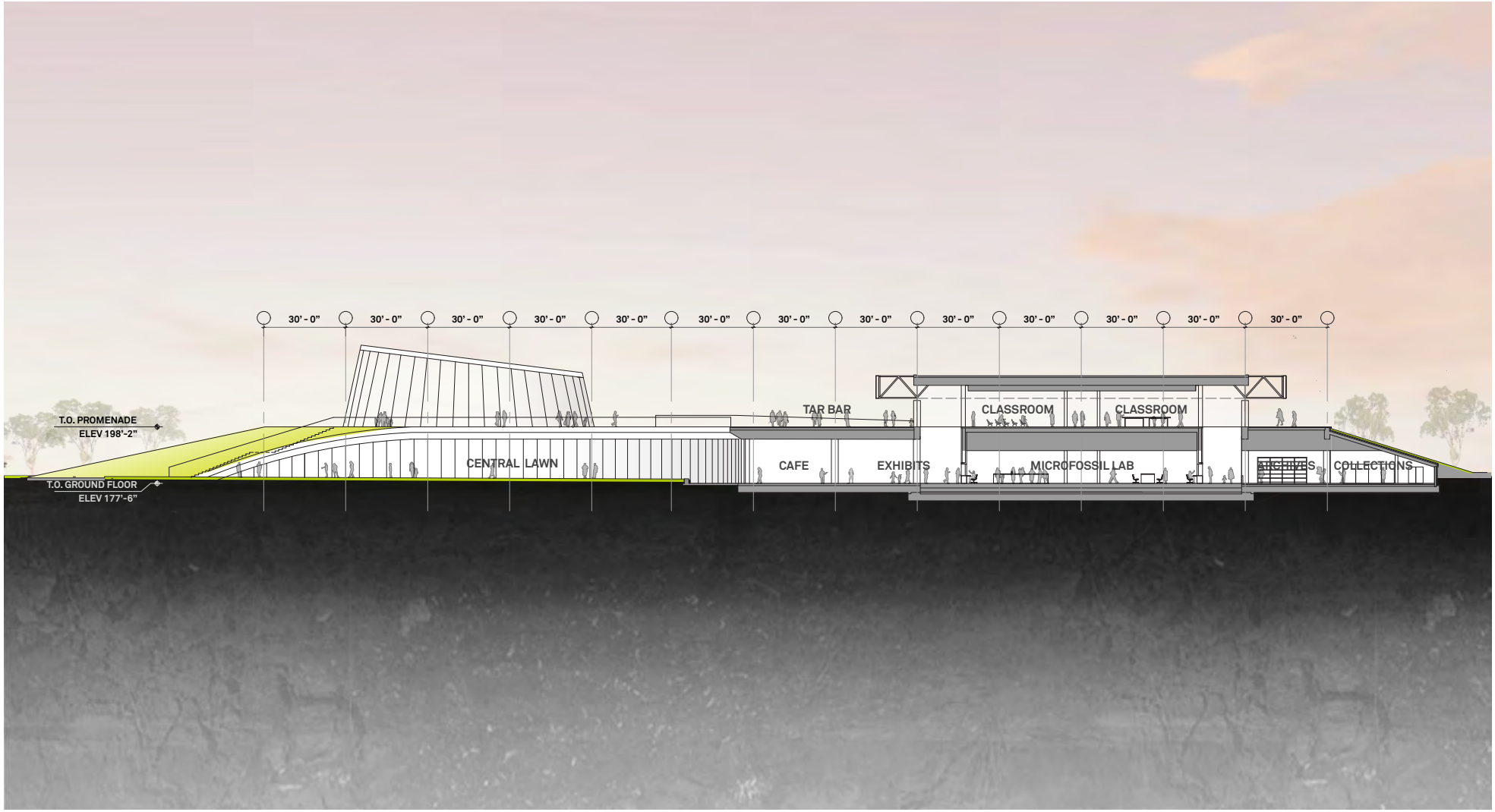
Ground Floor

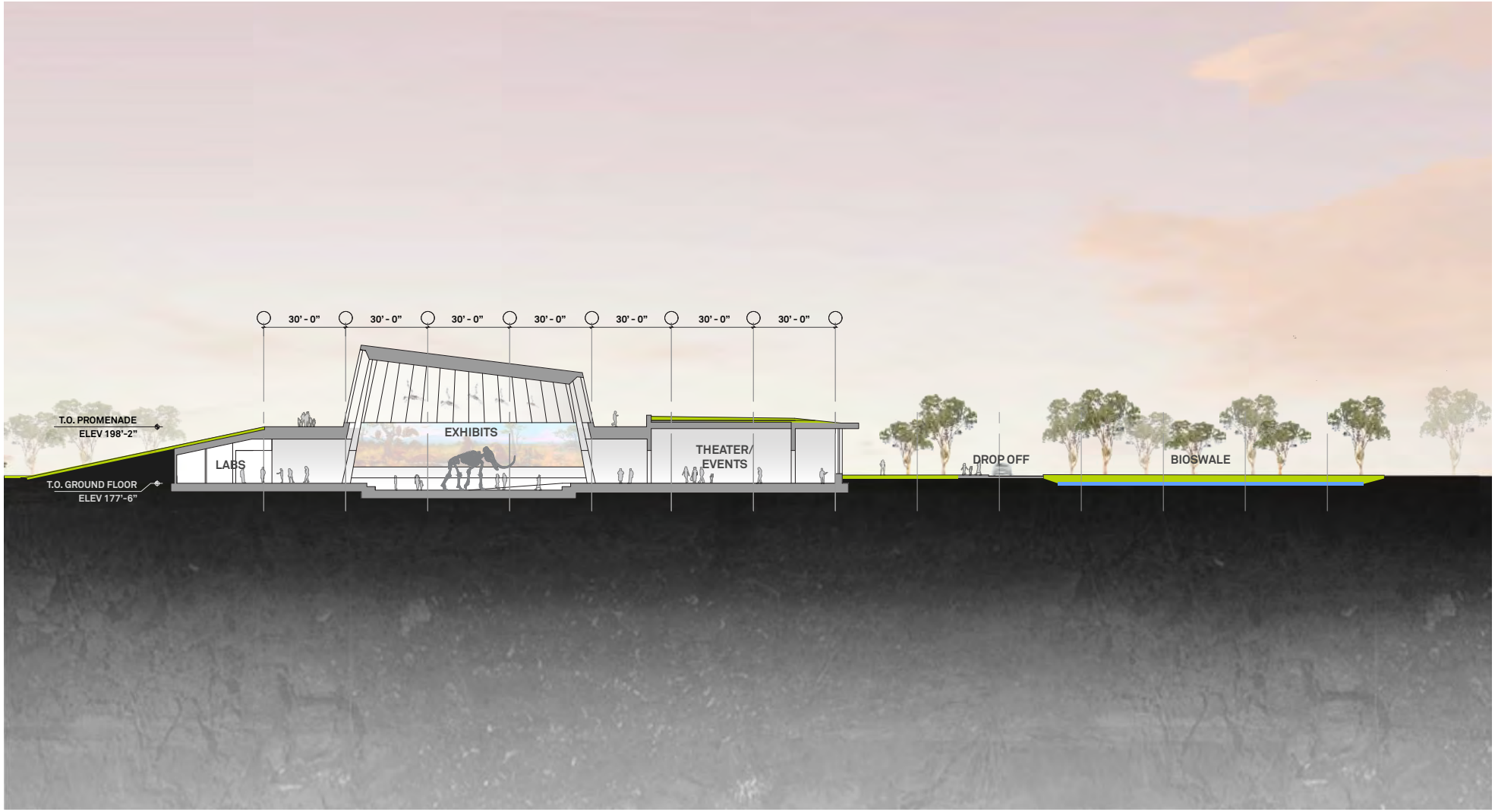


Promenade Level

Building Sections

A new research gallery in the renovated museum along with new exhibitions, galleries, labs, and theaters in the expansion renew the identity of the museum.




30' - 0"
30' - 0"
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30' - 0"
T.O. PROMENADE
ELEV 198'-2"
T.O. GROUND FLOOR
ELEV 177'-6"
LABS
EXHIBITS
THEATER/
EVENTS
DROP OFF
BIOSWALE

Building Program

Through detailed work sessions with NHMLAC Working Groups, a preliminary program range was identified and further refined through site and budgetary considerations.

		Existing	Master Plan
Visitor Experience			
Lobby, Pre-function & Orientation		1,602	4,000
Retail		1,513	1,700
Café		-	3,000
Kitchens, Storage & Support		242	3,210
	Subtotal	**3,357**	**11,910**
Exhibitions			
Exhibitions		19,604	24,000
	Subtotal	**19,604**	**24,000**
Research & Collections			
Labs		2,123	4,450
Collection Storage		8,071	14,500
Research & Collections Support		730	2,080
	Subtotal	**10,924**	**21,030**
Programs & Education			
Theaters		4,366	4,000
Classrooms		950	2,810
Green Room		-	210
	Subtotal	**5,316**	**7,020**

		Existing	Master Plan
Offices & Shared Staff Spaces			
Offices		1,429	3,240
Shared Staff Spaces		288	1,890
	Subtotal	**1,717**	**5,130**
Back of House			
Shop			980
Building Maintenance/Custodial		662	930
Storage		-	2,950
Loading Areas		704	1,100
Circulation		1,900	-
	Subtotal	**3,266**	**5,960**
Total Museum NSF		**44,184**	**75,050**
Total Museum GSF		**63,219**	**104,319**
Other Programmed Space			
Parking		62,990	65,000

Capturing Imagination

The story of La Brea is about the multi-million-year geological continuum, nearly 300 years of Los Angeles's modern history, over a century of technological progress and scientific discovery, and lastly, a day's journey where new stories are created. This incredible story needs to be told not only through words, but also through experience. We are excited for this extraordinary opportunity to reshape La Brea Tar Pits, a site so central to our cultural imagination. The La Brea Tar Pits Master Plan seeks to unify a constellation of critical research sites, buildings, exhibition experiences, programs, and the park with a provocative and inspiring new identity. Loops and Lenses connect and reveal—together they form an intimate journey of discovery and wonder across multiple epochs.

Project Credits

Natural History Museums of Los Angeles County

MASTER PLANNING TEAM
Dr. Lori Bettison-Varga, President and Director
Dawn McDivitt, SVP, Administration & Operations, Chief Deputy Director
Dr. Luis Chiappe, SVP, Research & Collections
Su Oh, SVP Education, Exhibitions & Community Engagement
Paul Bessire, Chief Advancement Officer
Robin Aspinall, Chief Financial Officer
Nooshin Nathan, Chief Talent Officer
Cynthia Wornham, SVP, Strategic Engagement
Richard Hayden, Assistant Deputy Director

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Sarah Meeker Jensen, Chair of the Board
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BOARD STEERING COMMITTEE
Wally Marks, Chair
Shannon Faulk
Heather de Roos
Maggie Levy
Louisa Cardenas
Peter Scranton
Andrew Jameson

WORKING GROUPS
RESEARCH & COLLECTIONS
Dr. Luis Chiappe, Chair
Dr. Jody Martin, Associate Vice President, Research and Collections
Dr. Trina Roberts, Associate Vice President, Collections
Dr. Emily Lindsay, Assistant Curator, LBTP
Dr. Regan Dunn, Assistant Curator, LBTP
Aisling Farrell, Collections Manager, LBTP
Richard Hayden, Assistant Deputy Director

MUSEUM CONTENT: EXHIBITIONS, PROGRAMS & COMMUNITY ENGAGEMENT
Su Oh, Chair
Laurel Robinson, Director, Programs
Molly Porter, Director, Education
Carol Bornstein, Director, Nature Gardens
Dr. Emily Lindsay, Assistant Curator, LBTP
Dr. Regan Dunn, Assistant Curator, LBTP
Dr. Matt Davis, Exhibition Developer
Stephany Potze, Lab Manager, LBTP
Jeff Chapman, Senior Manager, Interpretation and Training
Milena Acosta, Manager, Community Engagement
Richard Hayden, Assistant Deputy Director

BUILDING
Dawn McDivitt, Chair
Dr. Trina Roberts, Associate Vice President, Collections
Mike Alvarez, Director Facilities, Maintenance and Construction.
Carlos Casillas, Director, Safety & Risk Management
Chris Weisbart, Director of Exhibition Production
Sean McNichol, Manager, Crafts & Facilities Services
Richard Hayden, Assistant Deputy Director

VISITOR EXPERIENCE & BUSINESS ENTERPRISE
Cynthia Wornham, Chair
Paul Bessire, Chief Advancement Officer
Mara Naiditch, Associate V.P. Marketing & Enterprise
Nooshin Nathan, Chief Talent Officer
Robin Aspinall, Chief Financial Officer
Jackie Reimann, Director, Special Events & Filming
Cristina Rosales, Director of Individual Giving
Jennifer Greenebaum, Manager, Digital Marketing and Enterprise
Tiffany Wylie, Senior Manager, Volunteers
Samantha DeAcetis, Manager, Guest Relations, LBTP
Richard Hayden, Assistant Deputy Director

COMMUNITY
Dr. Lori Bettison Varga, Chair
Dawn McDivitt, SVP, Administration & Operations - Chief Deputy Director
Cynthia Wornham, SVP, Strategic Engagement
Su Oh, SVP Education, Exhibitions & Community Engagement
Richard Hayden, Assistant Deputy Director
Jane Shim, Manager, Marketing & Communications

WEISS / MANFREDI

MASTER PLAN/CONCEPT DESIGN TEAM
MASTER PLANNING/ARCHITECTURE/LANDSCAPE
WEISS/MANFREDI
Marion Weiss, Design Partner
Michael A. Manfredi, Design Partner
Patrick Armacost, Principal
Bryan Kelley, Project Architect
Heather McArthur, Project Architect
Alexandria Lee, Project Designer
Mark Turibius Jongman-Sereno, Project Designer
Mark Leskovec, Project Designer

STRUCTURAL ENGINEERING
Magnusson Klemencic Associates

CIVIL ENGINEERING
KPFF

MECHANICAL/ELECTRICAL/PLUMBING/SUSTAINABILITY
Integral Group

CODE/LIFE SAFETY/ACCESSIBILITY
CCI

FOOD SERVICE
Cini-Little

HORTICULTURE/LANDSCAPE
Perry & Associates Collaborative

COST ESTIMATE
Directional Logic

ACOUSTICS/AV
Akustiks

VISIONING CONTRIBUTORS
Mark Dion, Artist and Naturalist
Karin Fong, Experiential Designer, Imaginary Forces
Carole Gee, Paleobotanist
Brenda Levin, Architect, Levin & Associates Architects

WEISS / MANFREDI
200 Hudson St
New York, NY 10013
(212) 760-9002
www.weissmanfredi.com

APPENDIX C

Air Quality and Greenhouse Gas Technical Report

Air Quality and Greenhouse Gas Technical Report
La Brea Tar Pits Master Plan

Los Angeles, California

AUGUST 2023

PREPARED FOR

Los Angeles County Museum of Natural History Foundation

LEAD AGENCY

County of Los Angeles

PREPARED BY

SWCA Environmental Consultants

AIR QUALITY AND GREENHOUSE GAS TECHNICAL REPORT
LA BREA TAR PITS MASTER PLAN
LOS ANGELES, CALIFORNIA

Prepared for

Los Angeles County Museum of Natural History Foundation

On behalf of

County of Los Angeles Museum of Natural History
900 Exposition Boulevard
Los Angeles, California 90007
Attn: Dawn McDivitt, Chief Deputy Director

Lead Agency:

County of Los Angeles

Prepared by:

Brad Sohm, Principal Air Quality Team Lead
Erin Wielenga, Air Quality Specialist
Carlos M. Ituarte-Villarreal, Air Quality Specialist

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

August 2023

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Air Basin	South Coast Air Basin
AQMP	Air Quality Management Plan
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	California Action Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
City	City of Los Angeles
City General Plan	City of Los Angeles General Plan
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
County	County of Los Angeles
County General Plan	County of Los Angeles 2035 General Plan
DPM	diesel particulate matter
EO	Executive Order
EPA	U.S. Environmental Protection Agency
Foundation	Los Angeles County Museum of Natural History Foundation
GHG	greenhouse gas
gsf	gross square feet
GWP	global warming potential
H_2S	hydrogen sulfide
HFCs	hydrofluorocarbons
HRA	health risk assessment
HVAC	heating, ventilation, and air conditioning

IPCC	Intergovernmental Panel on Climate Change
IWMA	Integrated Waste Management Act
LACMA	Los Angeles County Museum of Art
LADOT	Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAMC	Los Angeles Municipal Code
LCFS	Low Carbon Fuel Standard
LST	localized significance threshold
Metro	Los Angeles County Metropolitan Transportation Authority
MMT	million metric tons
MT	metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
O_3	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
Page Museum	George C. Page Museum
PFCs	perfluorocarbons
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
project	La Brea Tar Pits Master Plan
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCOTUS	Supreme Court of the United States
SCS	Sustainable Community Strategy
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SO_x	sulfur oxides
SRA	source receptor area
TAC	toxic air contaminant

TSCA	Toxic Substances Control Act
VMT	vehicle miles traveled
VOC	volatile organic compound
ZEV	Zero Emission Vehicle

EXECUTIVE SUMMARY

This report analyzes potential air quality and climate change impacts related to the La Brea Tar Pit Master Plan. All analyses have been conducted to comply with South Coast Air Quality Management District (SCAQMD) requirements for air quality and climate change assessments and satisfy the requirements of the California Environmental Quality Act (CEQA). The findings are as follows:

- The project's emissions during construction and operations would not exceed SCAQMD regional mass emissions thresholds.
- The project's emissions during construction and operations would not exceed SCAQMD localized significance thresholds.
- Upon implementation of identified mitigation, the project would not result in significant elevated health risks at sensitive receptors due to proximity to nearby pollution sources.
- The project's carbon monoxide (CO) emissions during long-term project operations would not create any new or exacerbate any existing CO hot spots.
- The project would be consistent with air quality policies set forth by SCAQMD and the Southern California Association of Governments, as presented in the region's most recent Air Quality Management Plan.
- The project would not conflict with the state's goal of reducing greenhouse gas emissions to 40% below 1990 levels by 2030.
- The project would not result in a cumulatively considerable air quality impact.

1 INTRODUCTION

The 13-acre La Brea Tar Pits site is located within the eastern and northeastern portions of Hancock Park in Los Angeles, California. The La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities are owned by the County of Los Angeles (County) but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the Natural History Museums of Los Angeles County, including the La Brea Tar Pits and Page Museum. The Foundation proposes a redevelopment, or "reimagining," of the La Brea Tar Pits site, including renovation of the Page Museum, constructing a new museum building, and developing new amenities in surrounding portions of Hancock Park.

The County is the Lead Agency under the California Environmental Quality Act (CEQA); the Museum of Natural History is a County departmental unit. The Foundation retained SWCA Environmental Consultants (SWCA) to prepare this Air Quality and Greenhouse Gas Technical Report in support of the proposed La Brea Tar Pits Master Plan (project).

The purpose of this report is to describe the methodologies used to quantify project air pollutant and greenhouse gas (GHG) emissions and to evaluate the air quality and GHG emissions impacts associated with the construction and operation of the project. This air quality technical report also addresses the consistency of the project with applicable state and local regulatory policies pertaining to air quality and GHG emissions, and analysis of whether the project would cause an exceedance of an ambient air quality standard or South Coast Air Quality Management District (SCAQMD) significance threshold. The report includes a health risk assessment (HRA) to evaluate potential project health impacts on nearby sensitive receptors resulting from project construction and operation. The report also includes a discussion of existing conditions in the project site, global climate change, existing regulations pertaining to air quality and climate change, and an inventory of the GHG emissions that would result from the project.

2 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The 13-acre project site is located at 5801 Wilshire Boulevard within the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902) (Figure 1 and Figure 2). The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to the Los Angeles County Museum of Art (LACMA). The project site is located approximately 5.5 miles west of downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by 6th Street to the north (an approximately 1,200-foot-long frontage), Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and LACMA and the Shin'en Kan Pavilion to the west (an approximately 250-foot-long frontage). The area is known as the Miracle Mile neighborhood of Los Angeles. The project site can be found on the U.S. Geological Survey Hollywood, California, 7.5-minute quadrangle in Section 20, Township 1 South, Range 14 West.

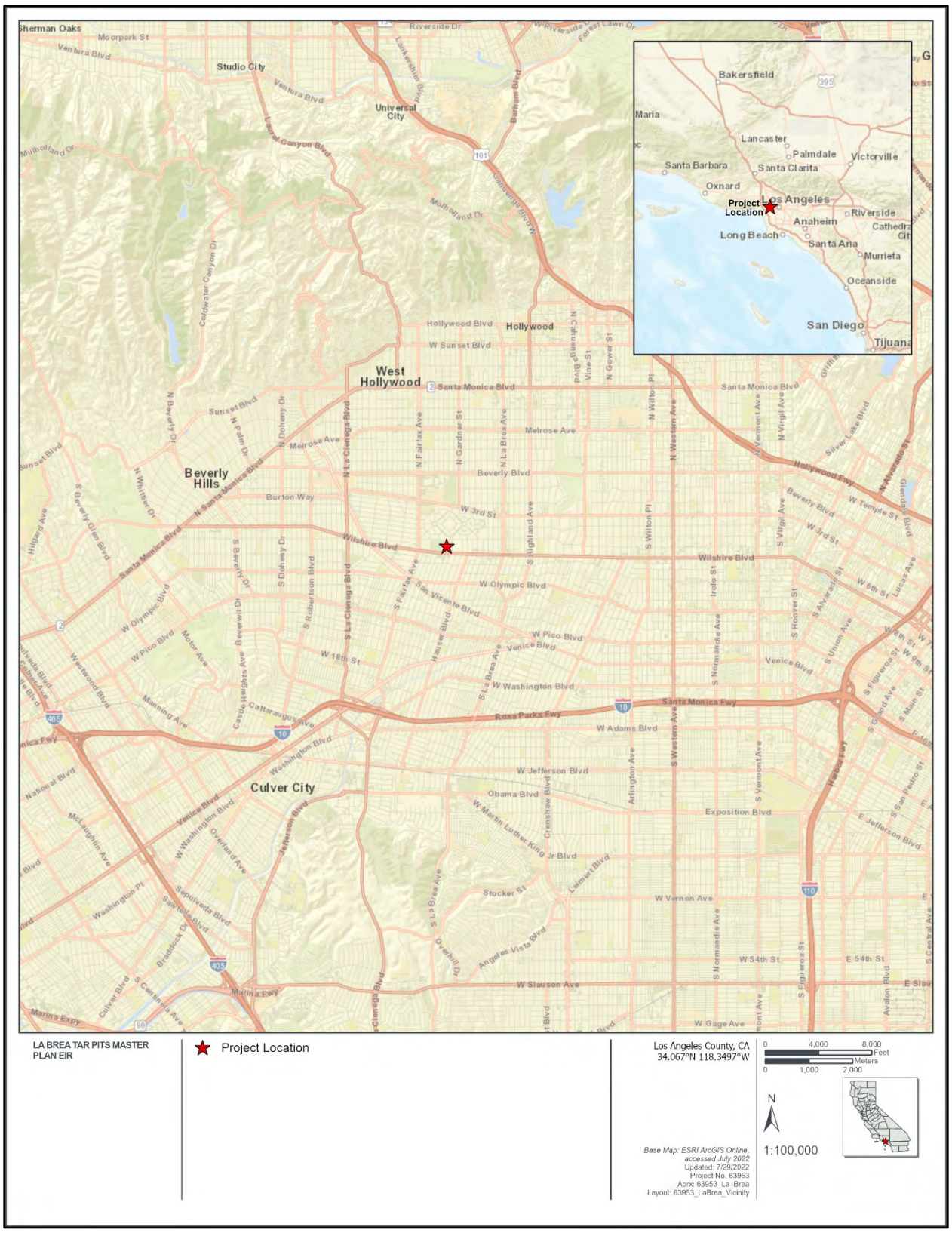

Figure 1. Project vicinity map.

Figure 2. Project location map.

2.2 Existing Conditions and Surrounding Land Uses

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as the La Brea Tar Pits, which includes the Page Museum (see Figure 2). The entirety of Hancock Park is enclosed within an 8- to 10-foot-high metal fence, which serves to secure the site by providing full closure of Hancock Park when the La Brea Tar Pits, Page Museum, and LACMA are closed in the evenings.

The George C. Page Museum is approximately 63,200 square feet and is located on the eastern portion of the project site. The project site contains multiple active fossil quarries, commonly called "tar pits." The active tar pits (Pits 3, 4, 9, 13, 61, 67, and 91) are located within the northwestern portion of the project site, along with the Observation Pit on the western boundary of the project site. Project 23[1] and Pit 91 are active fossil recovery and excavation sites also located in the northwestern portion of the project site. The Lake Pit is largest paleontological excavation pit on the grounds of Hancock Park, located in the southeastern portion of the project site.

The project site includes an approximately 28,000-square-foot multipurpose grass lawn, known as the Central Green, is located to the west of the Page Museum. Parking for the La Brea Tar Pits is located in the northeast corner of the project site, at the corner of South Curson Avenue and West 6th Street (see Figure 2). Vehicles enter and depart the lot from both directions on South Curson Avenue.

The project site is surrounded by a variety of commercial uses, museums, residential buildings, and schools. The project site is bounded by the Park La Brea Pool and multi-family residential uses to the north across West 6th Street, commercial and residential uses to the east across South Curson Avenue, the Craft Contemporary Museum and other museum and commercial uses south across Wilshire Boulevard, and museum and commercial uses to the west (see Figure 2). The nearest school to the project site is Fusion Academy Miracle Mile, a private learning institution for middle school and high school students, located approximately 0.12 mile away, and the nearest daycare is Michal Daycare located approximately 0.28 mile away.

2.3 Project Description

The La Brea Tar Pits Master Plan is a reimagining of the Page Museum and 13 acres of Hancock Park. The objectives of the project are to provide the following: expanded fossil storage facilities that enable access for scientific research; expanded laboratory research facilities; additional exhibition facilities and learning environments within the park and museum facilities; and better access for future research, excavation, and educational interpretation. Another of the County's objectives is to support passive recreational use and enhance connections to the surrounding neighborhood.

A summary of the key project components of the La Brea Tar Pits Master Plan is provided in Table 1. The proposed site plan for the project is provided in Figure 3, and discussed in the sections that follow.

[1] During construction on the LACMA parking garage in 2006, 16 new paleontological deposits were discovered, including an almost-complete skeleton of an adult mammoth. Given the size of the discoveries, 23 large wooden boxes were built around the various deposits, allowing many of the discoveries to remain intact. "Project 23" has now become the short-hand descriptor for the location and activities related to the excavation of deposits within the 23 large wooden boxes that is now occurring in a portion of the La Brea site.

Table 1. Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building in same footprint (approximately 63,200 square feet).
New Museum Building	Construct a new two-story, 40,000-square foot museum building northwest of the Page Museum, including two new theaters. The construction of the new museum building would require the removal of vegetation in the footprint of the new building.
Wilshire Gateway	Renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
Lake Pit	Construct a pedestrian bridge and walking path over the Lake Pit.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pit Renovations (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site. These renovations would require the removal and replacement of some vegetation, although the exact amount and nature of the vegetation removal and enhancements has not been determined at the time of this report.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous paved pedestrian path linking existing features on the project site. Provide improvements to the Central Green. Establish a children's play area, picnic areas, and a small dog park west of the 6th Street Gateway.
Circulation and Parking	Expand existing parking lot from 63,000 square feet to 65,000 square feet and relocate it approximately 50 to 70 feet to the north. This would require removal and relocation of existing trees on-site. Increase vehicle parking spaces by approximately five to 15 spaces for a total of 160 to 170 vehicle parking spaces. Add new landscaping and vehicle access lanes to the parking lot. Establish new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping	Provide a newly renovated park space to include retention and renovation of existing lawn areas and planting of new shrubs and trees, including California native trees, shrubs, and forbs. Establish three distinct landscaping zones encircled by a looping pedestrian path. Create biofiltration areas for stormwater management. Enhancement and rehabilitation of the existing landscaping of the 13-acre portion of Hancock Park would require the removal of some of the existing landscaping and vegetation. The exact location of vegetation removal and rehabilitation has not been determined at the time of this report.

Figure 3. Proposed site plan.

2.3.1 Page Museum Renovations

The Master Plan proposes renovations to the existing Page Museum within the same footprint as the existing building (currently approximately 63,200 square feet) to allow for enlarged exhibition space, additional storage, a ground floor café, and retail space. The central atrium would be renovated to provide additional exhibits and provide additional classroom and laboratory space. The second floor of the Page Museum would contain two classrooms and a multipurpose space. An outdoor café would be located next to these spaces on the center terrace on the west side of the Page Museum. The project would add several sustainability features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and incorporation of rooftop solar photovoltaic panels onto the buildings, where possible.[2]

In addition, the project would demolish the existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. A new 2,000-gross-square-foot satellite maintenance and support building would be constructed for additional storage, administration, and research space directly west of the parking lot. Construction of the maintenance and support building is expected to require removal of existing vegetation in the building footprint.

2.3.2 New Museum Building

A new two-story museum building would be located to the northwest of the Page Museum. The building would be approximately 40,000 square feet and would increase the total museum square footage to 104,000 gsf. The new museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock. The new museum building would require the removal of vegetation where the new building footprint is proposed.

The Page Museum and new museum building would be continuously connected on the first floor. The first-floor central lobby would face southwest toward the Central Green and branch off into the Page Museum to the east and the new museum building to the west. An updated retail and café space would be located off the lobby and look out over the Central Green. The Page Museum and the new museum buildings would be disconnected on the second floor, which would rise above the earthen berm. The separated facilities would be accessible through sloped outdoor walkways from the Central Green or interior staircases in the museum. There would be pedestrian entrances leading into the central lobby from the Central Green and from the parking lot. The existing Page Museum entrance would be converted to an educational group and tour entrance, which would be connected to a new school drop-off area on South Curson Avenue.

2.3.3 Tar Pit Renovations

The project would renovate the existing facilities at all the tar pits in the northeastern portion of the project site. The extended chain fencing around Pits 3, 4, 9, 13, 61, and 67 would be removed. The project would construct clearly defined viewing areas around each of the tar pits. The project would relocate the wooden fossil boxes, research facilities, and ongoing excavation associated with Project 23 to space within and adjacent to the new museum building. The temporary storage and research buildings adjacent to Project 23 would be demolished or repurposed within the project site.

[2] At this stage of the design process, it is undetermined whether it will be feasible to incorporate solar panels on both the new museum building and the existing Page Museum. To the extent it is practicable within other limitations (e.g., existing structural and historic considerations), solar panels would be incorporated.

Pit 91 would continue to be a key research and interpretation destination in the park. The project would demolish the current viewing station overlooking Pit 91 and construct a shaded outdoor classroom with canopy. While excavation at Pit 91 could be completed in a few years, the site would be maintained and enhanced to support future excavation and education opportunities. In addition, the new support facilities at Pit 91 would continue to support temporary excavation sites at adjacent Pit 10 or other future field sites.

2.3.4 Site Entryways and Other Internal Improvements

The project would renovate the existing entrance to the La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza; this would provide orientation, spaces for gathering and queuing, and restrooms. A picnic area would also be located under the shaded canopy. A school drop-off area on South Curson Avenue would lead directly to the education museum entrance, enabling the choreography of student tour itineraries that are distinct from general museum visitors and other tour groups.

A pedestrian bridge and walking path would be constructed over the Lake Pit. Directly to the east of the Lake Pit, a new garden bioswale would be installed to manage stormwater and would include vegetation related to the relocated mammoths and mastodon sculptures.

The project would renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA parking garage. Similar to the Wilshire Gateway, a shaded canopy and welcome pavilion would provide orientation, legibility, and amenities. Additional landscape and recreational amenities would be provided and include play areas, picnic areas, and interpretation zones.

2.3.5 Landscaping

The conceptual landscape plan included in the Master Plan envisions the newly renovated park space to include retention of existing lawn areas, shrubs, and trees, supplemented with additional plantings of California native trees, shrubs, and forbs. The Master Plan depicts a preliminary estimate of the existing trees at the site and identifies new and relocated trees. The Master Plan states the intention to preserve existing trees as feasible while incorporating a significant degree of new planting and reducing non-native species such as Mexican fan palms, agaves, and yuccas. The planting strategy includes the introduction or relocation of trees, with the relocated trees moved from existing locations within the project site. Trees that would be removed include non-native species and/or specimens that are diseased and/or not in good health. Trees that conflict with the proposed new construction would be relocated or removed (e.g., trees within the proposed footprint of the shifted parking lot on the northern side of the project site). New plantings would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park.

2.3.6 Project Ground Disturbance

At the time of preparation of this report, final engineering, design, and grading plans for the project had not been finalized. Because the project design is at a preliminary stage, the level of detail needed to determine the precise depth and extent of ground disturbance is not known. However, the level of design that has occurred to-date allows for a general characterization of the overall ground disturbance and excavation that would be necessary for the project. The project design team worked with the Foundation and the County to characterize a “worst-case” ground-disturbance estimate, which represents the most-impactful scenario in terms of depths and amount of excavation that includes all project elements. While separate estimates for each project element (e.g., the new museum building) are not yet available, the

estimate based on the worst-cast scenario provides a reasonable basis on which the potential for impacts to archaeological and tribal cultural resources can be analyzed.

Under the most-impactful scenario, the project would at maximum require excavations 6 to 10 feet below ground, potentially involving 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill. In general, the new museum building would require the most ground disturbance and excavation. Although the final elevation of the foundation for the new museum building is not known at this time, it may be below the existing ground surface to provide a smooth connection to the existing Page Museum. The expansion of the new parking lot to the north and west of the existing lot would likely also require grading and imported sediments to create a level surface as a base beneath the new surface. Pile-drilling could be required to construct the structural supports for the new walkway over the Lake Pit and possibly the two gateway entrances, and ground disturbances are expected to be approximately consistent with the maximum depths of 10 feet considered for the project but contained with the relatively narrow diameter of the bore and in a limited number of locations. The pedestrian paths, recreation areas, pit renovations, and landscaping would all require shallow to moderate excavation not to exceed approximately 5 feet; deeper excavation could possibly be required for tree planting/removal, although many of the ground-disturbances for these components would be at more shallow depths (e.g., 18 inches), for example to complete smaller plantings and construct/remove pathways. While these project elements are expected to require less excavation than for the new museum, this report assumes that excavations could occur up to 10 feet deep throughout the 13-acre project site to allow maximum flexibility as the project designs become more refined.

In addition, the project would demolish the existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. A new 2,000-square foot satellite maintenance and support building would be constructed for additional storage, administration, and research space directly west of the parking lot.

2.4 Construction Time Frame and Phasing

Construction of the project, from mobilization to the site to final completion, is expected to occur between 2024 and 2028, and would last for approximately 4 years. The project would be constructed in five phases: 1) demolition and site preparation of the project site; 2) installation of infrastructure improvements; 3) development of the proposed new museum building and parking lot; 4) landscaping and hydroseeding; and 5) on-site roadway improvements. All construction activities, including construction staging of equipment, would be situated entirely within the project site. Typical construction equipment would be used during all phases of project construction and would be stored within the staging area, potentially including excavators, dozers, backhoes, dump trucks, water trucks, jackhammers, sand blasters, rollers, pavers, generators, scrapers, forklifts, delivery trucks, paving equipment, cranes, and air compressors. It is assumed that blasting would not be required for project demolition or construction.

3 ENVIRONMENTAL SETTING

The project is located within the South Coast Air Basin (Air Basin), an approximately 6,745-square-mile area bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and San Diego County to the south. The South Coast Air Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the Coachella Valley area in Riverside County. The regional climate within the Air Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the

Air Basin is primarily influences by meteorology and a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry.

Air pollutant emissions within the Air Basin are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack, such as combustion equipment that produces electricity or generates heat. Area sources are widely distributed and include residential and commercial water heaters, agricultural fields, landfills, and others. Mobile sources include emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

3.1 Overview of Air Pollution and Potential Health Effects

3.1.1 Criteria Air Pollutants

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants in order to protect the public health and welfare. These pollutants are referred to as “criteria air pollutants” and the national and state standards have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment, either directly or in reaction with other pollutants due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in the air quality with the Air Basin. The criteria air pollutants for which national and state standards have been promulgated and which are most relevant to current air quality planning and regulation in the Air Basin include carbon monoxide (CO), ozone (O_3), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, sulfates, and hydrogen sulfide (H_2S). These pollutants, as well as volatile organic compounds (VOCs) and toxic air contaminants (TACs), are discussed in the following paragraphs. The national and state criteria pollutants and the applicable ambient air quality standards are listed in Table 2.

3.1.1.1 OZONE

O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun’s energy and O_3 precursors. These precursors are mainly oxides of nitrogen (NO_x) and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth’s surface in the troposphere (ozone). The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered “bad” O_3. Stratospheric, or “good” O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth’s atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2022a). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

3.1.1.2 NITROGEN DIOXIDE

NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2022a).

3.1.1.3 CARBON MONOXIDE

CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions (EPA 2022a).

3.1.1.4 SULFUR DIOXIDE

SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel (EPA 2022a).

3.1.1.5 PARTICULATE MATTER

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SOx), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in $PM_{2.5}$ and PM_{10} (EPA 2022a).

3.1.1.6 LEAD

Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead (EPA 2022a).

3.1.1.7 OTHERS

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. H_2S is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of H_2S include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to H_2S can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

3.1.2 Volatile Organic Compounds

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as TACs. While there are no specific VOC ambient air quality standards, VOC is a prime component (along with NO_x) of the photochemical processes by which such criteria pollutants as O_3, NO_2, and certain fine particles are formed. They are, thus, regulated as “precursors” to the formation of those criteria pollutants.

3.1.3 Toxic Air Contaminants

TACs refer to a diverse group of “non-criteria” air pollutants that can affect human health but have not have ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above, but because their effects tend to be local rather than regional. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics “Hot Spots” Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hot spots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

The federal TACs are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, although there are no ambient standards established for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or other acute (short-term) or chronic (long-term) health problems. For TACs that are known or suspected carcinogens, the CARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risks they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health effects, a similar factor, called a Hazard Index, is used to evaluate risk. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Examples of TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TACs that are relevant to the implementation of the project include diesel particulate matter (DPM) and airborne asbestos.

DPM was identified as a TAC by the CARB in August 1998 (CARB 1998). DPM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57% attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units. Stationary sources, contributing about 3% of emissions, include shipyards, warehouses, heavy-equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities.

Exposure to DPM can have immediate health effects. DPM can have a range of health effects including irritation of eyes, throat, and lungs, causing headaches, lightheadedness, and nausea. Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. Children, the elderly, and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. In California, DPM has been identified as a carcinogen.

Naturally occurring asbestos areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks. Asbestos has been designated a TAC by the CARB and is a known carcinogen. When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos-containing dust can be generated. Exposure to asbestos can result in adverse health effects such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing) (Van Gosen and Clinkenbeard 2011). According to the California Geologic Survey, the project site is not located in an area of naturally occurring asbestos (CARB 2000a).

Asbestos-containing materials become a health hazard once they are disturbed. Intact, asbestos fibers imbedded within construction materials and components are inert and do not pose a health hazard; however, once they are disturbed, through physical contact or building renovation and demolition activities, asbestos fibers may be rendered airborne (SCAQMD 2007).

3.1.4 Odors

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

A unique feature of the project is the existing subsurface conditions which consist of a relatively thin layer of artificial fill overlying alluvial deposits. The alluvial deposits consist of stiff clay and dense tar-bearing sands. Tar-bearing sands are saturated with hydrocarbons, whereas the upper clay soils contain less hydrocarbons. The presence of the hydrocarbons in the sediments is the result of the project site being over an oil field. Hydrogen sulfide and methane gases generated within the oil field are present in the subsurface. Because the project site is located within an area of known shallow methane and H_2S gas accumulation, crude oil and methane gas leak out from the petroleum deposits and migrate through fractures and faults located within the bedrock until encountering the alluvial soils, where they permeate into the alluvium and continue to travel upward to the ground surface. These unique subsurface conditions

are a potential source of odors due to the presence of H_2S. Many of the light petroleum components are lost to evaporation and biogenic processes, resulting in viscous tar seeping out of the ground surface (Deane et al. 2018). A methane specialist will be developing the ventilation system and barriers to reduce gas seepage into enclosed structures.

Table 2. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O3)	1 hour	0.09 ppm (180 µg/m³)	--	Same as Primary
	8 hour	0.070 ppm (137 µg/m³)	0.070 ppm (137µg/m³)	
Respirable particulate matter (PM10)	24 hour	50 µg/m³	150 µg/m³	Same as Primary
	Annual mean	20 µg/m³	--	
Fine particulate matter (PM2.5)	24 hour	--	35 µg/m³	Same as Primary
	Annual mean	12 µg/m³	12.0 µg/m³	15 µg/m³
Carbon monoxide (CO)	1 hour	20 ppm (23 µg/m³)	35 ppm (40 mg/m³)	--
	8 hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	--
Nitrogen dioxide (NO2)	1 hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	--
	Annual mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
Sulfur dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	--
	3 hour	--	--	0.5 ppm (1300 µg/m³)
	24 hour	0.04 ppm (105 µg/m³)	0.14 ppm	--
	Annual mean	--	0.030 ppm	--
Lead	30-day average	1.5 µg/m³	--	--
	Calendarquarter	--	1.5 µg/m³	Same as Primary
	Rolling 3-month average	--	0.15 µg/m³	Same as Primary
Visibility reducing particles	8 hour	10-mile visibility standard, extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 hour	25 µg/m³		
Hydrogen sulfide (H2S)	1 hour	0.03 ppm (42 µg/m³)		
Vinyl chloride	24 hour	0.01 ppm (265 µg/m³)		

Source: CARB (2016)

Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; -- = no standard.

3.2 Existing Air Quality Conditions in the Project Area

3.2.1 Regional Air Quality

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatology pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The regional climate within the Air Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity.

The extent and severity of air pollution in the Air Basin is a function of the area's natural physical characteristics (e.g., weather and topography), as well as human-made influences (e.g., land use development patterns, heavy vehicular traffic, and industry). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography affect the accumulation and dispersion of pollutants throughout the Air Basin, making it an area of high pollution potential.

Pollutant concentrations in the Air Basin vary with location, season, and time of day. O_3 concentrations, for example, tend to be lower along the coast, higher in the near inland valleys, and lower in the far inland areas of the Air Bain and adjacent desert. The most severe air pollution throughout the Air Basin occurs from June through September. This condition is generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. This frequently reduces pollutant dispersion, causing elevated air pollution levels. Over the past 30 years, substantial progress has been made in reducing air pollution levels in Southern California (CARB 2018a). However, the Air Basin still fails to meet the national standards for O_3 and $PM_{2.5}$. In addition, Los Angeles County still fails to meet the national standard for lead. On May 24, 2012, the CARB approved the State Implementation Plan revision for the federal lead standard, which the EPA revised in 2008. The State Implementation Plan revision addresses attainment of the federal lead standard in the South Coast Air Basin portion of Los Angeles County, the only area in California designated as nonattainment for lead. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. SCAQMD has the responsibility for ensuring that all national and state air quality standards are achieved and maintained throughout the Air Basin. To meet the standards, SCAQMD has adopted a series of Air Quality Management Plans (AQMPs), discussed below under regulatory setting.

3.2.2 Regional Attainment Status

Depending on whether the applicable ambient air quality standards are met or exceeded, the Air Basin is classified on a federal and state level as being in "attainment" or "nonattainment." The EPA and CARB determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state and local ambient air monitoring stations with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable/unclassified designation is treated as an attainment designation. The Air Basin currently fails to meet the NAAQS for lead, O_3, and $PM_{2.5}$. Therefore, Los Angeles County South Coast Air Basin is considered a "non-attainment" area for these pollutants on the federal level. As of September 2022, the Air Basin is also considered in non-attainment for O_3, $PM_{2.5}$, and PM_{10} on the state level (EPA 2022b).

3.2.3 Regional Multiple Air Toxics Exposure Study

The SCAQMD has released an Air Basin-wide air toxics study, the Multiple Air Toxics Exposure Study V (MATES V). The MATES V study was developed to evaluate the cancer risk from toxic air emissions throughout the Air Basin by conducting a comprehensive monitoring program, an updated emissions inventory of TACs, and a modeling effort to fully characterize health risks for those living in the Air Basin. In the past iterations of the MATES study, the air toxics cancer risks were evaluated based on inhalation exposures only. However, in MATES V, the methodology was updated to include multiple exposure pathways, such as oral and dermal. The MATES V study concluded that the average carcinogenic risk from air pollution in the Air Basin is approximately 424 in 1 million over a 70-year duration (SCAQMD 2021a). Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 50% of the risk is attributed to diesel particulate emissions, approximately 25% to other toxic emissions associated with mobile sources (including benzene, butadiene, and carbonyls), and approximately 25% of all carcinogenic risk is attributed to stationary

sources, which include large industrial operations, such as refineries and metal processing facilities, as well as smaller businesses, such as gas stations and chrome plating.

As part of the MATES V study, the SCAQMD prepared a series of maps that shows regional trends in estimated outdoor inhalation cancer risk from toxic emissions, as part of the ongoing effort to provide insight into relative risks. The maps' estimates represent the number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The MATES V map is the most recently available map to represent existing conditions near the project site. The estimated cancer risk for the vast majority of the urbanized area within the Air Basin ranges from 200 to 1,000 cancers per million over a 70-year duration. Generally, the risk from air toxics is lower near the coastline, with higher risks concentrated near large diesel sources (e.g., freeways, airports, and ports).

3.2.4 Local Air Quality

Air pollutants emissions are generated in the local vicinity by stationary and area-wide sources, such as commercial and industrial activity, space and water heating, landscape maintenance, consumer products, and mobile sources primarily consisting of automobile traffic. Motor vehicles are the primary source of pollutants in the local vicinity.

3.2.4.1 EXISTING CRITERIA POLLUTANT LEVELS AT NEARBY MONITORING STATIONS

The SCAQMD maintains a network of air quality monitoring stations located throughout the Air Basin and has divided the Air Basin into 38 source receptor areas (SRAs) in which 31 monitoring stations operate. The project site is located within SRA 1, which covers the Central Los Angeles area.
The monitoring station most representative of the project site is the North Main Street Station, located at 1630 North Main Street in the city of Los Angeles, approximately 7.3 miles east of the project site. Criteria pollutants monitored at this station include PM_{10}, $PM_{2.5}$, O_3, CO, NO_2, lead, and sulfate. Table 3 presents the ambient pollutant concentrations that have been measured in SRA 1 for the period 2018–2020, as well as any exceedances of the NAAQS and CAAQS. The GHG inventory for California for years 2015–2019 is presented in Table 4. The national and state criteria pollutants and the applicable ambient air quality standards are listed above in Table 2.

Table 3. Summary of Ambient Air Quality in the Central Los Angeles Area

Pollutant		Year		
		2018	2019	2020
O_3	Maximum 1-hour concentration (ppm)	0.098	0.085	0.185
	Days exceeding CAAQS (0.09 ppm)	2	0	14
	Maximum 8-hour concentration (ppm)	0.073	0.08	0.118
	Days exceeding NAAQS (0.07 ppm)	4	2	22
	Days exceeding CAAQS (0.07 ppm)	4	2	22
Respirable PM_{10}	Maximum 24-hour concentration (µg/m^3)	81	62	77
	Days exceeding NAAQS (150 µg/m^3)	0	0	0
	Days exceeding CAAQS (50 µg/m^3)	31	3	24
	Annual arithmetic mean (µg/m^3)	34.1	25.5	23
	Does measured AAM exceed CAAQS (20 µg/m^3)?	Yes	Yes	Yes

Pollutant		Year		
		2018	**2019**	**2020**
Fine $PM_{2.5}$	Maximum 24-hour concentration (µg/m^3)	43.8	43.5	47.3
	Days exceeding NAAQS (35 µg/m^3)	3	1	2
	Annual arithmetic mean (µg/m^3)	12.58	10.85	12.31
	Does measured AAM exceed NAAQS/CAAQS (12 µg/m^3)?	Yes	No	Yes
CO	Maximum 1-hour concentration (ppm)	2.0	2.0	1.9
	Days exceeding NAAQS (35.0 ppm)	0	0	0
	Days exceeding CAAQS (20.0 ppm)	0	0	0
	Maximum 8-hour concentration (ppm)	1.7	1.6	1.5
	Days exceeding NAAQS and CAAQS (9 ppm)	0	0	0
NO2	Maximum 1-hour concentration (ppm)	0.0701	0.0697	0.0618
	Days exceeding CAAQS (0.18 ppm)	No	No	No
	Annual arithmetic mean (ppm)	0.0185	0.0177	0.0169
	Does measured AAM exceed NAAQS (0.0534 ppm)?	No	No	No
	Does measured AAM exceed CAAQS (0.03 ppm)?	No	No	No
Sulfur dioxide (SO_2)	Maximum 1-hour concentration (ppm)	0.0179	0.01	0.0038
	Days exceeding CAAQS (0.25 ppm)	0	0	0
	Maximum 24-hour concentration (ppm)	0.003	0.003	0.003
	Days exceeding CAAQS (0.04 ppm)	0	0	0
	Days exceeding NAAQS (0.14 ppm)	0	0	0
	Annual arithmetic mean (ppm)	0.001	0.001	0.001
	Does measured AAM exceed NAAQS (0.030 ppm)?	No	No	No
Lead	Maximum 30-day average concentration (µg/m^3)	0.011	0.012	0.013
	Does measured concentration exceed NAAQS (1.5 µg/m^3)?	No	No	No
	Maximum calendar quarter concentration (µg/m^3)	0.011	0.01	0.011
	Does measured concentration exceed CAAQS (1.5 µg/m^3)?	No	No	No
Sulfates	Maximum 24-hour concentration (µg/m^3)	4.5	5.1	3.3
	Does measured concentration exceed CAAQS (25 µg/m^3)?	No	No	No

Source: SCAQMD (2022b)

Notes: AAM = annual arithmetic mean; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Table 4. California Greenhouse Gas Inventory

Parameter	Unit*	Year				
		2015	**2016**	**2017**	**2018**	**2019**
Transportation	MMT CO_2e	166.2	169.8	171.2	169.6	166.1
	Percentage	38.5%	40.4%	41.2%	40.7%	40.6%
Electric power	MMT CO_2e	84.8	68.6	62.1	63.1	58.8
	Percentage	19.6%	16.3%	14.9%	15.2%	14.4%
Industrial	MMT CO_2e	90.3	89	88.8	89.2	88.2
	Percentage	20.9%	21.2%	21.4%	21.4%	21.5%

Parameter	Unit*	Year				
		2015	2016	2017	2018	2019
Commercial and residential	MMT CO_2e	38.8	40.6	41.3	41.4	43.8
	Percentage	9.0%	9.7%	9.9%	9.9%	10.7%
Agriculture	MMT CO_2e	33.5	33.3	32.5	32.7	31.8
	Percentage	7.8%	7.9%	7.8%	7.9%	7.8%
High global warming potential (GWP)	MMT CO_2e	18.6	19.2	20	20.4	20.6
	Percentage	4.3%	4.6%	4.8%	4.9%	5.0%
Total Net Emissions	MMT CO_2e	**432.2**	**420.5**	**415.9**	**416.4**	**409.3**

Source: California GHG Inventory for 2000–2019 (CARB 2021)

* MMT CO2e = million metric tons carbon dioxide equivalent

3.2.4.2 EXISTING HEALTH RISK IN THE PROJECT VICINITY

Based on the MATES V model, the multi-pathway cancer risk in the area immediately surrounding the project site in the 90036 zip code is approximately 495 in 1 million (SCAQMD 2021b). The cancer risk in this area includes diesel particulate matter, benzene, formaldehyde, and arsenic. However, the cancer risk is predominantly related to nearby sources of diesel particulate (e.g., the Harbor Freeway [I-110]).
In general, the risk at the project site is comparable with other urbanized areas in Los Angeles as air toxics cancer risk in this zip code is higher than 63.0% of the South Coast AQMD population (OEHHA 2021).

OEHHA, on behalf of the California EPA (CalEPA), provides a screening tool called CalEnviroScreen that can be used to help identify California communities disproportionately burdened by multiple sources of pollution. According to CalEnviroScreen, the project is located in the 47th percentile, which means the project site is about average in comparison to other communities within California.

3.2.4.3 SURROUNDING USES

The project site is in a highly urbanized area. As discussed in the project description, the area surrounding the La Brea Tar Pits includes a mix of commercial uses, residential uses, and open spaces. Specifically, the project is bounded by LACMA, Park La Brea Pool, parking lots, commercial and multi-family uses.

3.2.4.4 SENSITIVE USES

Some population groups, including children, elderly, and acutely and chronically ill persons (especially those with cardiorespiratory diseases), are considered more sensitive to air pollution than others.
A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. The following are land uses where sensitive receptors are typically located:

- schools, playgrounds and childcare centers
- long-term health care facilities
- rehabilitation centers
- convalescent centers
- hospitals
- retirement homes

- residences

The closest sensitive land uses to the project site are residential uses located 87 feet to the east and north of the project. All other air quality sensitive receptors are located at greater distances from the project and would be less impacted by project emissions. Therefore, project impacts are quantified only for these nearest sensitive receptors.

3.3 Greenhouse Gas Setting

Global climate change refers to the changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs. GHGs are released by the combustion of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect. While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

Regarding the adverse effects of global warming, as reported by the Southern California Association of Governments (SCAG): "Global warming poses a serious threat to the economic well-being, public health and natural environment in Southern California and beyond. The potential adverse impacts of global warming include, among others, or production in the quantity and quality of water supply, a rise in sea level, damage to marine and other ecosystems, and an increase in the incidences of infectious diseases" (SCAG 2007:116). Over the past few decades, energy intensity of the national and state economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the States in carbon dioxide (CO_2) emissions from fossil fuel consumption per unit of gross state product. However, in terms of total CO_2 emissions, "California is second only to Texas in the nation and is the 16th largest source of climate change emissions in the world, exceeding most nations. The SCAG region, with close to half of the state's population and economic activities, is a major contributor to the global warming problem" (SCAG 2007:117).

3.3.1 Greenhouse Gas Background

GHGs include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Carbon dioxide is the most abundant GHG. Other GHGs are less abundant, but have higher global warming potential than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. The primary GHGs attributed to global climate change are described below.

3.3.1.1 CARBON DIOXIDE (CO_2)

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants, volcanic outgassing, decomposition of organic matter, and evaporation from the oceans. Anthropogenic sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Anthropogenic sources of CO_2

amount to over 30 billion tons per year, globally (Friedlingstein et al. 2022). Natural sources release substantially larger amounts of CO_2. Nevertheless, natural removal processes, such as photosynthesis by land and ocean-dwelling plant species, cannot keep pace with this extra input of human-made CO_2, and, consequently, the gas is building up in the atmosphere.

3.3.1.1.1 Methane (CH_4)

Methane is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation, manure management, and rice cultivation are also significant sources of CH_4 in California.

3.3.1.1.2 Nitrous Oxide (N_2O)

Nitrous oxide is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. Nitrous oxide is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion produce N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California.

3.3.1.1.3 Hydrofluorocarbons, Perfluorocarbons, Sulfur Hexafluoride

Hydrofluorocarbons (HFCs) are primarily used as substitutes for ozone-depleting substances regulated under the Montreal Protocol (1987), an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for ozone depletion. Perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no primary aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

The magnitude of the impact on global warming differs among the GHGs. The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential (GWP). GWPs are one type of simplifies index based upon radiative properties used to estimate the potential future impacts of emissions of different gases upon the climate system, expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalents (CO_2e). GWP are based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO2. The larger GWP, the more that a given gas warms the Earth compared to CO2 over that time period. HFCs, PFCs, and SF_6 have a greater "global warming potential" than CO_2. In other words, these other GHGs have a greater contribution to global warming than CO_2 on a per-mass basis. However, CO_2 has the greatest impact on global warming because of the relatively large quantities of CO_2 emitted into the atmosphere.

A summary of the atmospheric lifetime and GWP of selected gases is presented in Table 5. As indicated in this table, GWPs range from 1 to 23,500 based on IPCC Assessment Reports. IPCC has released three assessment reports (AR4, AR5, and AR6) with updated GWPs, however, CARB reports the statewide GHG inventory using the AR4 GWPs, which is consistent with international reporting standards.

By applying the GWP ratios, project-related equivalent mass of CO_2, denoted as CO_2e emissions can be tabulated in metric tons per year.

Table 5. Global Warming Potentials

Greenhouse Gas	GWP Values for 100-year Time Horizon		
	AR4*	**AR5**	**AR6**
Carbon dioxide (CO_2)	1	1	1
Methane (CH_4)	25	28	Fossil origin – 29.8 Non-fossil origin – 27.2
Nitrous oxide (N_2O)	298	265	273
Select hydrofluorocarbons (HFCs)	124–14,800	4–12,400	–
Sulfur hexafluoride (SF_6)	22,800	23,500	–

Sources: IPCC (2007, 2013, 2022).

* For consistency with the EPA and its Inventory of Greenhouse Gas Reporting, we have represented values from AR4 of the IPCC report in this report.

3.3.2 Greenhouse Gas Emissions Inventories

3.3.2.1 UNITED STATES GHG EMISSIONS

Per the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2020* (EPA 2022c), total U.S. GHG emissions have decreased by 6.6% from 1990 to 2020; 2005 emissions were 15.8% above 1990 levels. The largest source of GHG emissions from human activities in the United States is from burning of fossil fuels for electricity, heat, and transportation. The latest national GHG emissions are for calendar year 2020, in which total gross U.S. GHG emissions were reported at 5,981.4 million metric tons carbon dioxide equivalent (MMT CO_2e). Emissions decreased from 2019 to 2020 by 543.4 MMT CO_2e and net emissions (including sinks) were 5,222.4 MMT CO_2e.

3.3.2.2 STATEWIDE GHG EMISSIONS

According to California's 2000–2019 GHG emissions inventory, California emitted 409.3 MMT CO_2e in 2019 (CARB 2021). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan) and their relative contributions in 2019 are presented in Table 4. Total GHG emissions in 2019 were approximately 22.9 MMT CO_2e less than 2016 emissions. Based on data presented, the 2016 statewide GHG inventory fell below 1990 levels, consistent with AB 32 (CARB 2018b). The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 metric tons CO_2e ($MTCO_2e$) (CARB 2022a).

3.3.2.3 COUNTY OF LOS ANGELES EMISSIONS

In 2015, emissions generated by community activities occurring in the county amounted to 5.5 MMT CO_2e. The transportation and stationary energy sectors were the largest contributors to the inventory. The transportation sector accounts for approximately 2.8 MMT CO_2e (51%) of total GHG emissions, while the stationary energy sector accounts for approximately 1.9 MMT CO_2e (35%) of total GHG

emissions. The transportation sector includes emissions from on-road passenger vehicles, trucks, and railways. The stationary energy sector includes emissions from residential, commercial, and institutional uses; industrial buildings; and stationary equipment. The remaining emissions sources include waste and wastewater (8%), refrigerants and other industrial products (5%), and other land-related activities including forestry and agriculture (1%).

To capture the latest emissions profile and emissions trends in Los Angeles County since 2015, the County prepared an updated inventory for the year 2018, given the availability in that year of the most recent complete data set of emissions-generating activity. Both the 2015 and the updated 2018 inventory are discussed in detail in the Los Angeles County revised draft 2045 Climate Action Plan (County of Los Angeles 2023). The 2018 inventory relies on the same protocol and data sources that were used in the 2015 GHG emissions inventory. In 2018, communitywide emissions totaled 5.2 MMT CO_2e.
The transportation sector was the greatest contributor, accounting for 52% of emissions and 2.7 MMT CO_2e. The stationary energy sector was the second greatest contributor at 33% and 1.7 MMT CO_2e. Total GHG emissions decreased approximately 7% between 2015 and 2018. The stationary energy sector saw the greatest decrease (11%), followed by the industrial processes and product use sector (6%) and the transportation sector (5%). Emissions from stationary energy decreased primarily because of the increasing level of renewable energy supplied by Southern California Edison into the electricity grid and because certain power-generating facilities decreased their fossil fuel combustion in the intervening years. Emissions from transportation decreased primarily because of vehicle turnover to more fuel-efficient vehicles.

4 REGULATORY SETTING

Federal, state, and local agencies have set ambient air quality standards for certain air pollutants through statutory requirements and have established regulations and various plans and policies to maintain and improve air quality, as described below.

4.1 Federal

4.1.1 Federal Clean Air Act

4.1.1.1 AIR QUALITY

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to the EPA. The EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, the EPA has established the NAAQS for six criteria air pollutants that are pervasive in urban environments and for which state and national health-based ambient air quality standards have been established. Ozone (O_3), CO, NO_2, SO_2, lead, and particulate matter (PM_{10} and $PM_{2.5}$) are the six criteria air pollutants. Ozone is a secondary pollutant; NO_X and VOCs are of particular interest as they are precursors to ozone formation. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 2.

The CAA requires the EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The act also mandates that the State submit and implement a State Implementation Plan

for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

4.1.1.2 GREENHOUSE GAS EMISSIONS

The Supreme Court of the United States (SCOTUS) ruled in Massachusetts v. Environmental Protection Agency, 127 S.Ct. 1438 (2007), that CO_2 and other GHGs are pollutants under the federal CAA, which the EPA must regulate if it determines they pose an endangerment to public health or welfare. SCOTUS did not mandate that the EPA enact regulations to reduce GHG emissions. Instead, SCOTUS found that the EPA could avoid taking action if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change.

On April 17, 2009, the EPA issued a proposed finding that GHGs contribute to air pollution that may endanger public health or welfare. On April 24, 2009, the proposed rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2009~0171. The EPA stated that high atmospheric levels of GHGs "are the unambiguous result of human emissions and are very likely the cause of the observed increase in average temperatures and other climatic changes." The EPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The findings were signed by the EPA Administrator on December 7, 2009. The final findings were published in the Federal Register on December 15, 2009. The final rule was effective on January 14, 2010. While these findings alone do not impose any requirements on industry or other entities, this action is a prerequisite to regulatory actions by the EPA, including, but not limited to, GHG emissions standards for light-duty vehicles.

On July 20, 2011, the EPA published its final rule deferring GHG permitting requirements for CO_2 emissions from biomass-fired and other biogenic sources until July 21, 2014. Environmental groups challenged the deferral. In September 2011, EPA released an "Accounting Framework for Biogenic CO2 Emissions from Stationary Sources," which analyses accounting methodologies and suggests implementation for biogenic CO_2 emitted from stationary sources.

On April 4, 2012, the EPA published a proposed rule to establish, for the first time, a new source performance standard for GHG emissions. Under the proposed rule, new fossil fuel–fired generating units larger than 25 megawatts are required to limit emissions to 1,000 pounds of CO_2 per megawatt-hour on an average annual basis, subject to certain exceptions.

On April 17, 2022, the EPA issued emission rules for oil production and natural gas production and processing operations, which are required by the CAA under Title 40 of the Code of Federal Regulations (CFR) Parts 60 and 63. The final rules include the first federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently are not regulated at the federal level.

4.1.2 Toxic Substance Control Act

The Toxic Substances Control Act (TSCA) of 1976 provides the EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA became law on October 11, 1976 and became effective on January 1, 1977. The TSCA authorized the EPA to secure information on all new and existing chemical substances, as well as to control any of the substances that were determined to cause unreasonable risk to public health or the environment. Congress later added additional titles to the Act, with this original part designated at Title I – Control of Hazardous Substances. TSCA regulatory authority and program implementation rests predominantly with the federal government (i.e., the EPA). However, the EPA can authorize States to operate their own, EPA-authorized programs for some portions of the statute. TSCA Title IV allows States the flexibility to

develop accreditation and certification programs and work practice standards for lead-related inspection, risk assessment, renovation, and abatement that are at least as protective as existing federal standards.

4.1.3 National Emission Standards for Hazardous Air Pollutants (Asbestos)

The EPA's air toxics regulation for asbestos is intended to minimize the release of asbestos fibers during activities involving the handling of asbestos. Asbestos was one of the first hazardous air pollutants regulated under the air toxics program as there are major health effects associated with asbestos exposure (lung cancer, mesothelioma, and asbestosis). On March 31, 1971, the EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA promulgated the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), currently found in 40 CFR 61(M). The Asbestos NESHAP has been amended several times, most comprehensively in November 1990. In 1995, the rule was amended to correct cross-reference citations to Occupational Safety and Health Administration, Department of Transportation, and other EPA rules governing asbestos. Air toxics regulations under the CAA have guidance on reducing asbestos in renovation and demolition of buildings; institutional, commercial, and industrial building; large-scale residential demolition; exceptions to the asbestos removal requirements; asbestos control methods; waste disposal and transportation; and milling, manufacturing, and fabrication.

4.2 State

4.2.1 California Clean Air Act

The California Clean Air Act (CCAA) was adopted by the CARB in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for Ozone, CO, SO2, and NO2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. The CARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level AQMPs that would be incorporated into the State Implementation Plan. In California, the EPA has delegated authority to prepare State Implementation Plans to CARB, which in turn, has delegated that authority to individual air districts. Each district plan is required to either 1) achieve a 5% annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or 2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969, under the mandate of the Mulford-Carrell Act. The CCAA requires all air districts of the state to achieve and maintain the CAAQS by the earliest practical date. Table 2 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the State. As shown in Table 2, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, H_2S, vinyl chloride, and visibility-reducing particles.

4.2.2 California Code of Regulations

The California Code of Regulations (CCR) is the official compilation and publication of regulations adopted, amended, or repealed by the state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, Section 2485 in Title 13 of the CCR states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to 5 minutes at any location. In addition, Section 93115 in Title 17 of

the CCR states that operation of any stationary, diesel-fueled, compression-ignition engine shall meet specified fuel and fuel additive requirements and emission standards.

4.2.3 Toxic Air Contaminants Regulations

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, also known as the Tanner Air Toxics Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 – Connelly). In the early 1980s, the CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Air Toxics Act (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks (CARB 2011).

In August 1998, CARB identified DPM emissions from diesel-fueled engines as a TAC. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles (CARB 2000b). The goal of the plan is to reduce diesel PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75% in 2010, and by 85% by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce DPM emissions from diesel-fueled engines and vehicles were evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce DPM emissions. The project would be required to comply with applicable diesel control measures.

SCAQMD has adopted two rules to limit cancer and noncancer health risks from facilities located within its jurisdiction. Rule 1401 (New Source Review of Toxic Air Contaminants) regulates new or modified facilities, and Rule 1402 (Control of Toxic Air Contaminants from Existing Sources) regulates facilities that are already operating. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities.

4.2.4 Energy Independence and Security Act

The Energy Independence and Security Act of 2007 facilitates the reduction of national GHG emissions by requiring the following:

- increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- requiring approximately 25% greater efficiency for lightbulbs by phasing out incandescent lightbulbs between 2012 and 2014; requiring approximately 200% greater efficiency with lightbulbs, or similar energy savings, by 2020; and
- while superseded by the EPA and NHTSA actions described above, 1) establishing miles-per-gallon targets for cars and light trucks, and 2) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of the Energy Independence and Security Act address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

4.2.5 Executive Order S-3-05, Executive Order B-30-15, and Executive Order B-55-18

In 2005, the governor issued EO S-3-05, establishing statewide GHG emissions reduction targets, as well as a process to ensure the targets are met. The order directed the Secretary of the CalEPA to report every 2 years on the State's progress toward meeting the governor's GHG emission reduction targets.
The statewide GHG targets established by Executive Order S-3-05 are as follows:

- By 2010, reduce to 2000 emission levels,
- By 2020, reduce to 1990 emission levels, and
- By 2050, reduce to 80% below 1990 levels.

EO B-30-15, issued by Governor Brown in April 2015, established an additional statewide policy goal to reduce GHG emissions 40% below their 1990 levels by 2030. Reducing GHG emissions by 40% below 1990 levels in 2030 and by 80% below 1990 levels by 2050 (consistent with EO S-3-05) aligns with scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius.

The State Legislature adopted equivalent 2020 and 2030 statewide targets in the California Global Warming Solutions Act of 2006 (also known as AB 32) and Senate Bill (SB) 32, respectively, both of which are discussed below. However, the legislature has not yet adopted a target for the 2050 horizon year. As a result of EO S-3-05, the California Action Team (CAT), led by the Secretary of CalEPA, was formed. The CAT is made of representatives from a number of state agencies and was formed to implement global warming emission reduction programs and to report on the progress made toward meeting statewide targets established under the EO. The CAT reported several recommendations and strategies for reducing GHG emissions and reaching the targets established in the EO.

The CAT stated that "smart" land use is an umbrella term for strategies that integrate transportation and land use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. "Intelligent transportation systems" is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and service.

EO B-55-18, issued by Governor Brown in September 2018, establishes a new statewide goal to achieve caron neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. Based on this executive order, CARB would work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal, as well as ensuring future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

4.2.6 Assembly Bill 32 — California Global Warming Solution Act

The California Global Warming Solutions Act of 2006 (also known as AB 32) commits the State to achieving the following:

- By 2010, reduce to 2000 GHG emission levels, and
- By 2020, reduce to 1990 levels.

To achieve these goals, which are consistent with the California CAT GHG targets for 2010 and 2020, AB 32 mandates that the CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. In order to achieve the reductions, AB 32 requires CARB to adopt rules and regulations in an open, public process that achieves the maximum technologically feasible and cost-effective GHG reductions.

SB 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

4.2.7 Climate Change Scoping Plan

In 2008, CARB approved a Climate Change Scoping Plan, as required by AB 32. Subsequently, CARB approved updates of the Climate Change Scoping Plan in 2014 (First Update) and 2017 (2017 Update), with the 2017 Update considering SB 32 (adopted in 2016) in addition to AB 32 (CARB 2014, 2017a). The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals (to the level of 427 MMT CO_2e) defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. In May 2022, a draft 2022 Scoping Plan Update was circulated for review, with an errata issued by CARB September 21, 2022, to correct several typographical errors. This draft 2022 Scoping Plan Update assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan Update, which will likely be adopted by the end of 2022, focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

4.2.8 Assembly Bill 197

AB 197, signed September 8, 2016, is a bill linked to SB 32 that prioritizes efforts to reduce GHG emissions in low-income and minority communities. AB 197 requires the CARB to make available, and update at least annually on its website, the emissions of GHGs, criteria pollutants, and TACs for each facility that reports to CARB and air districts. In addition, AB 197 adds two members of the legislature to the CARB board as ex officio, non-voting members, and also creates the Joint Legislative Committee on Climate Change Policies to ascertain facts and make recommendations to the legislature concerning the State's programs, policies, and investments related to climate change.

4.2.9 Cap-and-Trade Program

The 2008 Climate Change Scoping Plan identified a cap-and-trade program as one of the strategies for California to reduce GHG emissions. The cap-and-trade program is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85% of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass around 360 businesses throughout California and nearly 85% of the state's total GHG emissions. Covered entities subject to the cap-and-trade program are sources that emit more than 25,000 $MTCO_2e$ per year. Triggering of the 25,000 $MTCO_2e$ per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (Mandatory Reporting Rule).

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auctions of GHG allowances on November 14, 2012 and February 19, 2013. The State has continued conducting tightly controlled auctions for GHG allowances every quarter. California's GHG cap-and-trade system was projected to reduce GHG emissions to 1990 levels by the year 2020, and is projected to achieve an approximate 80% reduction from 1990 levels by 2050.

4.2.10 California Renewables Portfolio Standard

The California Renewable Portfolio Standard (RPS) program (SB 1078; 2002) requires that 20% of the available energy supplies are from renewable energy sources by 2017. In 2006, SB 107 accelerated the 20% mandate to 2010. These mandates apply directly to investor-owned utilities. On April 12, 2011, Governor Brown signed into law SB 2X, which modified the California RPS program to require that both public- and investor-owned utilities in California receive at least 33% of their electricity from renewable sources by the year 2020. SB 2X also requires regulated sellers of electricity to meet an interim milestone of procuring 25% of their energy supply from certified renewable sources by 2016. These levels of reduction are consistent with the Los Angeles Department of Water and Power's (LADWP's) commitment to achieve 35% renewables by 2020. LADWP indicated that 35.2% of its electricity came from renewable resources in year 2021 (LADWP 2021). Therefore, under SB 2X, LADWP currently meets its RPS requirement. Nearly all residents and businesses in unincorporated Los Angeles County receive 50% of their energy from renewable sources as part of the County's commitment to reducing GHG emissions (County of Los Angeles 2021). At its December 7, 2021, meeting, the Los Angeles County Board of Supervisors approved a measure that changed the default energy offering in unincorporated homes to 100% renewable, and most of the renewable energy will be produced in California. This is consistent with one of the targets set by the OurCounty Countywide Sustainability Plan (County of Los Angeles 2019), which calls for eliminating all fossil fuels in the county by 2050, supporting policies and programs to reduce air and climate pollution, and preparing communities for the damaging impacts of climate change.

4.2.11 Senate Bill 350

SB 350, signed October 7, 2015, is the clean Energy and Pollution Reduction Act of 2015. The objectives of SB 350 are 1) to increase the procurement of electricity from renewable sources from 33% to 50% by the end of 2030; and 2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

4.2.12 Senate Bill 100

SB 100, signed September 10, 2018, is the 100 Percent Clean Energy Act of 2018. SB 100 updates the goals of California's RPS and SB 350, as discussed above, to the following: achieve a 50% renewable resources target by December 31, 2026, and achieve a 60% target by December 31, 2030. SB 100 also requires that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% procured to serve all state agencies by December 31, 2045.

4.2.13 Senate Bill 1368

SB 1368, signed September 29, 2006, is a companion bill to AB 32, which requires the California Public Utilities Commission and the California Energy Commission (CEC) to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside of California and imported into the state. SB 1368 provides a mechanism for reducing the emissions electricity providers, thereby assisting CARB to meet its mandate under AB 32. On January 25, 2007, the California Public Utilities Commission adopted an interim GHG emissions performance standard, which is a facility-based emission standard requiring that all new long-term commitments for baseload generation to serve California customers be with power plants that have GHG emissions no greater than a combined-cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. Furthermore, on May 23, 2007, the CEC adopted regulations that establish and implement an identical emissions performance standard of 1,100 pounds of CO_2 per megawatt-hour.

4.2.14 Assembly Bill 1493 (Pavley I)

AB 1493, passed in 2002, requires the development and adoption of regulations to achieve the maximum feasible reduction in GHG emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the state. CARB originally approved regulations to reduce GHG from passenger vehicles in September 2004, which took effect in 2009. On September 24, 2009, CARB adopted amendments to these regulations that reduce GHG emissions and new passenger vehicles from 2009 through 2016. Although setting emission standards on automobiles is solely the responsibility of the EPA, the federal CAA allows California to set state-specific emission standards on automobiles, and the State first obtains a waiver from the EPA. The EPA granted California that waiver until July 1, 2009. The comparison between the AB 1493 standards and the federal Corporate Average Fuel Economy standards was completed by CARB, and the analysis determined the California emission standards were 16% more stringent through the 2016 model year and 18% more stringent for the 2020 model year. CARB is also committed to further strengthening these standards beginning with 2020 model year vehicles, to obtain a 45% GHG reduction in comparison to 2009 model years.

In March 2020, the EPA issued the Safer Affordable Fuel-Efficient Vehicles Rule (SAFE) which would roll back feel economy standards and revoke California's waiver. Under this rule, EPA would amend certain average fuel economy and GHG standards for passenger cars covering model years 2021 through 2026. In September 2019, the EPA withdrew the waiver had previously provided in California for the states GHG and Zero Emission Vehicle (ZEV) programs under Section 209 of the Clean Air Act. The withdrawal of the waiver beginning effective on Novembe[r] 26th, 2019. In response, several states including California have a lawsuit challenging the withdrawal of the EPA waiver. These actions continue to be challenged in court. As noted above, on January 20, 2021, President Biden issued an executive order directing all executive departments and agencies to take action, as appropriate, to address federal regulations and other actions taken during the last 4 years that conflict with the administration's climate and environmental justice goals, which include SAFE.

4.2.15 Executive Order S-01-07 (California Low Carbon Fuel Standard)

EO S-01-07, the Low Carbon Fuel Standard (LCFS) (issued January 18, 2007), requires a reduction of at least 10% in the carbon intensity of California transportation fuels by 2020. Regulatory proceedings and implementation of the LCFS was directed to CARB. CARB released a draft version of the LCFS in October 2008. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the LCFS became effective on the same day.

The 2017 update has identified LCFS as a regulatory measure to reduce GHG emission to meet the 2030 emissions target. In calculating statewide emissions and targets, the 2017 update has assumed the LCFS be extended to an 18% reduction in carbon intensity beyond 2020. On September 27, 2018, CARB approved a rulemaking package that amended the LCFS to relax the 2020 carbon intensity reduction from 10% to 7.5%, and to require a carbon intensity reduction of 20% by 2030.

4.2.16 Advanced Clean Car Regulations

In 2012, CARB approved the Advanced Clean Cars program, a new emissions control program for model years 2015 through 2025. The components of the advance clean car standards include the Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero Emission Vehicle regulation, which requires manufacturers to produce an increasing number of pure ZEVs, with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years period. In March 2017, CARB voted unanimously to continue with the vehicle GHG emission standards and the ZEV programs for cars and light trucks sold in California through 2025.

4.2.17 Senate Bill 375

This bill requires CARB to set regional emissions reduction targets for passenger vehicles.
The Metropolitan Planning Organization for each region must then develop a “Sustainable Communities Strategy” (SCS) that integrates transportation, land use, and housing policies to plan how it will achieve the emissions target for its region. If the SCS is unable to achieve the regional GHG emissions reductions targets, then the Metropolitan Planning Organization is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target can be achieved through alternative development patterns, infrastructure, and/or transportation measures.

As required under SB 375, CARB is required to update regional GHG emission targets every 8 years, with last update formally adopted March 2018. As part of the 2018 update, CARB has adopted a passenger vehicle–related GHG reduction target of 19% by 2035 for the SCAG region, which is more stringent than the previous reduction target of 13% for 2035.

4.2.18 California Appliance Efficiency Regulations (Title 20, Sections 1601–1608)

The 2014 Appliance Efficiency Regulations, adopted by the CEC, include standards for new appliances (e.g., refrigerators) and lighting, if they are sold or offered for sale in California. These standards include minimum levels for operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

4.2.19 California Building Energy Efficiency Standards (Title 24, Part 6)

California's Energy Efficiency Standards for Residential and Nonresidential Buildings, codified in Title 24, Part 6 of the CCR and commonly referred to as "Title 24", were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

The 2022 Title 24 Standards go into effect January 1, 2023. The 2022 standards continue to improve upon the previous (2019) Title 24 standards for new construction of, and additions and alterations to, residential and non-residential buildings. The 2022 Title 24 Standards ensure that builders use the most energy-efficient and energy-conserving technologies and construction practices. Nonresidential buildings are projected to use approximately 30% less energy, due mainly to lighting upgrades. Compliance with Title 24 is enforced through the building permit process.

4.2.20 California Green Building Standards (CALGreen Code)

The California Green Building Standards Code—Part 11, Title 24, CCR—known as CALGreen, is the first-in-the-nation mandatory green building standards code. In 2007, California Building Standards Commission developed green building standards in an effort to meet the goals of California's landmark initiative AB 32, which established a comprehensive program of cost-effective reductions of GHGs to 1990 levels by 2020.

The California Building Standards Commission has the authority to propose CALGreen standards for nonresidential structures that include new buildings or portions of new buildings, additions and alterations, and all occupancies where no other state agency has the authority to adopt green building standards applicable to those occupancies. This code features:

- Regulations for energy efficiency, water efficiency and conservation, material conservation and resource efficiency, environmental quality, and more.
- Mandatory provisions for commercial, residential, and public school buildings.
- Appendices with voluntary provisions for all of these occupancies plus hospitals.

Residential and nonresidential provisions are in separate chapters for easier use.

4.2.21 Senate Bill 97

Senate Bill 97 (SB 97) was enacted in 2007. SB 97 required Governor's Office of Planning and Research (OPR) to develop, and the Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.
- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.

- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply and ways to reduce energy demand, including through the use of efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010. SB 97 applies to any environmental impact report (EIR), negative declaration, mitigated negative declaration, or other document required by CEQA, which has not been finalized.

4.3 Regional

4.3.1 South Coast Air Quality Management District

4.3.1.1 AIR QUALITY

SCAQMD shares responsibility with CARB for ensuring that all state and federal ambient air quality standards are achieved and maintained throughout all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, including all of Orange County and Los Angeles County, except for the Antelope Valley; the non-desert portion of western San Bernardino County; and the western and Coachella Valley portions of Riverside County. The Air Basin is a subregion of the SCAQMD jurisdiction.

To meet the CAAQS and NAAQS, the SCAQMD has adopted a series of AQMPs. The 2016 AQMP incorporates the SCAG 2016 Regional Transportation Plan/Sustainable Community Strategy (2016-2040 RTP/SCS)[3] and updated emission inventory methodologies for various source categories. The 2016 AQMP also includes the new federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

The AQMP provides emissions inventories, ambient measurements, meteorological episodes, and air quality modeling tools. The AQMP also provides policies and measures to guide responsible agencies in achieving federal standards for healthful air quality in the Air Basin. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

The SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to project construction or operation. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from on-site earthmoving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads.

The SCAQMD is currently in the process of replacing the CEQA Air Quality Handbook, approved in 1993, with the Air Quality Analysis Guidance Handbook (SCAQMD 2022a). In order to assist the CEQA

[3] Due to the AQMD publish date of 2016, the 2016 Regional Transportation Plan was incorporated. As discussed in the 2020-2045 RTP/SCS, the actions and strategies included in the 2020-2045 RTP/SCS remain unchanged from those adopted in the 2012-2035 and 2016-2040 RTP/SCS.

practitioner in conducting an air quality analysis in the interim while this replacement air quality analysis guidance handbook is being prepared, supplemental guidance/information is provided on the SCAQMD website and includes: 1) EMission FACtor (EMFAC) on-road vehicle emission factors; 2) background CO concentrations; 3) localized significance thresholds (LSTs); 4) mitigation measures and control efficiencies; 5) mobile source toxics analysis; 6) off-road mobile source emission factors; 7) $PM_{2.5}$ significance thresholds and calculation methodology; and 8) updated SCAQMD air quality significance thresholds (SCAQMD 2022a). The SCAQMD also recommends using approved models to calculate emissions from land use products projects, such as the California Emission Estimator Model (CalEEMod) Version 2022.1.1.17 (California Air Pollution Control Officers Association [CAPCOA] 2022). These recommendations were followed in the preparation of this analysis.

The SCAQMD has also adopted land use planning guidelines in the *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* (SCAQMD 2005), which considers impacts to sensitive receptors from facilities that emit TAC emissions. SCAQMD's siting distance recommendations are the same as those provided by CARB. The SCAQMD document introduces land use–related policies that rely on design and distance parameters to minimize emissions and lower potential health risk.

SCAQMD's guidelines are voluntary initiatives recommended for consideration by local planning agencies. The following SCAQMD rules and regulations would be applicable to the project:

- SCAQMD Rule 403 required projects to incorporate fugitive dust control measures at least as effectively as the following measures:
  - Use water to control dust generation during demolition of structures;
  - Clean up mud and dirt carried onto paved streets from the site;
  - Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site;
  - All haul trucks would be covered or would maintain at least 6 inches of freeboard;
  - All material transported off-site shall be sufficiently watered or securely covered to prevent excessive amounts of spillage or dust;
  - Suspend earthmoving operations or additional watering would be implemented to meet Rule 403 criteria if wind gusts exceed 25 miles per hour;
  - The owner or contractor shall keep the construction area sufficiently dampened to control dust caused by construction and hauling, and at all times provide reasonable dust control of dust caused by wind. All paved demolition and construction areas shall be wetted at least twice daily during excavation and construction, and temporary dust cover shall be used to reduce dust emissions; and
  - An information sign shall be posted at the entrance to the construction site that identifies the permitted construction hours and provides a telephone number to call and receive information about the construction project or to report complaints regarding excessive fugitive dust generation. A construction relations officers shall be appointed to act as a community liaison concerning on-site activity, including investigation and resolution of issues related to fugitive dust generating.
- SCAQMD Rule 1113 limits the volatile organic compound content of architectural coating.
- SCAQMD Rule 1403 establishes survey requirements, notifications, and work practice requirements to prevent asbestos emissions from emanating during building renovation and demolition activities. Any activities at the project site that would renovate or modify the existing structures, including the proposed project, would be required to comply with this rule.

- SCAQMD Regulation XIII, New Source Review, requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available technology control technology for new combustion sources such as boilers and water heaters).

SCAQMD has adopted two rules to limit cancer and non-cancer health risks from facilities located within its jurisdiction. Rule 1401 (New Source Review of Toxic Air Contaminants) regulates new or modified facilities, and Rule 1402 (Control of Toxic Air Contaminants from Existing Sources) regulates facilities that are already operating. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities.

4.3.1.2 GREENHOUSE GAS EMISSIONS

SCAQMD adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy to include the following directives:

- Phase out the use and corresponding emissions of chlorofluorocarbons, methyl chloroform, carbon tetrachloride, and halons by December 1995;
- Phase out the large-quantity use and corresponding emissions of hydrochlorofluorocarbons by the year 2000;
- Develop recycling regulations for hydrochlorofluorocarbons (e.g., SCAQMD Rules 1411 and 1415);
- Develop an emissions inventory and control strategy for methyl bromide; and
- Support the adoption of a California GHG emission reduction goal.

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds. Within its October 2008 document, SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 $MTCO_2e$ per year. Under this proposal, commercial/residential projects that emit fewer than 3,000 $MTCO_2e$ per year would be assumed to have a less-than-significant impact on climate change. SCAQMD has yet to adopt a GHG significance threshold for land use development projects such as commercial and/or residential projects.

4.3.2 Southern California Association of Governments

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG coordinates with various air quality and transportation stakeholders in Southern California to ensure compliance with the federal and state air quality requirements, including applicable federal, state, and air district laws and regulations. As the federally designated Metropolitan Planning Organization for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and state air quality plans to attain the NAAOS. In addition, SCAG is a co-producer, with SCAQMD, of the transportation strategy and transportation control measure sections of the 2016 AQMP. The development of the 2016 AQMP relies on population and transportation growth projections contained in SCAG's 2016-2040 RTP/SCS.

On September 3, 2020, SCAG's Regional Council adopted an updated RTP/SCS known as the 2020-2045 RTP/SCS or connect SoCal. As with the 2016-2020 RTP/SCS, the purpose of the 2020-2045 RTP/SCS is

to meet the mobility needs of the six-county SCAG region over the subject planning period through a roadmap identifying sensible ways to expand transportation options, improve air quality, and bolster Southern California long-term economic viability. On October 30, 2020, the CARB accepted SCAG's determination that the SCS met the applicable state GHG emissions targets. The goals and policies of the 2020- 2045 RTP/SCS are similar to, and consistent with, those of the 2016-2040 RTP/SCS. In addition, CARB's new target requiring a 19% reduction in per-capita GHG emissions has been included in the 2020-2045 RTP/SCS, to fulfill SB 375 compliance with respect to meeting the State's GHG emission reduction goals.

4.4 County of Los Angeles

4.4.1 County of Los Angeles General Plan

The County Board of Supervisors adopted the County of Los Angeles 2035 General Plan (2035 General Plan) on October 6, 2015. The adopted County General Plan represents a compromise comprehensive update intended to reflect changing demographics, growth, and infrastructure conditions in the county. The County General Plan contains an Air Quality Element that addresses air quality and related issues. Included in the Air Quality Element are goals encouraging mixed-use development, the use of "green building" principles, energy and water efficiency, reducing vehicle miles traveled and vehicle trips, and promoting alternative modes of transportation.

The Air Quality Element of the County General Plan establishes the following goals that are relevant to the project:

- Goal AQ 1: Protection from exposure to harmful air pollutants
- Goal AQ 2: The reduction of air pollution and mobile source emissions through coordinated land use, transportation, and air quality planning.
- Goal AQ3: Implementation of plans and programs to address the impact of climate change.
  - Policy AQ 3.2 - Reduce energy consumption of County operations by 20% by 2015.
  - Policy AQ 3.3 - Reduce water consumption of County operations.
  - Policy AQ 3.5 - Encourage energy conservation in new development and municipal operations.
  - Policy AQ 3.6 - Support rooftop solar facilities on new and existing buildings.

The County has the authority and responsibility to reduce air pollution by assessing and mitigating air emissions resulting from its land use decisions. Consistent with CEQA, the County assesses the air quality impacts of new development projects and requires mitigation of potentially significant air quality impacts by applying required conditions to projects through the County approval process. Depending on the location, the County uses either SCAQMD's CEQA Air Quality Handbook and SCAQMD's supplemental online guidance/information or CEQA guidance from the Antelope Valley Air Quality Management District for the environmental review of plans and development proposals within its jurisdiction. These guidance documents are more specific than the 2035 General Plan goals and policies noted above. Implementation of these guidance documents and consistency with the thresholds contained therein generally ensures that development projects are supportive and consistent with the 2035 General Plan.

4.4.2 OurCounty – Los Angeles Countywide Sustainability Plan

OurCounty is a regional sustainability plan for the County of Los Angeles and was adopted by the Board of Supervisors on Tuesday, August 6, 2019. It outlines what local governments and stakeholders can do to enhance the well-being of every community in the county while reducing damage to the natural environment and adapting to the changing climate, particularly focusing on those communities that have been disproportionately burdened by environmental pollution. The plan envisions streets and parks that are accessible, safe, and welcoming to everyone; air, water, and soil that are clean and healthy; affordable housing that enables all residents to thrive in place; and a just economy that runs on renewable energy instead of fossil fuels. OurCounty is organized around 12 goals for a sustainable Los Angeles County:

- ***Goal 1.*** *Resilient and healthy community environments where residents thrive in place.* The County will protect low-income communities and communities of color from pollution, reduce health and economic inequities, and support more resilient and inclusive communities.
- ***Goal 2.*** *Buildings and infrastructure that support human health and resilience.* The buildings and infrastructure of both yesterday and tomorrow will use more efficient technologies and practices that reduce resource use, improve health, and increase resilience.
- ***Goal 3.*** *Equitable and sustainable land use and development without displacement.* With policy tools such as anti-displacement measures, existing community members can remain in and strengthen their neighborhoods and networks while accepting new residents through more compact, mixed-use development.
- ***Goal 4.*** *A prosperous LA County that provides opportunities for all residents and businesses and supports the transition to a green economy.* We will support the growth of green economy sectors through our procurement practices, land use authority, and various economic and workforce development incentives.
- ***Goal 5.*** *Thriving ecosystems, habitats, and biodiversity.* The region's ecosystems, habitats, and biodiversity are under stress from urbanization and climate change. Careful planning will ensure that our ecosystems, including urban habitats, thrive even as our region becomes increasingly urbanized.
- ***Goal 6.*** *Accessible parks, beaches, recreational waters, public lands, and public spaces that create opportunities for respite, recreation, ecological discovery, and cultural activities.* The County will help make parks and public lands more accessible and inclusive and will manage them carefully so that all residents may enjoy their benefits.
- ***Goal 7.*** *A fossil fuel-free LA County.* By supporting an efficient transition to a zero emission energy and transportation system, the County will be a leader in taking action to address the climate crisis.
- ***Goal 8.*** *A convenient, safe, clean, and affordable transportation system that enhances mobility while reducing car dependency.* By developing programs that focus on reducing the number of miles people travel in private vehicles, the County will help people choose alternatives to single-occupancy vehicles. These programs will expand residents' mobility, including those residents whose limited automobile access translates to stifled economic opportunity.
- ***Goal 9.*** *Sustainable production and consumption of resources.* The County will effectively manage our waste, water, energy, and material resources by improving our ability to promote integrative and collaborative solutions at the local and regional scale.

- ***Goal 10.*** *A sustainable and just food system that enhances access to affordable, local, and healthy food.* The County of Los Angeles will leverage its capital assets, public services, and regulatory authority to improve access to healthy food within County boundaries while optimizing its purchasing power and business services to make food production more sustainable.
- ***Goal 11.*** *Inclusive, transparent, and accountable governance that facilitates participation in sustainability efforts, especially by disempowered communities.* The County will act to create a more inclusive and accountable governance structure, in order to build stronger communities and better-informed policy and programs.
- ***Goal 12.*** *A commitment to realize OurCounty sustainability goals through creative, equitable, and coordinated funding and partnerships.* The County will seek to strengthen partnerships, establish new funding techniques, and leverage its own purchasing power to advance the goals of OurCounty.

4.5 City of Los Angeles

Although the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, consideration of the city-level regulatory framework fulfills the intended purpose of CEQA as disclosing all relevant information associated with the project.

4.5.1 City of Los Angeles General Plan

The Air Quality Element of the City General Plan was adopted on November 24, 1992, and sets forth the goals, objectives, and policies which guide the City of Los Angeles (City) in the implementation of its air quality improvement programs and strategies. The Air Quality Element acknowledges the interrelationships among transportation and land use planning in meeting the City's mobility and air quality goals. The Air Quality Element of the City General Plan establishes six goals:

- Goal 1: Good air quality in an environment of continued population growth and healthy economic structure;
  - Objective 1.1- It is the objective of the City of Los Angeles to reduce air pollutants consistent with the Regional Air Quality Management Plan (AQMP), increase traffic mobility, and sustain economic growth citywide.
  - Objective 1.3- It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas. parking lots, and construction sites.
    - Policy 1.3.1- Minimize particulate emissions from construction sites.
    - Policy 1.3.2- Minimize particulate emissions from unpaved roads and parking lots associated with vehicular traffic.
- Goal 2: Less reliance on single-occupant vehicles with fewer commute and non-work trips;
  - Objective 2.1- It is the objective of the City of Los Angeles to reduce work trips as a step toward attaining trip reduction objectives necessary to achieve regional air quality goals.
    - Policy 2.1.1- Utilize compressed work weeks and flextime, telecommuting, carpooling, vanpooling, public transit, and improve walking/bicycling–related facilities in order to reduce Vehicle Trips and/or Vehicle Miles Traveled (VMT) as an employer and encourage the private sector to do the same to reduce work trips and traffic congestion.
    - Policy 2.2.2- Encourage multi-occupant vehicle travel and discourage single-occupant vehicle travel by instituting parking management practices.

- Objective 4.1- It is the objective of the City of Los Angeles to include regional attainment of ambient air quality standards as a primary consideration in land use planning.
  - Policy 4.1.1- Coordinate with all appropriate regional agencies in the implementation of strategies for the integration of land use, transportation, and air quality policies.
- Objective 4.2- It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.
  - Policy 4.2.2- Improve accessibility for the City's residents to places of employment, shopping centers, and other establishments.
  - Policy 4.2.3- Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.
  - Policy 4.2.4- Require that air quality impacts be a consideration in the review and approval of all discretionary projects.
  - Policy 4.2.5- Emphasize trip reduction, alternative transit and congestion management measures for discretionary projects.

- Goal 3: Efficient management of transportation facilities and systems infrastructure using cost-effective system management and innovative demand-management techniques;
  - Objective 5.1- It is the objective of the City of Los Angeles to increase energy efficiency of City facilities and private developments.
    - Policy 5.1.2- Effect a reduction in energy consumption and shift to nonpolluting sources of energy in its buildings and operations.
    - Policy 5.1.2- Effect a reduction in energy consumption and shift to nonpolluting sources of energy in its buildings and operations.
    - Policy 5.1.4- Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.
  - Objective 5.3- It is the objective of the City of Los Angeles to reduce the use of polluting fuels in stationary sources.
    - Policy 5.3.1- Support the development and use of equipment powered by electric or low-emitting fuels.

- Goal 4: Minimal impacts of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality;
  - Objective 4.1- It is the objective of the City of Los Angeles to include regional attainment of ambient air quality standards as a primary consideration in land use planning.
    - Policy 4.1.1- Coordinate with all appropriate regional agencies in the implementation of strategies for the integration of land use, transportation, and air quality policies.
  - Objective 4.2- It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.
    - Policy 4.2.2- Improve accessibility for the City's residents to places of employment, shopping centers, and other establishments.
    - Policy 4.2.3- Ensure that new development is compatible with pedestrians, bicycles, transit, and alternative fuel vehicles.
    - Policy 4.2.4- Require that air quality impacts be a consideration in the review and approval of all discretionary projects.
    - Policy 4.2.5 - Emphasize trip reduction, alternative transit and congestion management measures for discretionary projects.

- Goal 5: Energy efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implementation of conservative measures including passive measures such as site orientation and tree planting; and
- Goal 6: Citizens' awareness of the links between personal behavior and air pollution, and participation and efforts to reduce air pollution.

In accordance with CEQA requirements. the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The City uses SCAQMD's CEQA Air Quality Handbook and SCAQMD's supplemental online guidance/information for the environmental review of plans and development proposals within its jurisdiction.

4.5.2 City of Los Angeles Green LA Action Plan

The City of Los Angeles began addressing the issue of global climate change by publishing *Green LA, An Action Plan to Lead the Nation in Fighting Global Warming* ("LA Green Plan") in 2007. This document outlined the goals and actions the City has established to reduce the generation and emission of GHGs from both public and private activities. According to the LA Green Plan, the City is committed to the goal of reducing CO_2 emissions to 35% below 1990 levels by the year 2030. To achieve this, the City has been implementing the following:

- Increase the generation of renewable energy;
- Improve energy conservation and efficiency; and
- Change transportation and land use patterns to reduce dependence on automobiles.

4.5.3 City of Los Angeles Green New Deal/Sustainable City Plan

Rather than an adopted plan, the Sustainable City pLAn is a mayoral initiative released in 2015 that includes both short-term and long-term aspirations through the year 2035 in various topic areas, including: water, solar power, energy-efficient buildings, carbon and climate leadership, waste and landfills, housing and development, mobility and transit, and air quality, among others.

In 2019, the first 4-year update to the 2015 Sustainable City pLAn was released. While not a plan intended solely to reduce GHG emissions. this updated document, known as the City's Green New Deal, expands upon the City's vision for a sustainable future and provides accelerated targets and new goals, including climate mitigation. The Green New Deal has established targets such as 100% renewable energy by 2045, installation of 10,000 publicly available electric vehicle chargers by 2022 and 28,000 by 2028, diversion of 100% of waste by 2050, and recycling 100% of wastewater by 2035.

5 THRESHOLDS OF SIGNIFICANCE

5.1 Air Quality

Based upon the environmental checklist presented in Appendix G of the State CEQA Guidelines, the project would have a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan (Impact AQ-1);

- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards (Impact AQ-2);
- Expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3); or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (Impact AQ-4).

A discussion of applicable thresholds of significance and significance determination follow.

5.1.1 Construction

The SCAQMD has established significance thresholds based on the State CEQA significance criteria. Specifically, based on criteria set forth in the SCAQMD CEQA Handbook Air Quality Significance Thresholds, the project would have a significant impact with regard to construction emissions if any of the following would occur:

- Regional emissions from both direct and indirect sources would exceed any of the following SCAQMD-prescribed threshold levels: 1) 100 pounds per day for NO_X; 2) 75 pounds per day for VOCs; 3) 150 pounds per day for PM_{10} or sulfur oxides; 4) 55 pounds per day for $PM_{2.5}$; or 5) 550 pounds per day for CO.
- Maximum on-site daily localized emissions exceed the LST, resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for CO (20 parts per million [ppm] over a 1-hour period, or 9.0 ppm averaged over an 8-hour period) and NO_2 (0.18 ppm over a 1-hour period, 0.1 ppm over a 3-year average of the 98th percentile of the daily maximum 1-hour average, 0.03 ppm averaged over an annual period).
- Maximum on-site localized PM_{10} or $PM_{2.5}$ emissions during construction exceed the applicable LSTs, resulting in predicted ambient concentrations in the vicinity of the project site to exceed the incremental 24-hour threshold of 10.4 micrograms per cubic meter ($\mu g/m^3$) or 1.0 $\mu g/m^3$ PM_{10} averaged over an annual period.

5.1.2 Operations

Based on criteria set forth in the SCAQMD CEQA Handbook Air Quality Significance Thresholds, the project would have a significant impact with regard to project operations if any of the following would occur:

- Operational emissions exceed any of the following SCAQMD prescribed threshold levels: 1) 55 pounds per day for NO_X; 2) 55 pounds per day for VOCs; 3) 150 pounds per day for PM_{10} or sulfur oxides; 4) 55 pounds per day for $PM_{2.5}$; and 5) 550 pounds per day for CO.
- Maximum on-site daily localized emissions exceed the LST, resulting in predicted ambient concentrations in the vicinity of the project site greater than the most stringent ambient air quality standards for CO (20 ppm over a 1-hour period or 9.0 ppm averaged over an 8-hour period) and NO_2 (0.18 ppm over a 1-hour period, 0.1 ppm over a 3-year average of the 98th percentile of the daily maximum 1-hour average, 0.03 ppm averaged over an annual period).
- Maximum on-site localized operational PM_{10} or $PM_{2.5}$ emissions exceed the incremental 24-hour threshold of 2.5 $\mu g/m^3$ or 1.0 $\mu g/m^3$ PM_{10} averaged over an annual period.
- The project causes or contributes to an exceedance of the California 1-hour or 8-hour CO standards of 20 or 9.0 ppm, respectively.

- The project creates an odor nuisance pursuant to SCAQMD Rule 402.

5.1.3 Toxic Air Contaminants

The determination of significance shall be made on a case by case basis, considering the following factors:

- The regulatory framework for the toxic material(s) and process(es) involved;
- The proximity of the toxic air contaminants to sensitive receptors;
- The quantity, volume, and toxicity of the contaminants expected to be emitted;
- The likelihood and potential level of exposure; and
- The degree to which project design would reduce the risk of exposure.

Based on the criteria set forth in SCAQMD's CEQA Air Quality Handbook, the project may have a significant TAC impact if:

- The project results in the exposure of sensitive receptors to carcinogenic or toxic air contaminants that exceed the maximum incremental cancer risk of 10 in 1 million or an acute or chronic hazard index of 1.0. For projects with a maximum incremental cancer risk between 1 in 1 million and 10 in 1 million, a project would result in a significant impact if the cancer burden exceeds 0.5 excess cancer cases.

5.1.4 Consistency with Applicable Air Quality Plans

CEQA Guidelines Section 15125 requires an analysis of project consistency with applicable governmental plans and policies. In accordance with SCAQMD's CEQA Air Quality Handbook, the following criteria were used to evaluate the project's consistency with SCAQMD's AQMP and SCAG's regional plans and policies:

- Criterion 1: Will the project result in any of the following:
  - An increase in the frequency or severity of existing air quality violations;
  - Cause or contribute to new air quality violations; or
  - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP?
- Criterion 2: Will the project exceed the assumptions utilized in preparing the AQMP?
  - Is the project consistent with the population and employment growth projections upon which AOMP forecasted emission levels are based;
  - Does the project include air quality mitigation measures; or
  - To what extent is the project development consistent with AQMP control measures?

As previously noted, the County assesses the air quality impacts of new development projects and requires mitigation of potentially significant air quality impacts by applying required conditions to projects through the County approval process in accordance with the SCAQMD's CEQA Air Quality Handbook (SCAQMD 2022a). This guidance document is more specific than the 2035 General Plan goals and policies as well as the Air Quality Element of the City General Plan. Ensuring consistency with the SCAQMD's CEQA Air Quality Handbook and AQMP control measures would ensure that the project supports and is consistent with the air quality goals and policies contained in the 2035 General Plan and the City General Plan.

5.1.5 Cumulative Impacts

Based on SCAQMD guidance, individual construction projects that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Air Basin is in non-attainment. As discussed in the SCAQMD's White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution (2003a):

> As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. … Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003b:D-3).

The cumulative analysis of air quality impacts within this analysis follows SCAQMD's guidance such that construction or operational project emissions will be considered cumulatively considerable if project-specific emissions exceed an applicable SCAQMD-recommended daily threshold.

5.1.6 Localized Significance Thresholds

The assessment of the project's potential to expose sensitive receptors to substantial pollutant concentrations (Threshold AQ-3) includes an LST analysis, as recommended by the SCAQMD, to evaluate the potential of localized air quality impacts to sensitive receptors in the immediate vicinity of the project; a CO hot spot assessment; and construction and operation HRA analyses. For project sites of 5 acres or less, the SCAQMD LST Methodology (SCAQMD 2009) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling. Although the proposed development area of the project site is greater than 5 acres (estimated to be 13 acres), the project would disturb less than 5 acres in 1 day, as discussed in detail in the following text, so it is appropriate to use the lookup tables for the LST evaluation.

The LSTs for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

- Source-receptor area (SRA) in which the project is located
- Size of the project site
- Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

The project site is located in SRA 1 (Central Los Angeles County). The SCAQMD provides guidance for applying CalEEMod to the LSTs. LST pollutant screening level concentration data are currently published for 1-, 2-, and 5-acre sites for varying distances. The maximum number of acres disturbed on the peak day was estimated using the *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* (SCAQMD 2011), which provides estimated acres per 8-hour day for crawler tractors, graders, rubber-tired dozers, and scrapers. Based on the SCAQMD guidance, and assuming an excavator

can grade 0.5 acre per 8-hour day (similar to graders, dozers, and tractors), it was estimated that the maximum daily area on the project site that would be disturbed by off-road equipment would be 4.5 acres per day (five rubber-tired dozers and four tractor/loader/backhoe operating during the demolition and site preparation phases).

The nearest sensitive-receptor land use (a residence) is located approximately 87 feet north and east of the project's limits of construction. Therefore, the LST receptor distance was assumed to be 87 feet (26.5 meters). The LST values from the SCAQMD lookup tables for SRA for a 5-acre project site and a receptor distance of 25 meters (82 feet) are shown below in Table 6.

Table 6. Localized Significance Thresholds for SRA 1 (Central Los Angeles County)

Pollutant	Threshold (pounds per day)
NO_2	161
CO	1,861
PM_{10} (Operations)	4
PM_{10} (Construction)	16
$PM_{2.5}$ (Operations)	2
$PM_{2.5}$ (Construction)	8

Source: SCAQMD (2009)
Note: LST thresholds determined based on the values for 5-acre site at a distance of 25 meters (82 feet) from the nearest sensitive receptor.

The construction and operational HRA methodology and assumptions are presented in Section 6.4.1 and 6.4.2, respectively. The HRA analyses apply the SCAQMD risk thresholds, which are a maximum incremental cancer risk greater than or equal to 10 in 1 million and a chronic hazard index greater than or equal to 1.0 (project increment). The CO hot spot assessment and operation HRA are evaluated under the potential for the project to expose sensitive receptors to substantial pollutant concentrations (Threshold AQ-3), along with the LST analysis.

The potential for the project to result in an odor impact (Threshold AQ-4) is based on the project's land use type and operational activity, and the potential for the project to create an odor nuisance pursuant to SCAQMD Rule 402.

5.2 Greenhouse Gases

Consistent with Appendix G of the State CEQA Guidelines, a project would have a significant GHG impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment (Impact GHG-1); or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (Impact GHG-2).

State CEQA Guidelines Section 15064.4 recommends that lead agencies quantify GHG emissions projects and consider several other factors that may be used in the determination of significance of project-related GHG emissions, including: the extent to which the project may increase or reduce GHG emissions; whether the project exceeds an applicable significant threshold; and the extent to which the project complies with the regulations or requirements adopted to implement a reduction or mitigation of GHG.

Section 15064.4 does not establish a threshold of significance. Lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look at thresholds developed by other public agencies, or suggested by other experts, such as the CAPCOA, as long as any threshold chosen is supported by substantial evidence (see State CEQA Guidelines Section 15064.7(c)). The State CEQA Guidelines also clarify that the events of GHG emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see State CEQA Guidelines Section 15130(f)). It is noted that the State CEQA Guidelines were amended in response to SB 97. In particular, the State CEQA Guidelines were amended to specify that compliance with the GHG emissions reduction plan renders a cumulative impact less than significant.

Per State CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions" (14 CCR Section 15064(h)(3)). Put another way, State CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies, and/or other regulatory strategies to reduce GHG emissions.

For example, the San Joaquin Valley Air Pollution Control District (SJVAPCD), CEQA Determinations of Significance tor Projects Subject to ARB's GHG cap-and-trade Regulation, APR- 2030 (June 25, 2014), "determined that GHG emissions increases that are covered under ARB's cap-and-trade regulation cannot constitute significant increases under CEQA..." Further, the SCAQMD has taken this position in CEQA documents it has produced as a Lead Agency. The SCAQMD has prepared three Negative Declarations and one Draft Environmental Impact Report that demonstrate the SCAQMD has applied its 10,000 $MTCO_2e$ per year significance threshold in such a way that GHG emissions covered by the cap-and-trade program do not constitute emissions that must be measured against the threshold.

Although GHG emissions can be quantified, CARB, SCAQMD, and the County have not adopted quantitative project-level significance thresholds for GHG emissions that would be applicable to the project. The OPR released a Discussion Draft: CEQA and Climate Change Advisory in December 2018 to provide updates and regulatory changes to a prior 2008 climate change advisory. The discussion draft addresses project-level analyses of GHG impacts and recognizes, "lead agency discretion in determining the appropriate methodologies, thresholds, and if necessary, mitigation measures" (OPR 2018:2).

Furthermore, the discussion draft explains that significance thresholds may be based on efficiency metrics, compliance with state goals and percentage reduction from Business-as-Usual emissions, consistency with relevant regulations, plans, policies, and regulatory programs, or an absolute numerical/quantitative threshold (OPR 2018). Per State CEQA Guidelines Section 15064.4(b), "in determining the significance of a project's greenhouse gas emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions." When determining the significance of GHG impacts, lead agencies should consider the project's impact as compared to the existing environmental setting, whether the project exceeds a threshold of significance, and compliance with relevant GHG-related plans (see, for example, State CEQA Guidelines Section 15064.4(b)). Regarding the latter criterion, lead agencies should consider "the extent to which the project complies with

regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions (see, for example, State CEQA Guidelines Section 15183.5(b)). Per State CEQA Guidelines Section 15064.4(b)(3), such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions.

For the project, Los Angeles County, as the Lead Agency, has selected a 3,000 $MTCO_2e$ per year quantitative threshold to evaluate significance for GHG emissions. This is the interim GHG screening-level significance threshold. SCAQMD recommended this interim GHG screening-level threshold for projects that are in residential and commercial sectors[4] (SCAQMD 2008b). It is important to note that the GHG threshold of 3,000 $MTCO_2e$ per year is based on an interim threshold developed in 2008 to address the State's year 2020 and 2050 GHG reduction goals established under AB 32, which does not address the State's more recent GHG-reduction target of achieving carbon neutrality by 2045, per Executive Order B-55-18 (2018).

To achieve carbon neutrality by 2045, it is recommended that future development include measures to support building decarbonization, including the replacement of natural gas service with other alternatives, such as use of electrically-powered equipment (CARB 2022b; CEC 2021). Based on recent GHG threshold updates and supportive documentation prepared by the Bay Area Air Quality Management District (BAAQMD) and Sacramento Metropolitan Air Quality Management District (SMAQMD), it is recommended that future development prohibit the installation of natural gas infrastructure/use of natural gas–fired appliances, to the maximum extent possible, and incorporate electric-vehicle charging stations beyond what is required by current building standards in order to contribute its "fair share" of what would be required for the State to achieve its carbon neutrality goal (BAAQMD 2022; SMAQMD 2020). As a result, in addition to the GHG threshold of 3,000 $MTCO_2e$/year noted above, project-generated GHG emissions would also be considered to have a potentially significant impact if the project would not prohibit the installation of natural gas–fired appliances/equipment, to the maximum extent possible, or prohibit the installation of electric-vehicle charging stations beyond what is required by current building standards. As an additional significance criterion, consistency with the applicable plans and policies to reduce GHG emissions, including the emissions reduction policies, strategies, and measures discussed within CARB's Climate Change Scoping Plan, SCAG's 2020-2045 RTP/SCS, and the County of Los Angeles General Plan, was additionally evaluated.

6 METHODOLOGY

This analysis focuses on the potential change in the air quality environment due to implementation of the project. Air pollution emissions would result from both construction and operation of the project. Specific methodologies used to evaluate these emissions are discussed below.

The analysis is based on project specifics and default values in the latest versions of CalEEMod. Accordingly, this analysis has been conducted with the most recent available tools prepared and accepted by the regulatory agencies. The project phases have been grouped into six CalEEMod phases, based on the types of equipment and workload: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating.

[4] While the La Brea Tar Pits Master Plan contemplates development that is not considered residential or commercial, the construction and operational attributes of the project (e.g., energy demand, water demand, offroad and stationary sources) are like that of development in the residential and commercial sectors. GHG emissions of residential, commercial, and museum facilities are similar in they are focused on mobile sources, energy sources, and off-road and stationary sources. Also, approaches to reducing GHGs will be similar for all these land use types and will center around efficiency improvements of the buildings, efficiency improvements of equipment, and switching to energy sources with lower GHG emissions.

The 13-acre project site has been divided into the following land uses for purposes of CalEEMod: 1) parking; 2) other non-asphalt surfaces; 3) educational library; and 4) recreational city park. This analysis includes quantification of construction and operation off-road equipment, fugitive dust, and on-road mobile sources.

6.1 Construction Emissions

The SCAQMD published the CEQA Air Quality Handbook in November 1993 to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects in the Air Basin. The CEQA Air Quality Handbook provides standards, methodologies, and procedures for conducting air quality analysis and was used extensively in the preparation of this analysis. SCAQMD is currently in the process of replacing the CEQA Air Quality Handbook with the Air Quality Analysis Guidance Handbook.

In order to assist the CEQA practitioner in conducting an air quality analysis in the interim while the replacement Air Quality Analysis Guidance Handbook is being prepared, supplemental guidance/information is provided on the SCAQMD website and includes: 1) EMFAC on-road vehicles emission factors; 2) background CO concentrations; 3) localized significance thresholds (LSTs); 4) mitigation measures and control efficiencies; 5) mobile source toxics analysis; 6) off-road mobile source emission factors; and 7) updated SCAQMD Air Quality Significance Thresholds. SCAQMD also recommends using approved models to calculate emission from land use projects, such as the CalEEMod. These recommendations were followed in the preparation of this analysis.

6.1.1 Regional Emissions

The project's "regional" emission refers to emissions that will be evaluated based on regional significance thresholds established by SCAQMD, as discussed above. Daily regional emissions during construction are estimated by assuming a conservative construction schedule and applying the multiple source and fugitive dust emission factors derived from the SCAQMD-recommended CalEEMod latest version. Details of the modeling assumptions and emission factors are provided in Appendix A. The calculations of the emissions generated during project construction activities reflect the types and quantities of construction equipment that would be used to remove existing structures, grade and excavate the project site, construct the proposed buildings and related improvements, and plant new landscaping within the site.

6.1.2 Localized Emissions

The localized effects from the on-site portion of the daily emissions were evaluated and sensitive receptor locations potentially impacted by the project according to SCAQMD LST methodology, which uses on-site mass emission rate lookup tables and project-specific modeling, where appropriate. SCAQMD provides LSTs applicable to the following criteria pollutants: NO_x, CO, PM_{10}, and $PM_{2.5}$. SCAQMD does not provide an LST for SO_2 since land use development projects typically result in negligible construction and long-term operation emissions of this pollutant. Since VOCs are not a criteria pollutant, there are no ambient standard or SCAQMD LSTs for VOCs. Due to the role VOCs play in O_3 formation, it is classified as a precursor, and only a regional emissions threshold has been established.

LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard and/or were developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. The mass rate lookup tables were developed for each source receptor area and can be used to determine whether or not a project may generate significant adverse

localized air quality impacts. SCAQMD provides LST mass rate lookup tables for projects with active construction areas that are less than or equal to 5 acres. For projects that exceed 5 acres—such as this project, which involves a 13-acre project site—the 5-acre LST lookup values can be used as a screening tool to determine which pollutants require detailed analysis. This approach is conservative as it assumes that all on-site emissions would occur within a 5-acre area and would over-predict potential localized impacts (i.e., more pollutant emissions occur within a smaller area, resulting in greater concentrations). If the project exceeds the LST lookup values, then SCAQMD recommends that project-specific air quality modeling must be performed to determine if the project's local emissions exceed applicable significance thresholds.

6.1.3 Construction Assumptions

Construction emissions associated with the project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, vehicle travel on paved and unpaved surfaces, and fugitive dust from material handling activities, were calculated using CalEEMod version 2022.1.1.17 (CAPCOA 2022). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model uses widely accepted federal and state models for emission estimates and default data from sources such as EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as CEC. The model quantifies direct emissions from construction and operations, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The model was developed in collaboration with the air districts in California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions.

Emissions modeling included emissions generated during the following project phases: 1) demolition and site preparation of the project site; 2) installation of infrastructure improvements; 3) development of the proposed new museum building and parking lot; 4) landscaping and hydroseeding; and 5) on-site roadway improvements. These project phases have been grouped into six phases in CalEEMod based on the types of equipment and workload: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating.

The 13-acre project site has been divided into the following land uses for purposes of CalEEMod: 1) parking (1.86 acres); 2) other non-asphalt surfaces (3.21 acres); 3) educational-library (64,000 square feet [1.47 acres], 40,000 square feet [0.92 acre], and 2,000 square feet [0.05 acre]); and 4) recreational city park (6 acres).

Modeling input data were based on this anticipated construction schedule and phasing. Construction equipment and usage required for each phase were obtained using CalEEMod defaults for the land use types which make up the project site, information provided by the Foundation, and default parameters contained in the model for the project site (Los Angeles County South Coast). The construction duration is assumed to be approximately 4 years. Project construction would consist of different activities undertaken in phases, through to the operation of the project. Typical construction equipment would be used during all phases of project construction and would be stored within the staging area, potentially including excavators, dozers, backhoes, dump trucks, water trucks, jackhammers, sand blasters, rollers, pavers, generators, scrapers, forklifts, delivery trucks, paving equipment, cranes, and air compressors. There is no blasting anticipated during construction. Construction assumes 53,000 cubic yards of cut/export and 37,000 cubic yards of imported fill, occurring during the grading and building construction phases. Table 7 shows the project's anticipated construction schedule, presents an estimate of the

maximum number of pieces of equipment for each construction phase, and conservatively assumes equipment would be operating 8 hours per day, 6 days per week for the construction phase duration.

Table 7. Construction Anticipated Schedule, Trips, and Equipment

Phase (Duration)	Equipment Used			Daily Vehicle Trips
	Type	Number	Hours per Day	
Demolition	Rubber-tired dozer	2	8	50 worker one-way trips 8 vendor one-way trips 4 haul one-way trips
(262 working days)	Excavator	3	7	
1/1/2024 – 10/31/2024 Approximately 102,000 square feet demolished	Concrete/Industrial saw	1	8	
Site Preparation	Rubber-tired dozers	3	7	20 worker one-way trips
(262 working days)	Tractors/Loaders/Backhoe	4	7	
1/1/2024 – 10/31/2024				
Grading	Graders	1	8	75 worker one-way trips 10 vendor one-way trips 107 haul one-way trips
(52 working days)	Excavators	2	8	
11/1/2024 – 12/31/2024	Tractors/Loaders/Backhoe	2	8	
	Scrapers	2	8	
	Rubber-tired dozers	1	8	
Building Construction	Forklifts	3	7	200 worker one-way trips 17 vendor one-way trips 7 haul one-way trips
(808 working days)	Generator sets	1	8	
1/25/2025 – 7/31/2027	Cranes	1	8	
	Welders	1	8	
	Tractors/Loaders/Backhoe	3	8	
Paving	Pavers	2	7	15 worker one-way trips
(184 working days)	Paving equipment	2	7	
6/1/2027 – 12/31/2027	Rollers	2	8	
Architectural Coating	Air compressor	1	6	20 worker one-way trips
(79 working days)				
7/1/2026 – 9/30/2026				

Notes: For the parameters that are not provided in the table (e.g., equipment horsepower and load factor, on-road trip lengths), CalEEMod defaults were used.

The construction particulate matter emissions were mitigated in the CalEEMod model to comply with the above SCAQMD measures discussed in Section 4.3 of this report. During construction, exposed areas and active demolition sites would be watered two times per day, and travel on unpaved roads or surfaces by workers, vendors, or haul trucks would be limited to a speed limit of 25 miles per hour. As an additional mitigation measure, all off-road equipment over 75 horsepower would be Tier 4 Interim (see Section 7.2), which differs from the CalEEMod average default.

6.2 Operational Emissions

6.2.1 Regional Emissions

Criteria pollutant and GHG emissions from the operational phase of the project were estimated using CalEEMod Version 2022.1.1.17 (CAPCOA 2022). Year 2028 was assumed as the first full year of operations after completion of construction. The operational emissions were calculated based on CalEEMod defaults associated with the project's land use types. Analysis of the project's likely impact on regional air quality during project operation takes into consideration five types of sources: 1) area, 2) energy, 3) mobile, 4) off-road, and 5) stationary.

6.2.1.1 AREA SOURCES

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating, water heating, and stoves are calculated as part of building energy use in CalEEMod. The project would not include woodstoves or fireplaces (wood or natural gas). Therefore, area source emissions associated with hearths were not included.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2022). Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and on the default factor of pounds of VOC per building square foot per day. For parking lot land uses, CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings, such as in paints and primers using during building maintenance. CalEEMod calculates the VOC evaporative emissions from application of residential and nonresidential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emission factor is based on the VOC content of the surface coatings, and SCAQMD's Rule 1113 (Architectural Coatings) governs the VOC content for interior and exterior coatings. The model default reapplication rate of 10% of area per year is assumed. Architectural coating for the parking surface area was also estimated with CalEEMod defaults.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of nonresidential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For Los Angeles County, the average annual "summer" days are estimated to 365 days; however, it is assumed that landscaping equipment would likely only operate during the week (not weekends), so operational days were assumed to be 250 days per year in CalEEMod. Emissions associated with potential landscape maintenance equipment were included and no emission reduction features related to electric landscape equipment were assumed, to conservatively capture potential project operational emission sources.

6.2.1.2 ENERGY SOURCES

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off-site.

6.2.1.3 MOBILE SOURCES

The project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of project operations. Emissions from mobile sources during operation of the project were estimated using CalEEMod default trip rates, trip lengths, fleet mix, and emissions factors for each vehicle.

6.2.1.4 OFF-ROAD AND STATIONARY SOURCES

Three emergency generators and one forklift are included as part of the project operations and are calculated using CalEEMod defaults and estimated operating hours per year.

6.2.2 Localized Emissions

Localized impacts from project operations include calculation of on-site emission using SCAQMD's recommended CalEEMod and evaluation of these emissions consistent with SCAQMD's LST methodology (discussed above).

6.3 Greenhouse Gas

This analysis quantifies the project's total annual GHG emissions from construction and operation, taking into account the GHG emission reduction measures that would be incorporated into the project's design. However, given the lack of a formally adopted numerical significance threshold or a formally adopted local plan for reducing GHG emission applicable to this project, this analysis evaluates the significance of the project's GHG emission by assessing the project's consistency with regulatory schemes and policies that are designed to reduce GHG emission by encouraging development located and designed to result in the efficient use of resources.

While project design features would reduce project-related GHG emissions, not all measures are accounted for in the project's emissions inventory. Certain measures may not be accurately quantified or insufficient data are available to determine the reduction in GHG emissions.

The following project design features and mitigation measures are proposed with regard to GHG operation emissions:

- Incorporate energy-saving technologies and components to reduce the project's electrical use profile.
- Incorporate water-saving technologies and components to reduce the project's water/electrical use profile.
- Implement a Transportation Demand Management program, developed in consultation with Los Angeles Department of Transportation (LADOT).

6.4 Toxic Air Contaminants Impacts (Construction and Operations)

SCAQMD has also adopted land use planning guidelines in the *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning* (SCAQMD 2005), which considers impacts to sensitive receptors from facilities that emit TAC emissions. SCAQMD siting distance recommendations are the same as those provided by CARB. SCAQMD's document introduces land use–related policies that rely on design and distance parameters to minimize emissions and lower potential health risk. SCAQMD guidelines are voluntary initiatives recommended for consideration by local planning agencies.

Potential TAC impacts are evaluated by conducting a qualitative analysis consistent with the CARB Handbook (2005) followed by a more detailed analysis (i.e., dispersion modeling), as necessary. The qualitative analysis consists of reviewing the project to identify any new or modified TAC emission sources. If the qualitative evaluation does not rule out significant impacts from a new source, or modification of an existing TAC emissions source, a more detailed analysis is conducted. For the detailed analysis, sensitive receptor's locations are identified, and site-specific dispersion modeling is conducted to estimate project impacts.

Although the proposed development area of the project site is greater than 5 acres (estimated to be 13 acres), using the *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* (SCAQMD 2011), the project would disturb less than 5 acres in 1 day. The LST lookup tables were used for project construction and operation and determined no significant impacts. However, due to the project acreage and the potential modification of the TAC (DPM) emitted on-site and off-site from on-road and off-road vehicles, health risk assessments were conducted for both construction and operations DPM; these are discussed in more detail below.

6.4.1 Construction Health Risk Assessment

An HRA was performed to evaluate potential health risks associated with construction of the project. The following discussion summarizes the dispersion modeling and HRA methodology; supporting construction HRA documentation, including detailed assumptions, is presented in Appendix B. For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from off-road equipment operating at a defined location for a given length of time at a given distance from sensitive receptors. Less-intensive, more-dispersed emissions result from on-road vehicle exhaust (e.g., heavy-duty diesel trucks). For the construction HRA, the CalEEMod scenario for the project was adjusted to reduce diesel truck one-way trip distances to approximately 1,760 feet, to estimate emissions from truck pass-by at proximate receptors.

The air dispersion modeling methodology was based on SCAQMD's generally accepted modeling practices (SCAQMD 2006). Air dispersion modeling was performed using the EPA's American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) Version 21112 modeling system (computer software) with the Lakes Environmental Software implementation/user interface, AERMOD View Version 10.2.1. The HRA followed the Office of Environmental Health Hazard Assessment 2015 guidelines (OEHHA 2015) and SCAQMD guidance to calculate the health risk impacts at all proximate receptors, as further discussed below. The dispersion modeling included the use of standard regulatory default options. AERMOD parameters were selected consistent with the SCAQMD and EPA guidance and identified as representative of the project site and project activities.

Cancer risk is defined as the increase in probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased chances in 1 million. Maximum Individual Cancer Risk is the estimated probability of a maximally exposed individual

potentially contracting cancer because of exposure to TACs over a period of 30 years for residential receptor locations. For the construction HRA, the TAC exposure period was assumed to be from third trimester to 4 years for all receptor locations (i.e., the assumed duration of project construction). The exposure pathway for DPM is inhalation only.

The SCAQMD has also established noncarcinogenic risk parameters for use in HRAs, since some TACs increase noncancer health risk due to long-term (chronic) exposures and some TACs increase noncancer health risk due to short-term (acute) exposures. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in the HRA. Chronic exposure is evaluated in the construction HRA. Noncarcinogenic risks are quantified by calculating a hazard index, expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level which is a concentration at or below which health effects are not likely to occur. The chronic hazard index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. A hazard index of less than one (1.0) means that adverse health effects are not expected.

6.4.2 Operational Health Risk Assessment

An HRA was performed to evaluate potential health risk associated with operation of the project, specifically from trucks traveling to and from the project site and off-road or stationary equipment within the project site. The following discussion summarizes the dispersion modeling and HRA methodology; supporting operational HRA documentation, including detailed assumptions, is presented in Appendix B. For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from diesel trucks traveling off-site, and on-site off-road and stationary equipment.

Like the construction scenario, air dispersion modeling methodology was based on SCAQMD's generally accepted modeling practices (SCAQMD 2018). Air dispersion modeling was performed using the EPA's AERMOD Version 21112 modeling system (computer software) with the Lakes Environmental Software implementation/user interface, AERMOD View Version 10.2.1. The HRA followed OEHHA 2015 guidelines (OEHHA 2015) and SCAQMD guidance to calculate the health risk impacts at all proximate receptors, as further discussed below. The dispersion modeling included the use of standard regulatory default options. AERMOD parameters were selected consistent with the SCAQMD and EPA guidance and identified as representative of the project site and project activities. The ground-level concentration plot files were used to estimate the long-term cancer health risk to an individual, and the noncancer chronic health indices.

Cancer risk is defined as the increase in probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased chances in 1 million. Maximum Individual Cancer Risk is the estimated probability of a maximally exposed individual potentially contracting cancer as a result of exposure to TACs over a period of 30 years, operational lifetime, for residential receptor locations. For the operational HRA, the TAC exposure period was assumed to be from third trimester to 30 years for all receptor locations. The mandatory exposure pathways were selected.

The SCAQMD has also established noncarcinogenic risk parameters for use in HRAs, since some TACs increase noncancer health risk due to long-term (chronic) exposures and some TACs increase noncancer health risk due to short-term (acute) exposures; however, no short-term, acute relative exposure values are established and regulated for DPM and therefore are not addressed in this assessment. Noncarcinogenic risks are quantified by calculating a hazard index, expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level, which is a concentration at or below which health effects are not likely to occur. The chronic hazard index is the sum of the individual substance

chronic hazard indices for all TACs affecting the same target organ system. A hazard index of less than one (1.0) means that adverse health effects are not expected.

If the cancer risk from project operation at the maximally exposed individual resident exceeds 1 in 1 million, cancer burden, for which a SCAQMD significance threshold of 0.5, is evaluated. Unlike cancer risk, which is the lifetime probability (chances) of an individual developing cancer due to exposure to a carcinogenic compound, cancer burden estimates the number of theoretical cancer cases in a defined population resulting from a lifetime exposure to carcinogenic TACs. As described in the OEHHA guidance manual: The cancer burden can be calculated by multiplying the cancer risk at a census block centroid by the number of people who live in the census block, and adding up the estimated number of potential cancer cases across the zone of impact. The result of this calculation is a single number that is intended to estimate of the number of potential cancer cases within the population that was exposed to the emissions for a lifetime (70 years) (OEHHA 2015).

7 IMPACT ANALYSIS

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Impact AQ-1 Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact with Mitigation. Section 15125 of the State CEQA Guidelines requires analysis of the project's consistency with the applicable government plans and policies. In accordance with the SCAQMD's CEQA Air Quality Handbook, the following criteria were used to evaluate the project's consistency with SCAQMD and SCAG regional plans and policies, including the AQMP:

- Will the project result in any of the following:
  - an increase in the frequency or severity of existing air quality violations;
  - cause or contribute to new air quality violations; or
  - delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP?
- Will the project exceed the assumptions used in preparing the AQMP?
  - Is the project consistent with the population and employment growth projections upon which AQMP forecasted emission levels are based; or
  - does the project include air quality mitigation measures; or
  - to what extent is project development consistent with the AQMP land use policies?

AQMP Air Quality Standards

With respect to the first criterion, localized concentrations of NO_2 as NO_X, CO, PM_{10}, and $PM_{2.5}$ have been analyzed for the project and are discussed further below. SO_2 emissions would be far below the SCAQMD daily significance thresholds during construction and long-term operations (see Impact AQ-2), and therefore would not have the potential to cause or contribute to a violation of the SO_2 ambient air quality standard. Because VOCs are not a criteria air pollutant, there is no ambient standard or localized threshold for VOCs. Because of the role VOCs play in O_3 formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established.

Particulate matter is the primary pollutant of concern during construction activities, and therefore, the project's PM_{10} and $PM_{2.5}$ emissions during construction were analyzed: 1) to ascertain potential effects on localized concentrations; and 2) to determine if there is a potential for such emissions to cause or contribute to a violation of the ambient air quality standards for PM_{10} and $PM_{2.5}$.

Additionally, the project's maximum potential NO_X and CO daily emissions during construction and operations were analyzed to determine if there is a potential for project emissions to cause or contribute to a violation of an applicable ambient air quality standard. As shown in Table 8, Table 9, and Table 10, the analyzed pollutants would not exceed the regional SCAQMD thresholds of significance during construction or operation. As shown in Table 11 and Table 12, the analyzed pollutants would not exceed the localized SCAQMD-recommended LSTs during construction or operations. Therefore, project construction and operations would not result in a significant impact with regard to inconsistency with the applicable air quality plan regarding localized air quality. The project would not increase the frequency or severity of an existing violation or cause or contribute to new violations for any pollutants. As the project would not exceed any of the state and federal standards, the project would also not delay timely attainment of air quality standards or interim emission reductions specified in the AQMP.

Because the project would not introduce any substantial stationary sources of emissions, CO is the preferred benchmark pollutant for assessing local area air quality impacts from post-construction motor vehicle operations. As indicated above, no intersections would require a CO hot spot analysis, and impacts would be less than significant. Therefore, the project would not increase the frequency or severity of an existing CO violation or cause or contribute to new CO violations.

AQMP Assumptions

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, the projections in the AQMP for achieving air quality goals are based on the assumptions in SCAG's 2020-2045 RTP/SCS regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the project exceeds the assumptions used in preparing the forecast presented in the AQMD. Determining whether or not a project exceeds the assumptions reflected in the AQMP involves the evaluation of three criteria: 1) consistency with applicable population, housing, and employment growth projections; 2) project mitigation measures; and 3) appropriate incorporation of AQMP land use planning strategies. The following discussion provides an analysis with respect to each of these criteria. A project is consistent with AQMP, in part, if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. In the case of the 2016 AQMP, three sources of data form the basis for the projections of the air pollutant emissions: the County General Plan, the City General Plan, and SCAG's Regional Transportation Plan (RTP). The County General Plan represents a comprehensive update intended to reflect changing demographics, growth, and infrastructure conditions in the county and was adopted by the County Board of Supervisors on October 6, 2015. The plan serves as a comprehensive, long-term plan for future city development and was originally adopted in 1974. In April 2016, SCAG adopted the 2016-2040 RTP/SCS, which is included in the 2016 AQMP. This provides socioeconomic forecast projections of regional population growth. The population, housing, and employment forecast, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the specific region; these are used by SCAG in all phases of implementation and review.

The project would not directly contribute to population growth in the vicinity of the project as the project does not include new housing. In addition, the project is not expected to create a significant increase in the number of employees as the improvements to the project that would be implemented are not anticipated to increase the average amount of programming, hours, or the daily or annual attendance levels that have been experienced at La Brea Tar Pits. Projected levels of project employees and visitors are consistent with the population and employment forecast for the subregion as adopted by SCAG.

Because these same projections form the basis of the 2016 AQMP, it could be concluded that the project would be consistent with the population and employment growth projections of the AQMP.

The project would incorporate a number of key control measures identified by the SCAQMD, as summarized below. As such, the project meets this AQMP consistency criteria since all feasible mitigation measures would be implemented.

With regard to land use developments, such as the project, air quality policies in the AQMP focus on the reduction of vehicle trips and vehicle miles traveled (VMT). The project would serve to implement a number of land use policies of the County of Los Angeles, the City of Los Angeles, SCAQMD, and SCAG. The project is based on principles of smart growth and environmental sustainability, as evidenced by the accessibility of public transport transit and the availability of existing and planned infrastructure to service the proposed uses.

The project includes various characteristics that minimize VMT and vehicle trips to the project site, including providing a diversity and mix of uses on the project site and within the "Miracle Mile" area, which would minimize vehicle trips and VMT by encouraging walking and non-automotive forms of transportation, and improved design including developing ground-floor museum uses and improved streetscape, which would enhance walkability in the project vicinity, among other project characteristics. To reduce project employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare, the project shall prepare and implement a Transportation Demand Management program, which will be developed in consultation with LADOT. Because the project implements the County of Los Angeles, City of Los Angeles, and SCAQMD objectives of minimizing VMT and the related vehicular air emissions, the project is consistent with AQMP land use policies.

In conclusion, the determination of AQMP consistency is primarily associated with the long-term influence of the project on the air quality in the Air Basin. While development of the project would result in short-term regional impacts for the months of demolition, site preparation, and grading during construction of the project, project development would not have a significant long-term impact on the region's ability to meet state and federal air quality standards. The project would comply with SCAQMD Rule 403 and would implement all feasible mitigation measures. The project would also be consistent with the goals and policies of the AQMP for control of fugitive dust. As discussed above, the project's long-term influence would be consistent with the goals and policies of the AQMP and is, therefore, considered consistent with the SCAQMD's AQMP.

Impact AQ-2 Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact with Mitigation. A quantitative analysis was conducted to determine whether proposed activities might result in emissions of criteria air pollutants that may cause exceedances of the NAAQS or CAAQS, or cumulatively contribute to existing nonattainment of ambient air quality standards. As previously discussed, criteria air pollutants include O_3, NO_2, CO, SO_2, PM_{10} (coarse particulate matter), $PM_{2.5}$ (fine particulate matter), and lead. Pollutants that are evaluated herein include VOCs and NO_x, which are important because they are precursors to O_3, as well as CO, SO_x, PM_{10}, and $PM_{2.5}$.

The Air Basin is designated as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and the rolling 3-month average lead standard. It is designated as a nonattainment area for state O_3, PM_{10}, and $PM_{2.5}$ standards (CARB 2017b; EPA 2022b). The Air Basin is designated as attainment or unclassified for all other federal and state pollutants.

Construction

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, VOC off-gassing from asphalt pavement application) and off-site sources (e.g., vendor trucks, haul trucks, and worker vehicle trips). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. Construction emissions can vary substantially from day to day depending on the level of activity; the specific type of operation; and, for dust, the prevailing weather conditions.

The project would be required to comply with SCAQMD Rule 403 (SCAQMD 2015) to control dust emissions generated during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active dust areas up to three times per day, depending on weather conditions, using water to control dust emissions during demolition activities, washing vehicle wheels before they leave the site, etc. For purposes of estimating project emissions, and based on information provided by the Foundation, it is assumed that construction of the project would last approximately 4 years. Table 8 presents the estimated unmitigated maximum daily construction emissions generated during construction of the project in comparison to the applicable SCAQMD regional significance thresholds. The values shown are the maximum daily emissions results from CalEEMod. Details of the emission calculations are provided in Appendix A.

Table 8. Unmitigated Daily Construction Emissions Summary

Construction Year	Unmitigated Construction Emissions Summary					
	ROG	NOx	CO	PM10	PM2.5	SO2
	Pollutant Emission (pounds per day)					
2024	6.10	57.1	55.8	24.0	11.7	0.08
2025	2.07	13.1	28.2	4.83	1.26	0.03
2026	9.51	13.6	29.9	6.54	1.45	0.03
2027	2.55	17.9	35.8	6.66	1.60	0.04
Peak daily emission	*9.51*	*57.1*	*55.8*	*24.0*	*11.7*	*0.08*
SCAQMD Regional significance thresholds	*75*	*100*	*550*	*150*	*55*	*150*
Threshold exceeded?	*No*	*No*	*No*	*No*	*No*	*No*

Note: ROG = reactive organic gases. Emissions were quantified using CalEEMod version 2022.1.1.17 (CAPCOA 2022).
Summer model results are presented above. Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

As Table 8 shows, estimated unmitigated construction emissions for all pollutants are below SCAQMD regional significance thresholds. Table 9 shows the estimated mitigated emissions with the application of mitigation measures which comply with the standard mitigation measures for fugitive dust control regarding on-site and off-site unpaved roads and all unpaved traffic areas. In CalEEMod, the following mitigation measures were included to reflect these standard mitigation measures for fugitive dust control: reduce speed on unpaved roads to 25 miles per hour, and water exposed areas and active demolition areas two times per day; as well as the Tier 4 Interim mitigation for all off-road equipment greater than 75 horsepower.

Table 9. Mitigated Construction Emissions Summary

Construction Year	Mitigated Construction Emissions Summary					
	ROG	NOx	CO	PM10	PM2.5	SO2
	Pollutant Emission (pounds per day)					
2024	1.66	24.4	48.3	9.01	4.07	0.08
2025	1.47	11.8	30.4	3.39	0.85	0.03
2026	8.96	12.8	32.2	4.05	0.97	0.03
2027	1.76	17.4	38.6	4.02	0.99	0.04
Peak daily emission	*8.96*	*24.4*	*48.3*	*8.98*	*4.07*	*0.08*
SCAQMD significance thresholds	*75*	*100*	*550*	*150*	*55*	*150*
Threshold exceeded?	*No*	*No*	*No*	*No*	*No*	*No*

Note: ROG = reactive organic gases. Emissions were quantified using CalEEMod, version 2022.1.1.17 (CAPCOA 2022).

Summer model results are presented above for daily emissions. Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

As shown in Table 9, daily construction emissions would not exceed the SCAQMD significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction. Construction-generated emissions would be temporary and would not represent a long-term source of criteria air pollutant emissions. Therefore, impacts would be less than significant.

Operations

Project operations would generate VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment; water, waste, off-road, and stationary sources; and energy sources, including combustion of fuels used for space and water heating. Table 10 presents the maximum daily emissions associated with operation of the project in 2028 at buildout. The values shown are the maximum summer daily emissions results from CalEEMod for each source type. Complete details of the emissions calculations are provided in Appendix A. As shown in Table 10, maximum daily operational emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ generated by the project would not exceed the SCAQMD's significance thresholds.

As previously discussed, the Air Basin has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$, and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the Air Basin, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction and operational activities of the project would generate VOCs and NO_x emissions (precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Table 9 and Table 10, project-generated emissions would not exceed the SCAQMD regional emission-based significance thresholds for VOCs, NO_x, PM_{10}, or $PM_{2.5}$.

Table 10. Unmitigated Daily Operational Emissions Summary

Operations Source Type	Unmitigated Operations Emissions Summary					
	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	SO_2
	Pollutant Emission (pounds per day)					
Mobile	4.98	3.17	37.0	8.40	2.17	0.09
Area	2.59	0.04	4.61	0.01	0.01	<0.005
Energy	0.17	3.02	2.54	0.23	0.23	0.02
Off-road	0.03	0.29	0.52	0.01	0.01	<0.005
Stationary	0.84	2.73	3.04	0.12	0.12	<0.005
Total	***8.61***	***9.25***	***47.71***	***8.77***	***2.54***	***0.13***
SCAQMD Regional operational significance thresholds	*55*	*55*	*550*	*150*	*55*	*150*
Threshold exceeded?	*No*	*No*	*No*	*No*	*No*	*No*

Note: ROG = reactive organic gases. CalEEMod emissions were quantified using CalEEMod, version 2022.1.1.17 (CAPCOA 2022).

Summer model results are presented above for daily emissions. Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

The values for each operational source type shown are the maximum summer daily emissions results from the CalEEMod output, assuming operational year 2028. The total values may not sum exactly due to rounding.

Cumulative localized impacts would potentially occur if a project were to occur concurrently with another off-site project. Schedules for potential future projects near the project site are currently unknown; therefore, potential impacts associated with two or more simultaneous projects would be considered speculative. However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all sites in the SCAQMD. In addition, cumulative VOC emissions would be subject to SCAQMD Rule 1113 (Architectural Coatings). Therefore, the project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and impacts would be less than significant with mitigation during construction and operations.

In summary, the project would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Therefore, impacts would be less than significant with mitigation.

Impact AQ-3 Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact with Mitigation. A localized significance threshold analysis was performed to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the project as a result of project activities. The impacts were analyzed using methods consistent with those in the SCAQMD's *Final Localized Significance Threshold Methodology* (2008a). The project is located within SRA 1 (Central Los Angeles).

The greatest on-site daily emissions of NO_x, CO, PM_{10}, and $PM_{2.5}$ generated during construction occurred during the demolition and site preparation period of the project construction, when, based on information provided by the Foundation and CalEEMod defaults, it was assumed that five rubber-tired dozers and four

tractor/loader/backhoes would be used. CalEEMod default values assume that during an 8-hour day, graders and rubber-tired dozers can each disturb a maximum of 0.5 acre/8-hour day. This results in 4.5 acres disturbed per day. The SCAQMD LST values for 5 acres within SRA 1 with a receptor distance of 25 meters (82 feet), which is consistent with the closest sensitive receptor being approximately 27 meters (87 feet) away, were compared to emissions from the project.

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and dust-generating activities. According to the Final Localized Significance Threshold Methodology, "off-site mobile emissions from the project should NOT be included in the emissions compared to the LSTs" (SCAQMD 2008a:1-4).

Trucks and worker trips associated with the project are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways, because emissions would be relatively brief in nature and would cease once the vehicles pass through the main streets. The project emissions below include the off-site mobile emissions and therefore are conservative. The maximum daily on-site construction emissions generated during construction of the project are presented in Table 11 and compared to the SCAQMD LSTs for SRA 1 to determine whether project-generated on-site construction emissions would result in potential LST impacts.

Table 11. Construction Localized Significance Thresholds Analysis

Year	NOx	CO	PM10	PM2.5
	Pounds per Day*			
2024	29.6	48.3	9.01	4.07
2025	12.0	30.4	3.39	0.85
2026	11.8	32.2	4.05	0.97
2027	11.7	38.6	4.02	0.99
SCAQMD construction LST criteria	*161*	*1,861*	*16*	*8*
Threshold exceeded?	*No*	*No*	*No*	*No*

Source: SCAQMD (2009)

* Localized significance thresholds are shown for a 5.0-acre disturbed area corresponding to a distance to a sensitive receptor of 25 meters in SRA 1. Conservatively includes on-site and off-site emissions.

As shown in Table 11, proposed construction activities would not generate emissions in excess of SRA-specific LSTs; therefore, project construction would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards.

The maximum daily on-site emissions generated during operation of the project are presented in Table 12 and compared to the SCAQMD operations localized significance criteria for SRA 1 to determine whether project-generated on-site operations emissions would result in potential LST impacts.

Table 12. Operational Localized Significance Thresholds Analysis

Year	NOx	CO	PM10	PM2.5
	Pounds per Day (On-site)*			
2028	6.04	6.08	0.37	0.37
SCAQMD operational LST criteria	*161*	*1,861*	*4*	*2*
Threshold exceeded?	*No*	*No*	*No*	*No*

Source: SCAQMD (2009)

* Localized significance thresholds are shown for a 5.0-acre disturbed area corresponding to a distance to a sensitive receptor of 25 meters in SRA 1.

As shown in Table 12, proposed operations would not generate emissions in excess of site-specific LSTs; therefore, project operation would not expose sensitive receptors to localized emissions concentrations in excess of SCAQMD standards.

Health Impacts of Toxic Air Contaminants

Construction Health Risk Assessment

As discussed in Section 6.4.1, a construction HRA was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors as a result of project construction. Results of the construction HRA are presented in Table 13.

Table 13. Construction Health Risk Assessment Results – Unmitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	78.07	10	**Potentially Significant**
Chronic Hazard Index – Residential	Index Value	0.08	1.0	Less than Significant

Source: SCAQMD (2019)
Note: See Appendix B for detailed results.

As shown in Table 13, the HRA results from the unmitigated scenario show that project construction would result in a Residential Chronic Hazard Index of 0.008, which is below the 1.0 significance threshold; however, project construction would result in cancer risks exceeding the 10 in 1 million threshold, resulting in a potentially significant impact at the maximally exposed individual residential receptors. Mitigation Measure AQ-1 (MM-AQ-1) has been identified to reduce project construction-generated DPM emissions to the extent feasible through requiring all 75 horsepower or greater diesel-powered equipment to be powered with CARB certified Tier 4 Interim engines, and all other diesel fueled equipment to use engines classified as Tier 3 or higher. The HRA results after incorporation of MM-AQ-1 are presented in Table 14.

Table 14. Construction Health Risk Assessment Results – Mitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	8.95	10	Less than Significant
Chronic Hazard Index – Residential	Index Value	0.007	1.0	Less than Significant

Source: SCAQMD (2019)
Note: See Appendix B for detailed results.

As shown in Table 14, with the implementation of mitigation MM-AQ-1, the estimated cancer risk during project construction would be reduced below the SCAQMD threshold of 10 in 1 million. Therefore, potential impacts to sensitive receptors associated with construction of the project would be less than significant with mitigation.

Operational Health Risk Assessment

As discussed in Section 6.4.2, an operational HRA was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors as a result of project operations,

including truck trips and off-road/stationary equipment. Results of the operational HRA are presented in Table 15. The analysis was performed based on a 6-day per week operation. However, the actual operation is 5 days per week, therefore, the following analysis of operational HRA is considered conservative.

Table 15. Operational Health Risk Assessment Results – Unmitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	7.81	10	Less than Significant
Chronic Hazard Index – Residential	Index Value	0.003	1.0	Less than Significant

Source: SCAQMD (2019)
Note: See Appendix B for detailed results.

As shown in Table 15, project operational activities would result in a Residential Maximum Individual Cancer Risk of 7.81 in 1 million, which would be less than the significance threshold of 10 in 1 million. Project operations would also result in a Residential Chronic Hazard Index of 0.003, which is below the 1.0 significance threshold. Thus, operational impacts associated with potential cancer risk would be less than significant.

Cancer Burden

As discussed above, a construction HRA was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors as a result of project construction. Since the cancer risk from project operation at the maximally exposed individual resident exceeds 1 in 1 million, cancer burden, for which a SCAQMD significance threshold of 0.5, is evaluated. Unlike cancer risk, which is the lifetime probability (chances) of an individual developing cancer due to exposure to a carcinogenic compound, cancer burden estimates the number of theoretical cancer cases in a defined population resulting from a lifetime exposure to carcinogenic TACs. As described in the OEHHA guidance manual:

> The cancer burden can be calculated by multiplying the cancer risk at a census block centroid by the number of people who live in the census block, and adding up the estimated number of potential cancer cases across the zone of impact. The result of this calculation is a single number that is intended to estimate of the number of potential cancer cases within the population that was exposed to the emissions for a lifetime (70 years). (OEHHA 2015:8-16)

The SCAQMD has established a procedural screening approach for estimating cancer burden (SCAQMD 2017), which includes the following steps:

- Recalculate cancer risk from all TACs using a 70-year exposure duration.
- Estimate the distance at which the at which maximum individual cancer risk from a 70-year exposure duration falls below 1 in 1 million.
- Define a zone of impact in the shape of a circle, with the radius equal to the distance between the TAC source and the point at which the risk falls below 1 in 1 million.
- Estimate the residential population within this zone of impact based on census data or a worse-case estimate.
- Calculate the screening level cancer burden by multiplying the total residential population in the zone of impact by the maximum individual cancer risk.

The maximum estimated 70-year cancer risk for project operation was estimated at 8.95 in 1 million. The total population in the zone of impact area was estimated to be approximately 24,644 persons, based on the average densities of the Census Tracts that would be within the zone of impact (Census Tracts 2151.01, 2151.02, 2162.01, 2163.02, 2145.01, 2145.03, 2145.04, and 2147) (U.S. Census Bureau 2020).

Multiplying the maximum estimated 70-year cancer risk by the project population gives a cancer burden of 0.32. Accordingly, the cancer burden indicates that less than one person could contract cancer assuming a 70-year exposure under the modeled scenario of TAC emissions and provided that other factors related to an individual's susceptibility to contracting cancer would occur. An estimated cancer burden of 0.32 would be less than the SCAQMD cancer burden threshold of 0.5. Thus, the impact with respect to potential cancer burden due to project operations would be less than significant.

Local Carbon Monoxide Concentrations

At the time that the SCAQMD 1993 Handbook was published, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS as a result of the steady decline in CO concentrations in the Air Basin due to turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities. The SCAQMD conducted CO modeling for the 2003 AQMP (Appendix V: Modeling and Attainment Demonstrations, SCAQMD 2003c) for the four worst-case intersections in the Air Basin: 1) Wilshire Boulevard and Veteran Avenue, 2) Sunset Boulevard and Highland Avenue, 3) La Cienega Boulevard and Century Boulevard, and 4) Long Beach Boulevard and Imperial Highway. At the time the 2003 AQMP was prepared, the intersection of Wilshire Boulevard and Veteran Avenue was the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. Using CO emission factors for 2002, the peak modeled CO 1-hour concentration was estimated to be 4.6 ppm at the intersection of Wilshire Boulevard and Veteran Avenue. When added to the maximum 1-hour CO concentration from 2018 through 2020 at the North Main Street monitoring station (which was 2 ppm in 2019), the 1-hour CO concentration would be 6.6 ppm, while the CAAQS is 20 ppm.

The 2003 AQMP also projected 8-hour CO concentrations at these four intersections for 1997 and from 2002 through 2005. From years 2002 through 2005, the maximum 8-hour CO concentration was 3.8 ppm at the Sunset Boulevard and Highland Avenue intersection in 2002; the maximum 8-hour CO concentration was 3.4 ppm at the Wilshire Boulevard and Veteran Avenue in 2002. Adding the 3.8 ppm to the maximum 8-hour CO concentration from 2018 through 2020 at the North Main Street monitoring station (which was 1.7 ppm in 2018), the 8-hour CO would be 5.5 ppm, while the CAAQS is 9.0 ppm. Accordingly, CO concentrations at congested intersections would not exceed the 1-hour or 8-hour CO CAAQS unless projected daily traffic would be at least over 100,000 vehicles per day. Because the project would not increase daily traffic volumes at any study intersection to more than 100,000 vehicles per day as shown in the La Brea Tar Pits Master Plan Final Transportation Assessment (Kittelson & Associates, Inc. 2022), a CO hot spot is not anticipated to occur, and associated impacts would be less than significant.

Impact AQ-4 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would only occur when construction is active and cease upon project completion. In addition, the project would be required to comply with 13 CCR 2449(d)(3) and 2485, which require minimizing construction equipment idling time by either shutting it off when not in use or by reducing the time of idling to no more than 5 minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. The project would also comply with the SCAQMD Regulation XI, Rule 1113 – Architectural Coating, which would minimize odor impacts from reactive organic gas emissions during architectural coating. The project site is not located in an area of naturally occurring asbestos and asbestos-containing materials are a potential due to a small amount of demolition. SCAQMD Rule 403 also contains measures that are required to be incorporated that would reduce emissions. Any impacts to existing adjacent land uses would be short term and are less than significant.

Operation of the project does not include any component with the potential to generate odorous emissions that could affect a substantial number of people. Therefore, there would be a less-than-significant impact from construction and operations.

Impact GHG-1 Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Less than Significant Impact with Mitigation.

Construction Emissions

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. The SCAQMD *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (2008b:309) recommends that, "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies." Thus, the total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions.

CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described in Section 6.1. Construction of the project is anticipated last a total of approximately 4 years. On-site sources of GHG emissions include off-road equipment and off-site sources including vendor trucks and worker vehicles. Table 16 presents construction emissions for the project from on-site and off-site emission sources.

As shown in Table 16, the estimated total GHG emissions during construction would be approximately 3,962 $MTCO_2e$ over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 132 $MTCO_2e$ per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would only occur when construction is active, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Table 16. Estimated Annual Construction Greenhouse Gas Emissions

Construction Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2024	1,495	0.06	0.05	1,513
2025	889	0.04	0.04	902
2026	895	0.04	0.04	908
2027	632	0.02	0.02	639
Total	**3,911**	**0.16**	**0.15**	**3,962**
		Amortized construction emissions		***132.07***

Source: Appendix A.

Due to the potential persistence of GHGs in the environment, impacts are based on annual emissions and, in accordance with draft SCAQMD methodology, construction-period impacts are not assessed for significance independent of operational-period impacts, which are discussed in the next section. The total Project GHG emissions include the estimated annual operational project-generated GHG emissions, as well as the construction GHG emissions which have been amortized over the estimated life of the project.

Operational Emissions

Operation of the project would generate GHG emissions through motor vehicle trips to and from the project site, landscape maintenance equipment operation, energy use (natural gas and generation of electricity consumed by the project), natural gas-fueled emergency generator maintenance and testing, solid waste disposal, off-road and stationary equipment, and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment. CalEEMod was used to calculate the annual GHG emissions.

The estimated operational project-generated GHG emissions from area sources, energy usage, motor vehicles, off-road and stationary sources, solid waste generation, and water usage and wastewater generation are shown in Table 17.

Table 17. Estimated Annual Operational Greenhouse Gas Emissions

Operations Type	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Mobile	1,314	0.07	0.06	1,335
Area	2.15	< 0.005	< 0.005	2.16
Energy	940	0.08	< 0.005	943
Water	8.12	0.11	< 0.005	11.6
Waste	8.76	0.88	0.00	30.6
Refrigeration	0	0	0.00	0.07
Off-road	8.99	< 0.005	< 0.005	9.02
Stationary	19.4	< 0.005	< 0.005	19.5
Total	**2,301**	**1.13**	**0.07**	**2,351**
			Amortized construction emissions	*132.07*
			Total operational + amortized construction GHGs	***2,483.07***

Source: Appendix A

Note: These emissions reflect operational year 2028.

As shown in Table 17, estimated annual project-generated GHG emissions would be approximately 2,351 $MTCO_2e$ per year from project operations only. After summing the amortized project construction emissions, total GHGs generated by the project would be approximately 2,483 $MTCO_2e$ per year, which is less than the SCAQMD interim screening-level threshold of 3,000 $MTCO_2e$ per year.

As noted above, it is also important to ensure that the project provides a "fair share" contribution to achieve the State's carbon neutrality goal. Given the project plans have not been fully developed, it is not yet determined whether the project includes the installation of natural gas infrastructure and/or the use of natural gas–fired appliances. Further, while a commitment to electric vehicle charging stations has been made, the number of charging stations that would be installed is not known. For these reasons, the project could result in a *significant impact* to GHGs. However, with implementation of the mitigation measures provided in Section 7.2, impacts would be less than significant.

Consistency with Applicable Plans and Policies

As stated above, the GHG impact analysis uses two different significance thresholds: a quantitative threshold, and consistency with GHG reduction plan and policies. Impact GHG-1's quantification of the project's potential GHG emissions is supplemented below with Impact GHG-2's consistency analysis with GHG reduction plans and policies. In the absence of any final adopted quantitative threshold, the significance of the project's GHG emissions is evaluated consistent with State CEQA Guidelines Section 15064.4(b)(2) by considering whether the project complies with applicable plans, policies, regulations, and requirements adopted for the purpose of reducing the emission of GHGs.

CARB's Climate Change Scope Plan

The Climate Change Scoping Plan outlines a framework that relies on a broad array of GHG reduction actions, including direct regulations, alternative compliance mechanisms, incentives, voluntary actions, and market-based mechanisms, such as the cap-and-trade program. The Climate Change Scoping Plan builds off of a wide array of regulatory requirements that have been promulgated to reduce statewide GHG emissions, particularly from energy demand and mobile sources. While these regulatory requirements are not targeted at specific land use development projects, they would indirectly reduce a development project's GHG emissions. A discussion of these regulatory requirements that would reduce· the project's GHG emissions is provided below. As detailed below, the project would not conflict with the Climate Change Scoping Plan and the implementation of GHG reduction strategies.

California Renewable Portfolio Standard (RPS) Program SB 100 and SB 350

While this action does not directly apply to individual projects, the project complies with the RPS program inasmuch as its electricity is provided by LADWP, which, in compliance with the RPS program, is required to obtain 33% renewable power by 2020, and has committed to achieving 50% renewable power by 2025. Furthermore, per the updated requirements of SB 100 (2018), LADWP would be required to procure eligible renewable electricity for 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, and should plan to achieve 100% eligible renewable energy resources and zero carbon resources by December 31, 2045. Thus, the project would be supplied with electricity via renewable sources at increasing rates over time, reducing the project's electricity-related GHG emissions. As required under SB 350, doubling of the energy efficiency savings from final end uses of retail customers by 2030 would primarily rely on the existing suite of building energy efficiency standards under CCR Title 24, Part 6 and utility-sponsored programs such as rebates for high-efficiency appliances, heating, ventilation, and air conditioning (HVAC) systems, and insulation. The project would comply with Title 24 Standards.

SB 1368/AB 398, CCR Title 20, Cap-And-Trade Program

The State's cap-and-trade Program reduces GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve emission reduction targets. While the cap-and-trade program does not directly apply to individual projects, the project would benefit from the program inasmuch as the project's electricity usage and mobile source emissions would be covered by the cap-and-trade program since LADWP and California fuel suppliers are covered entities, resulting in an indirect reduction of GHG emissions from the project's energy consumption and mobile source emissions.

Title 24 Building Energy Efficiency Standards, and the CALGreen Code

The project would meet or exceed the energy standards in the Title 24 Building Energy Efficiency Standards and the CALGreen Code, and would implement project design features, including solar photovoltaic panels on the roof of the project building to reduce the amount of electricity drawn from City utilities. Additionally, the project would provide sustainability features, such as rainwater collection leading to bioswales; a sloped green roof; rooftop solar photovoltaic panels; HVAC systems that would be sized and designed in compliance with the CALGreen Code to maximize energy efficiency caused by heat loss and heat gain; new and existing tree canopies to protect building walls from sun exposure and provide shade for the ground area; and the use of drought-tolerant landscaping to reduce water demand and avoid the use of pesticides. All of these features would reduce the project's outdoor and indoor water demand, which would reduce the project's GHG emissions associated with water conveyance and wastewater treatment. As stated previously, the 2008 Climate Change Scoping Plan notes that water use requires significant amounts of energy, comprising approximately one-fifth of statewide electricity.

AB 1493 (Pavley Regulations)

The State's Pavley Regulations apply to new passenger vehicles from model year 2012 through 2016 (Phase I) and model years 2017 through 2025 (Phase II). While this action does not apply to individual projects, future employees and visitors to the project site would purchase new vehicles in compliance with this regulation. Mobile source emissions generated by future visitors and employees would be reduced with implementation of AB 1493. However, it is noted that the vehicle emissions standards beyond model year 2020 may not occur if the federal SAFE Vehicles Rules and the One National Program on Federal Preemption of State Fuel Economy Standards are upheld by the Advanced Clean Cars programs.
The Advanced Clean Cars program includes Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the ZEV regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years. While this action does not directly apply to individual projects, the standards would apply to all vehicles purchased or used by visitors and employees to the project. The project would designate a minimum of 8% of on-site parking for carpool and/or alternative-fueled vehicles. As such, the project would support compliance with this regulation.

Advanced Clean Truck Regulation

The Advanced Clean Truck Regulation has two components, a manufacturer sales requirement and a reporting requirement. The manufacturer component of the regulation requires manufacturers that certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b-3 truck sales, 75% of Class 4-8 straight truck sales, and 40% of truck tractor sales. The reporting component of the regulation requires large employers, including retailers, manufacturers, brokers, and others, to report information about shipments

and shuttle services. Fleet owners (with 50 or more trucks) would be required to report on their existing fleet operations. This information would help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs. This would be applicable to occasional delivery trucks to the project.

Low Carbon Fuel Standard (EO S-01-07)

This regulation establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 7.5% by 2020, and a 20% reduction in carbon intensity from a 2010 baseline by 2030. While this action does not directly apply to individual projects, future employees and visitors to the project would use transportation fuels in compliance with this regulation. GHG emissions related to vehicular travel by project would benefit from this regulation and mobile source emissions generated by future employees and visitors to the project would be reduced with implementation of the LCFS.

SB 375

SB 375 establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. Under SB 375, CARB is required, in consultation with the State's Metropolitan Planning Organizations, to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035. While this action does not directly apply to individual projects, the project would not conflict with the SCAG 2020-2045 RTP/SCS goals and objectives under SB 375 to implement "smart growth." As discussed below, the project would not conflict with the SCAG 2020-2045 RTP/SCS.
The project would incorporate physical and operational project characteristics that would reduce vehicle trips and VMT and encourage alternative modes of transportation for visitors and employees. The project would support reducing VMT given its location at an urban infill location with nearby access to public transportation within 0.25 mile of the project. The project site is well served by public transit. Specifically, the Los Angeles County Metropolitan Transportation Authority (Metro) 20 and 720 bus lines on Wilshire Boulevard and the Metro 217, 218, and 780 bus lines on Fairfax Avenue all stop within half a block of the project site. In addition, Metro is currently constructing an extension of the Metro system D Line (Purple). This Metro project will construct three new heavy-rail subway stations along Wilshire Boulevard, which will serve the project site. The new stations will be located at Wilshire Boulevard/La Brea Avenue, Wilshire Boulevard/Fairfax Avenue, and Wilshire Boulevard/La Cienega Boulevard. They are slated to open for service in 2024. The project would also reduce vehicle trips and VMT by implementing a Transportation Demand Management program for employee and visitor vehicle trips to increase alternative modes such as walking, bicycling, public transit, and rideshare. To further reduce reliance on fossil fuels and transportation-related GHG emissions, the project could designate a minimum of 8% of on-site parking for carpool and/or alternative-fueled vehicles.

California Integrated Waste Management Act of 1989 and AB 341

The Integrated Waste Management Act (IWMA) mandated that State agencies develop and implement an integrated waste management plan which outlines the steps to be taken to divert at least 50% of their solid waste from disposal facilities. AB 341 directs CalRecycle to develop and adopt regulations for mandatory commercial recycling and sets a statewide goal for 75% disposal reduction by the year 2020. In addition, the City has developed and is in the process of implementing the Solid Waste Integrated Resources Plan, also referred to as the Zero Waste Plan, the goal of which is to lead the City toward being a "zero waste" city by 2030. While this action does not directly apply to individual projects, the project would benefit from the IWMA and the Solid Waste Integrated Resources Plan inasmuch as it would be served by a solid waste collection and recycling service that would include mixed-waste processing, and that yields waste diversion results comparable to source separation and consistent with citywide recycling targets. According to the City of Los Angeles Zero Waste Progress Report (March 2013), the City achieved a landfill diversion rate of approximately 76% by year 2012.

As demonstrated above, the project would not conflict with the future anticipated statewide GHG reduction goals. CARB has outlined a number of potential strategies for achieving the 2030 statewide reduction target of 40% below 1990 levels, as mandated by SB 32. These potential strategies include using renewable resources for half of the State's electricity by 2030, increasing the fuel economy of vehicles and the number of zero-emission or hybrid vehicles, reducing the rate of growth in VMT, supporting other alternative transportation options, and use of high-efficiency appliances, water heaters, and HVAC systems. The project would benefit from statewide and utility-provider efforts toward increasing the portion of electricity provided from renewable resources. The utility provider for the project, LADWP, provided 35% of 2021 electricity purchases from renewable sources and is required to provide 50% by 2025, 60% by 2030, and 100% by 2045. The project would also benefit from statewide efforts toward increasing the fuel economy standards of vehicles. The project would support reducing VMT, given its location at an infill site close to existing transit options, as described above. As a result, the project would not conflict with applicable Climate Change Scoping Plan strategies and regulations to reduce GHG emissions.

Post-2030 Analysis

The 2017 and 2022 Scoping Plan also outline strategies to reduce GHG emissions to achieve the 2030 target from sectors that are not directly controlled or influenced by the project, but nonetheless contribute to project-related GHG emissions. For instance, the project itself is not subject to the cap-and-trade regulation; however, project-related emissions would decline pursuant to the regulation as utility providers and transportation fuel producers are subject to renewable energy standards, cap-and-trade, and the LCFS. While CARB is in the process of expanding the regulatory framework to meet the 2030 reduction target based on the existing laws and strategies in the 2022 Scoping Plan, the project would support or not impede implementation of these potential GHG reduction strategies identified by CARB for all the reasons summarized above.

A report was published on the California PATHWAYS model that determined that "meeting the state's 2030 climate goals requires scaling up and using technologies already in the market such as energy efficiency and renewables, while pursing aggressive market transformation of new technologies that have not yet been utilized at scale in California (for example, zero-emission vehicles and electric heat pumps)" (CEC 2018:3). Priority GHG reduction strategies include energy efficiency in buildings, renewable energy, and smart growth through increased use of public transit, walking, biking, telepresence, and denser, mixed-use community design. The project would not conflict with these strategies, given it would incorporate renewable energy measures, including solar photovoltaic panels to reduce the amount of electricity drawn from City utilities, and energy efficient measures, including water demand reduction measures, minimizing energy use to support efforts by its utility provider, LADWP, to obtain renewable energy pursuant to State mandates. Furthermore, the project would support the priority market transformation strategy of zero-emission light-duty vehicles by providing for the installation of the conduit and panel capacity to accommodate future electric vehicle charging stations. Therefore, the project would not conflict with the findings relevant to the project from the updated California PATHWAYS model report (CEC 2018).

With statewide efforts underway to facilitate the State's achievement of those goals, it is reasonable to expect the project's GHG emissions to decline from their early operational years, as the regulatory initiatives identified by CARB in the 2022 Scoping Plan are implemented, and other technological innovations occur. Stated differently, the project's emissions at buildout likely represent the maximum emissions for the project, as anticipated regulatory developments and technology advances are expected to reduce emissions associated with the project, such as emissions related to electricity use and vehicle use.

Even though the 2022 Scoping Plan and supporting documentation do not provide an exact regulatory and technological roadmap to achieve 2050 goals, they demonstrate that various combinations of policies could allow the Statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the study or not currently feasible at the time the 2022 Scoping Plan was adopted could enable the State to meet the 2050 targets. For example, the 2022 Scoping Plan states some policies are not feasible at this time, such as Net Zero Carbon Buildings, but that this type of policy would be necessary to meet the 2050 target.

Based on the above, the project would not conflict with CARB's Climate Change Scoping Plan, and there would be an anticipated decline in project emissions once fully constructed and operational; the project would not conflict with the State's GHG reduction targets for 2030 and 2050. Therefore, impacts would be less than significant.

SCAG's 2020-2045 RTP/SCS

Transportation-related GHG emissions would be the largest source of emissions from the project. This finding is consistent with the findings in regional plans, including the 2020-2045 RTP/SCS, which recognizes that the transportation sector is the largest contributor to the state's GHG emissions. At the regional level, the 2020-2045 RTP/SCS is an applicable plan adopted for the purpose of reducing GHGs.

The purpose of the 2020-2045 RTP/SCS is to achieve the regional per-capita GHG reduction targets for the passenger vehicle and light-duty truck sector established by CARB pursuant to SB 375. To accomplish this goal, the 2020-2045 RTP/SCS identifies various strategies to reduce per-capita VMT. The 2020-2045 RTP/SCS is expected to help SCAG reach its GHG reduction goals, as identified by CARB, with reductions in per-capita passenger vehicle GHG emissions for specified target years.

In addition to demonstrating the region's ability to attain and exceed the GHG emission reduction targets set forth by CARB, the 2020-2045 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. Thus, successful implementation of the 2020-2045 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, while reducing automobile use. Regarding individual developments, such as the project, strategies and policies set forth in the 2020-2045 RTP/SCS can be grouped into the following three categories: 1) reduction of vehicle trips and VMT, 2) increased use of alternative fuel vehicles, and 3) improved energy efficiency. These strategies and policies are addressed below.

In order to assess the project's potential to conflict with the 2020-2045 RTP/SCS, this section analyzes the project's land use characteristics for consistency with the strategies and policies set forth in the 2020-2045 RTP/SCS to meet GHG emission-reduction targets set by CARB. Generally, projects are considered to not conflict with applicable land use plans and regulations, such as SCAG's 2020-2045 RTP/SCS, if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals. The project would not conflict with the 2020-2045 RTP/SCS goals and benefits intended to improve mobility and access to diverse destinations, provide better "placemaking," provide more transportation choices, and reduce vehicular demand and associated emissions. Thus, successful implementation of the 2020-2045 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, while reducing automobile use.

Integrated Growth Forecast

The 2020-2045 RTP/SCS provides socioeconomic forecast projections of regional population growth. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the specific area; these are used by SCAG in all

phases of implementation and review. While the project does not propose residential uses, new employees would be introduced by the project. According to the 2020-2045 RTP/SCS, the employment forecast for the City of Los Angeles Subregion in 2021 is approximately 1,897,883 employees. In 2028, the projected operation year of the project, the City of Los Angeles Subregion is anticipated to have 1,937,552 employees. Thus, the project's estimated 42 employees would constitute a very small percentage of the city's employment growth forecasted between 2021 and 2028. Accordingly, the project's generation of employees would not conflict with employment generation projections contained in the 2020-2045 RTP/SCS.

VMT Reduction Strategies and Policies

The project site is well served by public transit. Specifically, the Metro 20 and 720 bus lines on Wilshire Boulevard and the Metro 217, 218, and 780 bus lines on Fairfax Avenue all stop within half a block of the project site. In addition, Metro is currently constructing an extension of the Metro system D Line (Purple), which will include construction of three new heavy-rail subway stations along Wilshire Boulevard, which will serve the project site. The new stations will be located at Wilshire Boulevard/La Brea Avenue, Wilshire Boulevard/Fairfax Avenue, and Wilshire Boulevard/La Cienega Boulevard. They are slated to open for service in 2024.

In addition, the project was reviewed to determine potential inconsistencies with GHG reduction targets forecasted in the SCAG RTP/SCS. The project was analyzed using a total VMT threshold (as opposed to an efficiency-based impact threshold). The project site functions as a regional attraction and the proposed project would result in a net increase in regional VMT. Since the project would result in a net increase in VMT, further evaluation was necessary to determine whether this project would be inconsistent with the VMT and GHG reduction goals of the SCAG RTP/SCS.

It was determined that, without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, ensuring safety, maximizing transportation productivity, encouraging active transportation, and improving air quality. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements.

In conclusion, the project may conflict with the following relevant RTP/SCS goals:

- Improve mobility, accessibility, reliability, and travel safety for people and goods
- Enhance the preservation, security, and resilience of the regional transportation system
- Increase person and goods movement and travel choices within the transportation system
- Reduce GHG emissions and improve air quality
- Leverage new transportation technologies and data-driven solutions that result in more efficient travel

Energy Efficiency Strategies and Policies

The 2020-2045 RTP/SCS includes strategies for individual developments, such as the project, to improve energy efficiency (e.g., reducing energy consumption) to reduce GHG emissions. The project has been designed and would be constructed to incorporate environmentally sustainable building features and construction protocols identified in the CALGreen Code. These standards would reduce energy and water usage and waste and, thereby, reduce associated GHG emissions and help minimize the impact on natural resources and infrastructure. The project would include energy-saving measures, including enhanced daylighting; rainwater collection leading to bioswales; a sloped green roof; rooftop solar photovoltaic panels; HVAC systems that would be sized and designed in compliance with the CALGreen Code to

maximize energy efficiency caused by heat loss and heat gain; and new and existing tree canopies to protect building walls from sun exposure and provide shade for the ground area. Daylighting is the controlled admission of natural light, direct sunlight, and diffused-skylight into a building to reduce electric lighting and save energy. By providing a direct link to the dynamic and perpetually evolving patterns of outdoor illumination, daylighting helps create a visually stimulating and productive environment for building occupants, while reducing as much as one-third of total building energy costs. These measures were generally accounted for based on compliance with Title 24 standards. Furthermore, the project would incorporate design features, such as solar photovoltaic panels, to reduce the amount of electricity demand from City utilities.

The project would include water sustainability features, which would include, but not be limited to, the installation of low-flow toilets, low-flow faucets, low-flow showers, and other energy and resource conservation measures. In addition, the project would provide sustainability features, such as stormwater capture and reuse system and drought-tolerant landscaping, to reduce the project's outdoor water demand, thereby reducing the project's GHG emissions associated with water conveyance and wastewater treatment. Therefore, based on the above, the project would not conflict with energy strategies in the 2020-2045 RTP/SCS.

County of Los Angeles General Plan

The project would meet the County's General Plan goals to address the impact of GHGs and climate change. The project would implement project design features to reduce energy consumption and encourage energy conservation. Additionally, HVAC systems would be sized and designed in compliance with the CALGreen Code to maximize energy efficiency caused by heat loss and heat gain; and new and existing tree canopies would protect building walls from sun exposure and provide shade for the ground area. The project would provide sustainability features, such as rainwater collection leading to bioswales, a sloped green roof, and the use of drought-tolerant landscaping to reduce water consumption. All of these features would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation. As such, the project would not conflict with the goals of the County of Los Angeles General Plan.

OurCounty – Los Angeles Countywide Sustainability Plan

The project would be consistent with the OurCounty regional sustainability plan, which includes 12 goals. The project would implement project design features to reduce energy consumption and encourage energy conservation. Additionally, HVAC systems would be sized and designed in compliance with the CALGreen standards and the County of Los Angeles Green Building Standards Code to maximize energy efficiency caused by heat loss and heat gain. New and existing tree canopies would protect building walls from sun exposure and provide shade for the ground area. The project would also provide sustainability features, such as rainwater collection leading to bioswales, a sloped green roof, and the use of drought-tolerant landscaping to reduce water consumption. All these features would use efficient technologies and practices that reduce resource use, improve health, and increase resilience and would effectively manage waste, water, energy, and material resources consistent with the goals of OurCounty. For these reasons, the project would not conflict with the goals of the OurCounty Countywide Sustainability Plan.

City of Los Angeles General Plan

The project would meet the City's General Plan goals, objectives, and policies to address the air quality improvement programs and strategies (City of Los Angeles 2015). Consistent with the six goals of the City of Los Angeles General Plan, the project would reduce particulate air pollutants emanating from unpaved areas, parking lots, and construction sites by complying with SCAQMD Rule 403 requiring fugitive dust control measures. The project would also provide visitors with the ability to access nearby

public transit and opportunities for walking and biking, which would facilitate minimization of VMT and related vehicular GHG emissions, and would not conflict with the goals to reduce VMT. Bicycle parking and connections to walking and biking paths would also be provided. The project would implement project design features to reduce energy consumption and encourage energy conservation. Features of the project would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, supporting the City General Plan goals for a reduction in energy consumption, a shift to nonpolluting sources of energy in its buildings and operations, and reducing energy consumption and associated air emissions by encouraging waste reduction and recycling. For these reasons, the project would not conflict with the City of Los Angeles General Plan.

City of Los Angeles Green LA Action Plan

The project would be consistent with the City of Los Angeles Green LA Action Plan by including project design features to reduce energy consumption and encourage energy conservation (City of Los Angeles 2007). Additionally, HVAC systems would be sized and designed in compliance with the CALGreen standards and the County of Los Angeles Green Building Standards Code to maximize energy efficiency caused by heat loss and heat gain. New and existing tree canopies would protect building walls from sun exposure and provide shade for the ground area.

City of Los Angeles Green New Deal/Sustainable City Plan

The City's Green New Deal includes both short-term and long-term aspirations through the year 2050 in various topic areas, including water, solar power, energy-efficient buildings, carbon and climate leadership, waste and landfills, housing and development, mobility and transit, and air quality, among others. While not a plan adopted solely to reduce GHG emissions, within the City's Green New Deal, climate mitigation is one of eight explicit benefits that help define its strategies and goals. Although the Green New Deal mainly targets GHG emissions related to City-owned buildings and operations, certain reductions associated with the project would promote the Green New Deal's goals. Such measures include increasing renewable energy usage, reduction of per-capita water usage, promotion of walking and biking, promotion of educational and recreational uses close to transit, and various recycling and trash diversion goals.

Although the City's Green New Deal is not an adopted plan or directly applicable to private development projects, the project would not conflict with these aspirations as it is an infill development consisting of educational and recreational uses on a project in proximity to transit. In addition, the project would comply with Title 24 Standards and would implement measures to reduce overall energy usage compared to baseline conditions. Furthermore, the project would also result in GHG reductions beyond those specified by the City and would minimize its GHG emissions by implementing project design features that reduce electricity and water consumption. The project would be serviced by providers who comply with the City of Los Angeles Solid Waste Management Policy Plan, and the Exclusive Franchise System Ordinance (Ordinance No. 182,986) to further the aspirations included in the Green New Deal with regard to energy-efficient buildings, waste, and landfills. The project would also provide bicycle parking and connections to walking and biking paths to further reduce VMT and decrease GHG emissions.

Therefore, as the project's GHG emissions would be generated in connection with a development located within the city and designed to be consistent with the applicable City plan goals and actions for reducing GHG emissions, the project would not conflict with these City plans adopted for the purpose of reducing GHG emissions, and the project's GHG emissions would result in less-than-significant impacts.

Conclusion

In summary, Impact GHG-1 would be significant given the project plans have not been fully developed and it cannot yet be determined whether the project includes the installation of natural gas infrastructure and/or the use of natural gas–fired appliances. Further, while a commitment to electric vehicle charging stations has been made, the number of charging stations that would be installed is not known. For these reasons, the project could result in a significant impact related to GHG. However, with implementation of the mitigation measures provided in Section 7.2, impacts would be less than significant.

Regarding Impact GHG-2, the project may be inconsistent with regional plans related to mobility and GHG reductions, specifically in relation to SCAG's 2020-2045 RTP/SCS. It was determined that without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, transportation productivity, and encouraging active transportation. The project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. However the project does include design features that would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, as well as provide visitors with public transportation incentives, with the ability to access nearby public transit and opportunities for walking and biking, all of which are consistent with the County of Los Angeles General Plan, OurCounty Countywide Sustainability Plan, City of Los Angeles General Plan, City of Los Angeles Green LA Action Plan, and the City's Green New Deal. Thus, the project could result in a significant impact related to consistency with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, with implementation of the mitigation measures provided in Section 7.2, impacts would be less than significant.

7.1 Cumulative Impacts

7.1.1 Air Quality

The geographic area affected by the project and its potential to contribute to cumulative impacts varies based on the environmental resource under consideration. For air quality, the geographic scope for the project's cumulative impact analysis encompasses the Air Basin.

Based on SCAQMD guidance, individual construction projects that exceed SCAQMD's recommended daily thresholds for project-specific impacts would cause a cumulatively considerable increase in emissions for those pollutants for which the Air Basin is in non-attainment, as discussed below (SCAQMD 2003a):

> *As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR… Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.*

Therefore, consistent with the accepted and established SCAQMD cumulative impact evaluation methodologies, the project's construction or operation emissions would be considered cumulatively considerable if project-specific emissions exceed an applicable SCAQMD-recommended significance threshold.

As previously analyzed, the project would be consistent with the SCAQMD's AQMP during both project construction and operation (Impact AQ-1), and the project would not result in a cumulatively

considerable net increase of criteria pollutants that would exceed applicable SCAQMD thresholds during either construction or operation (Impact AQ-2). In addition, the project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people during either project construction or operation (Impact AQ-4). Therefore, and consistent with SCAQMD guidance, the project would not contribute significantly to cumulative impacts associated with these issues.

However, the project's toxic air contamination HRA determined the project could expose sensitive residential receptors to substantial pollutant concentrations during construction related to diesel exhaust emissions (Impact AQ-3). Given the construction and diesel exhaust emissions that could occur in the vicinity of the project concurrent with project construction, prior to mitigation, this impact could be considered both a direct impact and a contribution to cumulative impacts related to diesel emissions.

In summary, for most of the threshold issue areas for the topic of air quality, the project would not contribute significantly to cumulative impacts. However, regarding toxic air contamination, the HRA determined that the project could contribute significantly to pollutant concentrations during construction (Impact AQ-3). Prior to mitigation, this contribution would be both a significant direct impact of the project as well as a potentially significant contribution to cumulative toxic air contamination in the vicinity of the project. The project's air pollutant emissions related to diesel exhaust during construction could result in a cumulative contribution to air pollution in the region, which would be *significant*. Operation of the project would not result in a significant contribution to air pollution in the region.

With implementation of Mitigation Measure MM-AQ-1, the estimated cancer risk during project construction would be reduced below the SCAQMD threshold of 10 in 1 million. Therefore, potential impacts to sensitive receptors associated with construction of the project would be less than significant with mitigation. As such, and consistent with SCAQMD guidance, after implementation of the mitigation measure, the project's contribution to diesel emissions would be less than significant both individually and cumulatively.

7.1.2 Greenhouse Gas Emissions

The geographic scope considered in the cumulative impact analysis for GHG emissions is global. Adverse environmental impacts of cumulative GHG emissions, including sea level rise, increased average temperatures, more drought years, and more large forest fires, are already occurring. As a result, cumulative impacts related to GHG emissions are significant.

The analysis of a project's GHG emissions is inherently a cumulative impact analysis because impacts of climate change are experienced on a global scale regardless of the location of GHG emission sources. The GHG emissions from an individual development project are not typically going to have a noticeable impact on the global climate, but individual projects contribute to the significant cumulative problem of global warming and climate change. As the California Supreme Court has indicated, "an individual project's emissions will most likely not have any appreciable impact on the global problem by themselves, but they will contribute to the significant impact caused by greenhouse gas emissions from other sources around the globe. The question therefore becomes whether the project's incremental addition of greenhouse gases is "cumulatively considerable" in light of the global problem" (Cleveland National Forest Foundation v. San Diego Association of Governments 2017:14).

Consistent with the inherent consideration of GHG emissions as a cumulative contribution to a global environmental condition, the analysis presented previously considers the potential for the project to contribute considerably to the cumulative impact of global climate change.

The analysis provided in the previous sections demonstrates that the project includes many design features that support the reduction of GHG emissions, including features that would reduce the project's energy consumption, reduce water consumption, and encourage energy conservation, as well as provide visitors with public transportation incentives, the ability to access nearby public transit, and opportunities for walking and biking. However, it has also been determined that, without additional measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, transportation productivity, and encouraging active transportation. This is because the project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. Also, since detailed design plans have not been developed for the project at this stage, it is also not known whether natural gas use would be included in the final design. As a fossil fuel, natural gas production and use are significant contributors to GHG emissions. For the building sector to achieve carbon neutrality, natural gas usage will need to be phased out and replaced with electricity usage, and electrical generation will need to shift to 100% carbon-free sources. Thus, without mitigation, the project could cause a *significant* contribution to the cumulative impact of GHG emissions and global climate change. With implementation of the identified mitigation measures in Section 7.2, below, impacts would be less than significant.

7.2 Mitigation Measures

7.2.1 Construction

MM-AQ-1: To reduce the potential for health risks as a result of construction of the project, the following measures shall be implemented:

- Prior to the start of construction activities, it shall be ensured that all 75 horsepower or greater diesel-powered equipment are powered with CARB certified Tier 4 Interim engines, except where the County establishes that Tier 4 Interim equipment is not available.

There are several other SCAQMD rules and regulations that serve as mitigation measures for the project construction. These rules are:

- SCAQMD Rule 403, which requires projects to incorporate fugitive dust control measures;
- SCAQMD Rule 1113, which limits the volatile organic compound content of architectural coating; and
- SCAQMD Regulation XIII, New Source Review, which requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available technology control technology for new combustion sources such as boilers and water heaters).

Based on the above analysis, the project's impact would be less than significant, with the measures identified above.

7.2.2 Operation

MM-GHG-1: The modifications to the George C. Page Museum and the development of the new museum shall not include the installation of natural gas infrastructure. Future operation of the new facilities shall not use natural gas–fired appliances. In addition, the project shall provide more electric vehicle charging stations than the mandatory requirements in the Los Angeles County Code, Title 31,

Green Building Standards, electric vehicle charging space and charging station calculations (Code Section 5.106.5.3.3).

MM-GHG-2: In consultation with the LADOT, the Los Angeles County Museum of Natural History Foundation (Foundation) shall prepare and implement a Transportation Demand Management program to reduce museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare.

The Foundation shall designate an existing member of staff as the on-site Transportation Demand Management Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT.

Employee Strategies:

Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures may be applied to reduce employee vehicle trips and VMT:

- Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.
- Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.
- Encourage and support participation in the Los Angeles County Metropolitan Transportation Authority (Metro) vanpool, including subsidies for participation.
- Implement paid parking for employees.
- Subsidize transit passes.
- Offer flexible work schedules and telecommuting, when feasible.

Visitor Strategies:

Transportation information for visitors shall be displayed on La Brea Tar Pit's website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT:

- Advertise and offer discounted museum tickets for visitors who use public transit or a bicycle to visit the project.
- Provide and maintain secure on-site bicycle parking for visitors and monitor usage to determine if additional bicycle racks are needed.
    - Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.
    - Ensure bicycle parking is well lit and monitored by staff.
- Continue to have paid parking for visitors.
- Coordinate with Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to La Brea Tar Pits, through the following measures:
    - Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and La Brea Tar Pits.

  - Implement bus stop improvements such as bus stop shelters along Wilshire Boulevard that would be used by La Brea Tar Pits visitors.
  - Coordinate with Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/Wilshire Boulevard intersection.
- Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and West 6th Street.

Implementation of these mitigation measures would encourage employees and visitors to reduce their vehicle trips and contribute to VMT and GHG reduction goals. These measures also support multimodal connectivity in the study area. With the implementation of these measures, GHG impacts would be reduced to less than significant with mitigation.

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APPENDIX A

CalEEMod Results
Air Pollutant and Greenhouse Gas Emission Calculations

La Brea Tar Pits Project v3 Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	La Brea Tar Pits Project v3
Construction Start Date	1/1/2024
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	18.4
Location	5801 Wilshire Blvd, Los Angeles, CA 90036, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4317
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Other Non-Asphalt Surfaces	140	1000sqft	3.21	0.00	0.00	0.00	—	—
Parking Lot	81.0	1000sqft	1.86	0.00	0.00	0.00	—	—
Library	64.0	1000sqft	1.47	64,000	0.00	0.00	—	—
Library	40.0	1000sqft	0.92	40,000	0.00	0.00	—	—
Library	2.00	1000sqft	0.05	2,000	0.00	0.00	—	—
City Park	6.00	Acre	6.00	0.00	6.00	6.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.26	9.51	57.1	55.8	0.08	2.46	21.6	24.0	2.26	9.44	11.7	—	9,545	9,545	0.39	0.28	12.7	9,614
Mit.	1.98	8.96	24.4	48.3	0.08	0.27	8.74	9.01	0.26	3.81	4.07	—	9,545	9,545	0.39	0.28	12.7	9,614
% Reduced	73%	6%	57%	13%	—	89%	59%	62%	88%	60%	65%	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.26	6.09	57.1	54.9	0.11	2.46	21.6	24.0	2.26	9.44	11.7	—	15,475	15,475	0.73	1.35	0.58	15,895
Mit.	1.96	1.66	29.6	47.5	0.11	0.28	8.74	9.01	0.27	3.81	4.07	—	15,475	15,475	0.73	1.35	0.58	15,895
% Reduced	73%	73%	48%	14%	—	89%	59%	62%	88%	60%	65%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.94	4.94	47.4	45.2	0.07	1.98	17.3	19.3	1.83	7.42	9.24	—	9,031	9,031	0.39	0.32	4.72	9,140
Mit.	1.58	2.78	21.8	40.6	0.07	0.23	7.23	7.47	0.23	3.05	3.28	—	9,031	9,031	0.39	0.32	4.72	9,140
% Reduced	73%	44%	54%	10%	—	88%	58%	61%	88%	59%	65%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.08	0.90	8.66	8.24	0.01	0.36	3.16	3.52	0.33	1.35	1.69	—	1,495	1,495	0.06	0.05	0.78	1,513
Mit.	0.29	0.51	3.98	7.41	0.01	0.04	1.32	1.36	0.04	0.56	0.60	—	1,495	1,495	0.06	0.05	0.78	1,513
% Reduced	73%	44%	54%	10%	—	88%	58%	61%	88%	59%	65%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	7.26	6.10	57.1	55.8	0.08	2.46	21.6	24.0	2.26	9.44	11.7	—	9,545	9,545	0.39	0.18	5.26	9,614
2025	2.45	2.07	13.1	28.2	0.03	0.47	4.36	4.83	0.43	0.84	1.26	—	6,372	6,372	0.27	0.27	12.7	6,471
2026	2.53	9.51	13.6	29.9	0.03	0.44	6.10	6.54	0.40	1.04	1.45	—	6,751	6,751	0.29	0.28	12.6	6,855
2027	3.00	2.55	17.9	35.8	0.04	0.63	6.03	6.66	0.58	1.03	1.60	—	7,752	7,752	0.33	0.28	11.3	7,856

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	7.26	6.09	57.1	54.9	0.11	2.46	21.6	24.0	2.26	9.44	11.7	—	15,475	15,475	0.73	1.35	0.58	15,895
2025	2.44	2.06	13.3	26.1	0.03	0.47	4.36	4.83	0.43	0.84	1.26	—	6,228	6,228	0.28	0.27	0.33	6,317
2026	2.25	1.88	12.5	25.2	0.03	0.41	4.36	4.77	0.38	0.84	1.21	—	6,157	6,157	0.27	0.27	0.30	6,244
2027	2.16	1.81	12.0	24.3	0.03	0.36	4.36	4.73	0.34	0.84	1.17	—	6,088	6,088	0.19	0.26	0.28	6,172
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.94	4.94	47.4	45.2	0.07	1.98	17.3	19.3	1.83	7.42	9.24	—	9,031	9,031	0.39	0.32	3.01	9,140
2025	2.09	1.76	11.5	22.9	0.03	0.40	3.65	4.05	0.36	0.70	1.07	—	5,371	5,371	0.24	0.23	4.72	5,451
2026	1.99	3.26	11.1	22.6	0.03	0.36	4.01	4.36	0.33	0.75	1.07	—	5,406	5,406	0.24	0.23	4.42	5,485
2027	1.50	1.27	9.07	17.2	0.02	0.31	2.92	3.23	0.29	0.50	0.79	—	3,815	3,815	0.12	0.14	2.42	3,862
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.08	0.90	8.66	8.24	0.01	0.36	3.16	3.52	0.33	1.35	1.69	—	1,495	1,495	0.06	0.05	0.50	1,513
2025	0.38	0.32	2.09	4.18	0.01	0.07	0.67	0.74	0.07	0.13	0.19	—	889	889	0.04	0.04	0.78	902
2026	0.36	0.60	2.02	4.13	0.01	0.07	0.73	0.80	0.06	0.14	0.20	—	895	895	0.04	0.04	0.73	908
2027	0.27	0.23	1.66	3.13	< 0.005	0.06	0.53	0.59	0.05	0.09	0.14	—	632	632	0.02	0.02	0.40	639

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.82	1.66	24.4	48.3	0.08	0.27	8.74	9.01	0.26	3.81	4.07	—	9,545	9,545	0.39	0.18	5.26	9,614
2025	1.68	1.47	11.8	30.4	0.03	0.13	3.26	3.39	0.12	0.73	0.85	—	6,372	6,372	0.27	0.27	12.7	6,471
2026	1.81	8.96	12.9	32.2	0.03	0.15	3.89	4.05	0.14	0.82	0.97	—	6,751	6,751	0.29	0.28	12.6	6,855
2027	1.98	1.76	17.4	38.6	0.04	0.20	3.83	4.02	0.19	0.81	0.99	—	7,752	7,752	0.33	0.28	11.3	7,856

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.96	1.66	29.6	47.5	0.11	0.28	8.74	9.01	0.27	3.81	4.07	—	15,475	15,475	0.73	1.35	0.58	15,895
2025	1.67	1.46	12.0	28.3	0.03	0.13	3.26	3.39	0.12	0.73	0.85	—	6,228	6,228	0.28	0.27	0.33	6,317
2026	1.53	1.33	11.8	27.5	0.03	0.12	3.26	3.39	0.11	0.73	0.84	—	6,157	6,157	0.27	0.27	0.30	6,244
2027	1.48	1.28	11.7	26.6	0.03	0.11	3.26	3.37	0.11	0.73	0.83	—	6,088	6,088	0.19	0.26	0.28	6,172
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.58	1.40	21.8	40.6	0.07	0.23	7.23	7.47	0.23	3.05	3.28	—	9,031	9,031	0.39	0.32	3.01	9,140
2025	1.43	1.25	10.3	24.8	0.03	0.11	2.75	2.86	0.10	0.61	0.72	—	5,371	5,371	0.24	0.23	4.72	5,451
2026	1.37	2.78	10.4	24.6	0.03	0.11	2.88	3.00	0.10	0.63	0.74	—	5,406	5,406	0.24	0.23	4.42	5,485
2027	0.98	0.87	8.83	18.6	0.02	0.10	1.87	1.97	0.09	0.40	0.49	—	3,815	3,815	0.12	0.14	2.42	3,862
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.29	0.26	3.98	7.41	0.01	0.04	1.32	1.36	0.04	0.56	0.60	—	1,495	1,495	0.06	0.05	0.50	1,513
2025	0.26	0.23	1.89	4.52	0.01	0.02	0.50	0.52	0.02	0.11	0.13	—	889	889	0.04	0.04	0.78	902
2026	0.25	0.51	1.91	4.49	0.01	0.02	0.53	0.55	0.02	0.12	0.13	—	895	895	0.04	0.04	0.73	908
2027	0.18	0.16	1.61	3.39	< 0.005	0.02	0.34	0.36	0.02	0.07	0.09	—	632	632	0.02	0.02	0.40	639

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.71	8.60	9.21	43.0	0.11	0.42	8.35	8.77	0.41	2.12	2.53	59.2	15,226	15,285	6.88	0.42	25.2	15,606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.66	8.55	9.50	40.6	0.11	0.42	8.35	8.77	0.41	2.12	2.53	59.2	14,857	14,916	6.91	0.43	1.05	15,219

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.45	7.44	7.15	35.8	0.10	0.32	7.50	7.82	0.32	1.90	2.22	59.2	13,828	13,887	6.85	0.40	10.1	14,187
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.00	1.36	1.30	6.54	0.02	0.06	1.37	1.43	0.06	0.35	0.41	9.81	2,289	2,299	1.13	0.07	1.68	2,349

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.42	4.98	3.17	37.0	0.09	0.05	8.35	8.40	0.05	2.12	2.17	—	9,001	9,001	0.46	0.37	24.8	9,147
Area	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	5,678	5,678	0.47	0.03	—	5,697
Water	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Waste	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Off-Road	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5
Stationary	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Total	6.71	8.60	9.21	43.0	0.11	0.42	8.35	8.77	0.41	2.12	2.53	59.2	15,226	15,285	6.88	0.42	25.2	15,606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.37	4.92	3.46	34.6	0.08	0.05	8.35	8.40	0.05	2.12	2.17	—	8,632	8,632	0.48	0.39	0.64	8,760
Area	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	5,678	5,678	0.47	0.03	—	5,697

Water	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Waste	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Off-Road	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5
Stationary	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Total	6.66	8.55	9.50	40.6	0.11	0.42	8.35	8.77	0.41	2.12	2.53	59.2	14,857	14,916	6.91	0.43	1.05	15,219
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.84	4.44	3.17	32.1	0.08	0.05	7.50	7.55	0.05	1.90	1.95	—	7,936	7,936	0.43	0.35	9.72	8,061
Area	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	5,678	5,678	0.47	0.03	—	5,697
Water	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Waste	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Off-Road	0.03	0.02	0.21	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.3	54.3	< 0.005	< 0.005	—	54.5
Stationary	0.25	0.23	0.75	0.83	< 0.005	0.03	—	0.03	0.03	—	0.03	—	117	117	< 0.005	< 0.005	—	118
Total	5.45	7.44	7.15	35.8	0.10	0.32	7.50	7.82	0.32	1.90	2.22	59.2	13,828	13,887	6.85	0.40	10.1	14,187
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.88	0.81	0.58	5.86	0.01	0.01	1.37	1.38	0.01	0.35	0.36	—	1,314	1,314	0.07	0.06	1.61	1,335
Area	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.06	0.03	0.55	0.46	< 0.005	0.04	—	0.04	0.04	—	0.04	—	940	940	0.08	< 0.005	—	943
Water	—	—	—	—	—	—	—	—	—	—	—	1.05	7.07	8.12	0.11	< 0.005	—	11.6
Waste	—	—	—	—	—	—	—	—	—	—	—	8.76	0.00	8.76	0.88	0.00	—	30.6
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Off-Road	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02
Stationary	0.05	0.04	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.4	19.4	< 0.005	< 0.005	—	19.5

Total	1.00	1.36	1.30	6.54	0.02	0.06	1.37	1.43	0.06	0.35	0.41	9.81	2,289	2,299	1.13	0.07	1.68	2,349

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.42	4.98	3.17	37.0	0.09	0.05	8.35	8.40	0.05	2.12	2.17	—	9,001	9,001	0.46	0.37	24.8	9,147
Area	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	5,678	5,678	0.47	0.03	—	5,697
Water	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Waste	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Off-Road	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5
Stationary	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Total	6.71	8.60	9.21	43.0	0.11	0.42	8.35	8.77	0.41	2.12	2.53	59.2	15,226	15,285	6.88	0.42	25.2	15,606
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.37	4.92	3.46	34.6	0.08	0.05	8.35	8.40	0.05	2.12	2.17	—	8,632	8,632	0.48	0.39	0.64	8,760
Area	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	5,678	5,678	0.47	0.03	—	5,697
Water	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Waste	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Off-Road	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5

Stationary	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Total	6.66	8.55	9.50	40.6	0.11	0.42	8.35	8.77	0.41	2.12	2.53	59.2	14,857	14,916	6.91	0.43	1.05	15,219
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.84	4.44	3.17	32.1	0.08	0.05	7.50	7.55	0.05	1.90	1.95	—	7,936	7,936	0.43	0.35	9.72	8,061
Area	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	5,678	5,678	0.47	0.03	—	5,697
Water	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Waste	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Off-Road	0.03	0.02	0.21	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	54.3	54.3	< 0.005	< 0.005	—	54.5
Stationary	0.25	0.23	0.75	0.83	< 0.005	0.03	—	0.03	0.03	—	0.03	—	117	117	< 0.005	< 0.005	—	118
Total	5.45	7.44	7.15	35.8	0.10	0.32	7.50	7.82	0.32	1.90	2.22	59.2	13,828	13,887	6.85	0.40	10.1	14,187
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.88	0.81	0.58	5.86	0.01	0.01	1.37	1.38	0.01	0.35	0.36	—	1,314	1,314	0.07	0.06	1.61	1,335
Area	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.06	0.03	0.55	0.46	< 0.005	0.04	—	0.04	0.04	—	0.04	—	940	940	0.08	< 0.005	—	943
Water	—	—	—	—	—	—	—	—	—	—	—	1.05	7.07	8.12	0.11	< 0.005	—	11.6
Waste	—	—	—	—	—	—	—	—	—	—	—	8.76	0.00	8.76	0.88	0.00	—	30.6
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Off-Road	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02
Stationary	0.05	0.04	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.4	19.4	< 0.005	< 0.005	—	19.5
Total	1.00	1.36	1.30	6.54	0.02	0.06	1.37	1.43	0.06	0.35	0.41	9.81	2,289	2,299	1.13	0.07	1.68	2,349

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.07	2.58	24.6	21.4	0.03	1.05	—	1.05	0.97	—	0.97	—	3,372	3,372	0.14	0.03	—	3,384
Demolition	—	—	—	—	—	—	0.37	0.37	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.17	5.17	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.07	2.58	24.6	21.4	0.03	1.05	—	1.05	0.97	—	0.97	—	3,372	3,372	0.14	0.03	—	3,384
Demolition	—	—	—	—	—	—	0.37	0.37	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.19	5.19	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.21	1.85	17.6	15.3	0.02	0.75	—	0.75	0.69	—	0.69	—	2,421	2,421	0.10	0.02	—	2,429
Demolition	—	—	—	—	—	—	0.26	0.26	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	1.00	1.00	< 0.005	0.10	0.10	—	3.72	3.72	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.40	0.34	3.22	2.80	< 0.005	0.14	—	0.14	0.13	—	0.13	—	401	401	0.02	< 0.005	—	402
Demolition	—	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.24	3.77	0.00	0.00	0.65	0.65	0.00	0.15	0.15	—	706	706	0.03	0.02	2.78	—
Vendor	0.02	0.01	0.30	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.70	—
Hauling	0.02	0.01	0.35	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	282	282	0.02	0.05	0.65	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.28	3.19	0.00	0.00	0.65	0.65	0.00	0.15	0.15	—	669	669	0.03	0.02	0.07	—
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.02	—
Hauling	0.02	0.01	0.37	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	282	282	0.02	0.05	0.02	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.20	2.41	0.00	0.00	0.46	0.46	0.00	0.11	0.11	—	487	487	0.02	0.02	0.86	—
Vendor	0.01	0.01	0.23	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	185	185	0.01	0.03	0.22	—
Hauling	0.02	< 0.005	0.27	0.10	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	202	202	0.01	0.03	0.20	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.44	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.14	—
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.7	30.7	< 0.005	< 0.005	0.04	—
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.5	33.5	< 0.005	0.01	0.03	—

3.2. Demolition (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	0.77	10.5	18.0	0.03	0.18	—	0.18	0.17	—	0.17	—	3,372	3,372	0.14	0.03	—	3,384
Demolition	—	—	—	—	—	—	0.23	0.23	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.17	5.17	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	0.77	10.5	18.0	0.03	0.18	—	0.18	0.17	—	0.17	—	3,372	3,372	0.14	0.03	—	3,384
Demolition	—	—	—	—	—	—	0.23	0.23	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.19	5.19	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.56	7.53	12.9	0.02	0.13	—	0.13	0.12	—	0.12	—	2,421	2,421	0.10	0.02	—	2,429
Demolition	—	—	—	—	—	—	0.17	0.17	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.25	0.25	< 0.005	0.03	0.03	—	3.72	3.72	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.10	1.37	2.36	< 0.005	0.02	—	0.02	0.02	—	0.02	—	401	401	0.02	< 0.005	—	402
Demolition	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.24	3.77	0.00	0.00	0.65	0.65	0.00	0.15	0.15	—	706	706	0.03	0.02	2.78	—
Vendor	0.02	0.01	0.30	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.70	—
Hauling	0.02	0.01	0.35	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	282	282	0.02	0.05	0.65	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.28	3.19	0.00	0.00	0.65	0.65	0.00	0.15	0.15	—	669	669	0.03	0.02	0.07	—
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	258	258	0.01	0.04	0.02	—
Hauling	0.02	0.01	0.37	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	282	282	0.02	0.05	0.02	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.20	2.41	0.00	0.00	0.46	0.46	0.00	0.11	0.11	—	487	487	0.02	0.02	0.86	—
Vendor	0.01	0.01	0.23	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	185	185	0.01	0.03	0.22	—
Hauling	0.02	< 0.005	0.27	0.10	< 0.005	< 0.005	0.05	0.06	< 0.005	0.01	0.02	—	202	202	0.01	0.03	0.20	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.04	0.44	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.14	—
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.7	30.7	< 0.005	< 0.005	0.04	—
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.5	33.5	< 0.005	0.01	0.03	—

3.3. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.19	31.5	28.8	0.04	1.40	—	1.40	1.29	—	1.29	—	4,634	4,634	0.19	0.04	—	4,650
Dust From Material Movement	—	—	—	—	—	—	17.2	17.2	—	8.84	8.84	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.17	5.17	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.80	3.19	31.5	28.8	0.04	1.40	—	1.40	1.29	—	1.29	—	4,634	4,634	0.19	0.04	—	4,650
Dust From Material Movement	—	—	—	—	—	—	17.2	17.2	—	8.84	8.84	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.19	5.19	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.72	2.29	22.6	20.7	0.03	1.00	—	1.00	0.92	—	0.92	—	3,326	3,326	0.13	0.03	—	3,338
Dust From Material Movement	—	—	—	—	—	—	12.3	12.3	—	6.35	6.35	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	1.00	1.00	< 0.005	0.10	0.10	—	3.72	3.72	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	0.42	4.12	3.77	0.01	0.18	—	0.18	0.17	—	0.17	—	551	551	0.02	< 0.005	—	553

Dust From Material Movement	—	—	—	—	—	—	2.25	2.25	—	1.16	1.16	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.96	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	195	195	0.01	0.01	0.34	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.3	32.3	< 0.005	< 0.005	0.06	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Site Preparation (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.56	12.9	24.8	0.04	0.09	—	0.09	0.09	—	0.09	—	4,634	4,634	0.19	0.04	—	4,650
Dust From Material Movement	—	—	—	—	—	—	6.71	6.71	—	3.45	3.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.17	5.17	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	0.56	12.9	24.8	0.04	0.09	—	0.09	0.09	—	0.09	—	4,634	4,634	0.19	0.04	—	4,650
Dust From Material Movement	—	—	—	—	—	—	6.71	6.71	—	3.45	3.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.19	5.19	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	0.40	9.25	17.8	0.03	0.06	—	0.06	0.06	—	0.06	—	3,326	3,326	0.13	0.03	—	3,338
Dust From Material Movement	—	—	—	—	—	—	4.82	4.82	—	2.47	2.47	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.25	0.25	< 0.005	0.03	0.03	—	3.72	3.72	< 0.005	< 0.005	< 0.005	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.07	1.69	3.24	0.01	0.01	—	0.01	0.01	—	0.01	—	551	551	0.02	< 0.005	—	553
Dust From Material Movement	—	—	—	—	—	—	0.88	0.88	—	0.45	0.45	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.96	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	195	195	0.01	0.01	0.34	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.3	32.3	< 0.005	< 0.005	0.06	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.19	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	9.21	9.21	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.19	5.19	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	0.50	4.88	4.30	0.01	0.21	—	0.21	0.19	—	0.19	—	940	940	0.04	0.01	—	943
Dust From Material Movement	—	—	—	—	—	—	1.31	1.31	—	0.52	0.52	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.20	0.20	< 0.005	0.02	0.02	—	0.74	0.74	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.09	0.89	0.78	< 0.005	0.04	—	0.04	0.03	—	0.03	—	156	156	0.01	< 0.005	—	156

Dust From Material Movement	—	—	—	—	—	—	0.24	0.24	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	—	0.12	0.12	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.42	4.78	0.00	0.00	0.98	0.98	0.00	0.23	0.23	—	1,004	1,004	0.05	0.04	0.11	—
Vendor	0.03	0.01	0.39	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	323	323	0.01	0.04	0.02	—
Hauling	0.57	0.16	9.79	3.62	0.05	0.09	1.98	2.08	0.09	0.54	0.64	—	7,545	7,545	0.41	1.21	0.45	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.72	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	145	145	0.01	0.01	0.26	—
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	< 0.005	0.01	0.05	—
Hauling	0.08	0.02	1.42	0.51	0.01	0.01	0.28	0.29	0.01	0.08	0.09	—	1,075	1,075	0.06	0.17	1.07	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.0	24.0	< 0.005	< 0.005	0.04	—
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.61	7.61	< 0.005	< 0.005	0.01	—
Hauling	0.01	< 0.005	0.26	0.09	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	178	178	0.01	0.03	0.18	—

3.6. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.00	0.96	18.9	35.4	0.06	0.18	—	0.18	0.17	—	0.17	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	—	3.59	3.59	—	1.43	1.43	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.19	5.19	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.14	2.70	5.04	0.01	0.03	—	0.03	0.02	—	0.02	—	940	940	0.04	0.01	—	943
Dust From Material Movement	—	—	—	—	—	—	0.51	0.51	—	0.20	0.20	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	0.74	0.74	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.49	0.92	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	156	156	0.01	< 0.005	—	156
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.12	0.12	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.42	4.78	0.00	0.00	0.98	0.98	0.00	0.23	0.23	—	1,004	1,004	0.05	0.04	0.11	—
Vendor	0.03	0.01	0.39	0.19	< 0.005	< 0.005	0.09	0.09	< 0.005	0.02	0.03	—	323	323	0.01	0.04	0.02	—
Hauling	0.57	0.16	9.79	3.62	0.05	0.09	1.98	2.08	0.09	0.54	0.64	—	7,545	7,545	0.41	1.21	0.45	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.06	0.72	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	145	145	0.01	0.01	0.26	—
Vendor	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	< 0.005	0.01	0.05	—
Hauling	0.08	0.02	1.42	0.51	0.01	0.01	0.28	0.29	0.01	0.08	0.09	—	1,075	1,075	0.06	0.17	1.07	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	24.0	24.0	< 0.005	< 0.005	0.04	—
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.61	7.61	< 0.005	< 0.005	0.01	—
Hauling	0.01	< 0.005	0.26	0.09	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	178	178	0.01	0.03	0.18	—

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	11.0	13.8	0.03	0.45	—	0.45	0.42	—	0.42	—	2,573	2,573	0.10	0.02	—	2,582

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.08	5.08	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.42	1.19	11.0	13.8	0.03	0.45	—	0.45	0.42	—	0.42	—	2,573	2,573	0.10	0.02	—	2,582
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.11	5.11	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.21	1.02	9.46	11.8	0.02	0.39	—	0.39	0.36	—	0.36	—	2,206	2,206	0.09	0.02	—	2,213
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.20	1.20	< 0.005	0.12	0.12	—	4.36	4.36	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.73	2.15	< 0.005	0.07	—	0.07	0.07	—	0.07	—	365	365	0.01	< 0.005	—	366
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.22	0.22	< 0.005	0.02	0.02	—	0.72	0.72	< 0.005	< 0.005	< 0.005	—

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.96	0.86	0.87	13.9	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,765	2,765	0.12	0.09	10.1	—
Vendor	0.04	0.02	0.63	0.31	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	551	551	0.02	0.08	1.51	—
Hauling	0.04	0.01	0.59	0.23	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	477	477	0.03	0.07	1.11	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.95	0.85	0.96	11.8	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,621	2,621	0.12	0.10	0.26	—
Vendor	0.04	0.02	0.65	0.31	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	551	551	0.02	0.08	0.04	—
Hauling	0.04	0.01	0.61	0.23	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	477	477	0.03	0.07	0.03	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.81	0.72	0.89	10.6	0.00	0.00	2.21	2.21	0.00	0.52	0.52	—	2,280	2,280	0.10	0.08	3.75	—
Vendor	0.03	0.01	0.56	0.26	< 0.005	0.01	0.13	0.13	< 0.005	0.03	0.04	—	473	473	0.02	0.07	0.56	—
Hauling	0.03	0.01	0.53	0.20	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	409	409	0.02	0.06	0.41	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.13	0.16	1.94	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	377	377	0.02	0.01	0.62	—
Vendor	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	78.2	78.2	< 0.005	0.01	0.09	—
Hauling	0.01	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.07	—

3.8. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.64	0.59	9.73	16.0	0.03	0.12	—	0.12	0.11	—	0.11	—	2,573	2,573	0.10	0.02	—	2,582
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.08	5.08	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	0.59	9.73	16.0	0.03	0.12	—	0.12	0.11	—	0.11	—	2,573	2,573	0.10	0.02	—	2,582
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.11	5.11	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.55	0.50	8.34	13.7	0.02	0.10	—	0.10	0.09	—	0.09	—	2,206	2,206	0.09	0.02	—	2,213
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	—	4.36	4.36	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	1.52	2.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	365	365	0.01	< 0.005	—	366
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.72	0.72	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.96	0.86	0.87	13.9	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,765	2,765	0.12	0.09	10.1	—
Vendor	0.04	0.02	0.63	0.31	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	551	551	0.02	0.08	1.51	—
Hauling	0.04	0.01	0.59	0.23	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	477	477	0.03	0.07	1.11	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.95	0.85	0.96	11.8	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,621	2,621	0.12	0.10	0.26	—
Vendor	0.04	0.02	0.65	0.31	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	551	551	0.02	0.08	0.04	—
Hauling	0.04	0.01	0.61	0.23	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	477	477	0.03	0.07	0.03	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.81	0.72	0.89	10.6	0.00	0.00	2.21	2.21	0.00	0.52	0.52	—	2,280	2,280	0.10	0.08	3.75	—
Vendor	0.03	0.01	0.56	0.26	< 0.005	0.01	0.13	0.13	< 0.005	0.03	0.04	—	473	473	0.02	0.07	0.56	—
Hauling	0.03	0.01	0.53	0.20	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	409	409	0.02	0.06	0.41	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.13	0.16	1.94	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	377	377	0.02	0.01	0.62	—
Vendor	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	78.2	78.2	< 0.005	0.01	0.09	—
Hauling	0.01	< 0.005	0.10	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	67.7	67.7	< 0.005	0.01	0.07	—

3.9. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.7	0.03	0.40	—	0.40	0.37	—	0.37	—	2,573	2,573	0.10	0.02	—	2,582
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	4.99	4.99	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.35	1.13	10.4	13.7	0.03	0.40	—	0.40	0.37	—	0.37	—	2,573	2,573	0.10	0.02	—	2,582
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	5.02	5.02	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.16	0.97	8.93	11.7	0.02	0.34	—	0.34	0.31	—	0.31	—	2,205	2,205	0.09	0.02	—	2,213
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.20	1.20	< 0.005	0.12	0.12	—	4.29	4.29	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.18	1.63	2.14	< 0.005	0.06	—	0.06	0.06	—	0.06	—	365	365	0.01	< 0.005	—	366

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.22	0.22	< 0.005	0.02	0.02	—	0.71	0.71	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.83	0.74	0.78	12.9	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,710	2,710	0.11	0.09	9.17	—
Vendor	0.04	0.02	0.60	0.29	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	542	542	0.02	0.08	1.46	—
Hauling	0.03	0.01	0.56	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	468	468	0.03	0.07	1.05	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.83	0.73	0.87	11.0	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,569	2,569	0.12	0.09	0.24	—
Vendor	0.04	0.02	0.62	0.30	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	542	542	0.02	0.08	0.04	—
Hauling	0.03	0.01	0.59	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	469	469	0.03	0.07	0.03	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.71	0.62	0.81	9.89	0.00	0.00	2.21	2.21	0.00	0.52	0.52	—	2,234	2,234	0.10	0.08	3.40	—
Vendor	0.03	0.01	0.54	0.25	< 0.005	0.01	0.13	0.13	< 0.005	0.03	0.04	—	464	464	0.02	0.07	0.54	—
Hauling	0.03	0.01	0.51	0.19	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	401	401	0.02	0.06	0.39	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.15	1.80	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	370	370	0.02	0.01	0.56	—
Vendor	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	76.9	76.9	< 0.005	0.01	0.09	—
Hauling	0.01	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.5	66.5	< 0.005	0.01	0.06	—

3.10. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.57	9.68	15.9	0.03	0.11	—	0.11	0.10	—	0.10	—	2,573	2,573	0.10	0.02	—	2,582
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.99	4.99	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.63	0.57	9.68	15.9	0.03	0.11	—	0.11	0.10	—	0.10	—	2,573	2,573	0.10	0.02	—	2,582
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	5.02	5.02	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.49	8.30	13.7	0.02	0.09	—	0.09	0.09	—	0.09	—	2,205	2,205	0.09	0.02	—	2,213
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	—	4.29	4.29	< 0.005	< 0.005	< 0.005	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.09	1.51	2.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	365	365	0.01	< 0.005	—	366
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.71	0.71	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.83	0.74	0.78	12.9	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,710	2,710	0.11	0.09	9.17	—
Vendor	0.04	0.02	0.60	0.29	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	542	542	0.02	0.08	1.46	—
Hauling	0.03	0.01	0.56	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	468	468	0.03	0.07	1.05	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.83	0.73	0.87	11.0	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,569	2,569	0.12	0.09	0.24	—
Vendor	0.04	0.02	0.62	0.30	< 0.005	0.01	0.15	0.16	< 0.005	0.04	0.04	—	542	542	0.02	0.08	0.04	—
Hauling	0.03	0.01	0.59	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	469	469	0.03	0.07	0.03	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.71	0.62	0.81	9.89	0.00	0.00	2.21	2.21	0.00	0.52	0.52	—	2,234	2,234	0.10	0.08	3.40	—
Vendor	0.03	0.01	0.54	0.25	< 0.005	0.01	0.13	0.13	< 0.005	0.03	0.04	—	464	464	0.02	0.07	0.54	—
Hauling	0.03	0.01	0.51	0.19	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	401	401	0.02	0.06	0.39	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.15	1.80	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	370	370	0.02	0.01	0.56	—
Vendor	0.01	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	76.9	76.9	< 0.005	0.01	0.09	—
Hauling	0.01	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.5	66.5	< 0.005	0.01	0.06	—

3.11. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.30	1.09	9.94	13.6	0.03	0.35	—	0.35	0.33	—	0.33	—	2,573	2,573	0.10	0.02	—	2,581
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	4.90	4.90	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.30	1.09	9.94	13.6	0.03	0.35	—	0.35	0.33	—	0.33	—	2,573	2,573	0.10	0.02	—	2,581
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	4.93	4.93	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	4.95	6.80	0.01	0.18	—	0.18	0.16	—	0.16	—	1,281	1,281	0.05	0.01	—	1,285
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.70	0.70	< 0.005	0.07	0.07	—	2.45	2.45	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.90	1.24	< 0.005	0.03	—	0.03	0.03	—	0.03	—	212	212	0.01	< 0.005	—	213
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	—	0.40	0.40	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.71	0.69	12.0	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,658	2,658	0.11	0.09	8.28	—
Vendor	0.03	0.02	0.57	0.27	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	—	531	531	0.02	0.07	1.39	—
Hauling	0.03	0.01	0.54	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	459	459	0.02	0.07	0.98	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.70	0.86	10.2	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,520	2,520	0.04	0.09	0.21	—
Vendor	0.03	0.02	0.59	0.28	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	—	531	531	0.02	0.07	0.04	—
Hauling	0.03	0.01	0.57	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	459	459	0.02	0.07	0.03	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.35	0.43	5.33	0.00	0.00	1.29	1.29	0.00	0.30	0.30	—	1,273	1,273	0.02	0.05	1.78	—
Vendor	0.02	0.01	0.30	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	265	265	0.01	0.04	0.30	—
Hauling	0.02	< 0.005	0.29	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	229	229	0.01	0.04	0.21	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.97	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	211	211	< 0.005	0.01	0.29	—
Vendor	< 0.005	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.8	43.8	< 0.005	0.01	0.05	—

Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.8	37.8	< 0.005	0.01	0.03	—

3.12. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.56	9.64	15.9	0.03	0.10	—	0.10	0.10	—	0.10	—	2,573	2,573	0.10	0.02	—	2,581
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	0.56	9.64	15.9	0.03	0.10	—	0.10	0.10	—	0.10	—	2,573	2,573	0.10	0.02	—	2,581
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.93	4.93	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.28	4.80	7.93	0.01	0.05	—	0.05	0.05	—	0.05	—	1,281	1,281	0.05	0.01	—	1,285

Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.45	2.45	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.88	1.45	< 0.005	0.01	—	0.01	0.01	—	0.01	—	212	212	0.01	< 0.005	—	213
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.40	0.40	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.71	0.69	12.0	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,658	2,658	0.11	0.09	8.28	—
Vendor	0.03	0.02	0.57	0.27	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	—	531	531	0.02	0.07	1.39	—
Hauling	0.03	0.01	0.54	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	459	459	0.02	0.07	0.98	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.80	0.70	0.86	10.2	0.00	0.00	2.61	2.61	0.00	0.61	0.61	—	2,520	2,520	0.04	0.09	0.21	—
Vendor	0.03	0.02	0.59	0.28	< 0.005	< 0.005	0.15	0.15	< 0.005	0.04	0.04	—	531	531	0.02	0.07	0.04	—
Hauling	0.03	0.01	0.57	0.22	< 0.005	0.01	0.13	0.13	0.01	0.03	0.04	—	459	459	0.02	0.07	0.03	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.40	0.35	0.43	5.33	0.00	0.00	1.29	1.29	0.00	0.30	0.30	—	1,273	1,273	0.02	0.05	1.78	—
Vendor	0.02	0.01	0.30	0.14	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	265	265	0.01	0.04	0.30	—
Hauling	0.02	< 0.005	0.29	0.11	< 0.005	< 0.005	0.06	0.07	< 0.005	0.02	0.02	—	229	229	0.01	0.04	0.21	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.97	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	211	211	< 0.005	0.01	0.29	—
Vendor	< 0.005	< 0.005	0.05	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	43.8	43.8	< 0.005	0.01	0.05	—
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.8	37.8	< 0.005	0.01	0.03	—

3.13. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.65	6.08	8.71	0.01	0.26	—	0.26	0.24	—	0.24	—	1,322	1,322	0.05	0.01	—	1,327
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	4.90	4.90	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.77	0.65	6.08	8.71	0.01	0.26	—	0.26	0.24	—	0.24	—	1,322	1,322	0.05	0.01	—	1,327
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	4.93	4.93	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	0.33	3.06	4.39	0.01	0.13	—	0.13	0.12	—	0.12	—	667	667	0.03	0.01	—	669
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.70	0.70	< 0.005	0.07	0.07	—	2.48	2.48	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.06	0.56	0.80	< 0.005	0.02	—	0.02	0.02	—	0.02	—	110	110	< 0.005	< 0.005	—	111
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	—	0.41	0.41	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.90	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	199	199	0.01	0.01	0.62	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	189	189	< 0.005	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.7	96.7	< 0.005	< 0.005	0.13	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.0	16.0	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.14. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.39	5.89	9.28	0.01	0.08	—	0.08	0.08	—	0.08	—	1,322	1,322	0.05	0.01	—	1,327
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.90	4.90	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	0.39	5.89	9.28	0.01	0.08	—	0.08	0.08	—	0.08	—	1,322	1,322	0.05	0.01	—	1,327
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.93	4.93	< 0.005	< 0.005	< 0.005	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	2.97	4.68	0.01	0.04	—	0.04	0.04	—	0.04	—	667	667	0.03	0.01	—	669
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.18	0.18	< 0.005	0.02	0.02	—	2.48	2.48	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.54	0.85	< 0.005	0.01	—	0.01	0.01	—	0.01	—	110	110	< 0.005	< 0.005	—	111
Paving	—	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	< 0.005	—	0.41	0.41	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.05	0.90	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	199	199	0.01	0.01	0.62	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.76	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	189	189	< 0.005	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.7	96.7	< 0.005	< 0.005	0.13	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.0	16.0	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.15. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.14	1.51	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	7.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	1.47	1.47	< 0.005	0.15	0.15	—	4.99	4.99	< 0.005	< 0.005	0.01	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.25	0.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	38.5	38.5	< 0.005	< 0.005	—	38.7
Architectural Coatings	—	1.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.30	0.30	< 0.005	0.03	0.03	—	1.08	1.08	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.38	6.38	< 0.005	< 0.005	—	6.40
Architectural Coatings	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.18	0.18	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	1.29	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	271	271	0.01	0.01	0.92	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.4	56.4	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.34	9.34	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.16. Architectural Coating (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	0.16	1.14	1.51	< 0.005	0.03	—	0.03	0.03	—	0.03	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	—	7.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.37	0.37	< 0.005	0.04	0.04	—	4.99	4.99	< 0.005	< 0.005	0.01	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.25	0.33	< 0.005	0.01	—	0.01	0.01	—	0.01	—	38.5	38.5	< 0.005	< 0.005	—	38.7
Architectural Coatings	—	1.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.08	0.08	< 0.005	0.01	0.01	—	1.08	1.08	< 0.005	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.38	6.38	< 0.005	< 0.005	—	6.40
Architectural Coatings	—	0.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.08	1.29	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	271	271	0.01	0.01	0.92	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.25	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	56.4	56.4	< 0.005	< 0.005	0.09	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.34	9.34	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Library	5.38	4.94	3.15	36.7	0.09	0.05	8.28	8.34	0.05	2.10	2.15	—	8,933	8,933	0.45	0.37	24.6	9,078
City Park	0.04	0.04	0.02	0.28	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	68.7	68.7	< 0.005	< 0.005	0.19	69.8
Total	5.42	4.98	3.17	37.0	0.09	0.05	8.35	8.40	0.05	2.12	2.17	—	9,001	9,001	0.46	0.37	24.8	9,147
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Library	5.33	4.89	3.44	34.3	0.08	0.05	8.28	8.34	0.05	2.10	2.15	—	8,566	8,566	0.48	0.38	0.64	8,693
City Park	0.04	0.04	0.03	0.26	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	65.9	65.9	< 0.005	< 0.005	< 0.005	66.8
Total	5.37	4.92	3.46	34.6	0.08	0.05	8.35	8.40	0.05	2.12	2.17	—	8,632	8,632	0.48	0.39	0.64	8,760
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Library	0.88	0.81	0.58	5.83	0.01	0.01	1.36	1.37	0.01	0.35	0.35	—	1,308	1,308	0.07	0.06	1.60	1,329
City Park	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	5.79	5.79	< 0.005	< 0.005	0.01	5.88
Total	0.88	0.81	0.58	5.86	0.01	0.01	1.37	1.38	0.01	0.35	0.36	—	1,314	1,314	0.07	0.06	1.61	1,335

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Library	5.38	4.94	3.15	36.7	0.09	0.05	8.28	8.34	0.05	2.10	2.15	—	8,933	8,933	0.45	0.37	24.6	9,078
City Park	0.04	0.04	0.02	0.28	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	68.7	68.7	< 0.005	< 0.005	0.19	69.8

Total	5.42	4.98	3.17	37.0	0.09	0.05	8.35	8.40	0.05	2.12	2.17	—	9,001	9,001	0.46	0.37	24.8	9,147
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Library	5.33	4.89	3.44	34.3	0.08	0.05	8.28	8.34	0.05	2.10	2.15	—	8,566	8,566	0.48	0.38	0.64	8,693
City Park	0.04	0.04	0.03	0.26	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	65.9	65.9	< 0.005	< 0.005	< 0.005	66.8
Total	5.37	4.92	3.46	34.6	0.08	0.05	8.35	8.40	0.05	2.12	2.17	—	8,632	8,632	0.48	0.39	0.64	8,760
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Library	0.88	0.81	0.58	5.83	0.01	0.01	1.36	1.37	0.01	0.35	0.35	—	1,308	1,308	0.07	0.06	1.60	1,329
City Park	< 0.005	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	5.79	5.79	< 0.005	< 0.005	0.01	5.88
Total	0.88	0.81	0.58	5.86	0.01	0.01	1.37	1.38	0.01	0.35	0.36	—	1,314	1,314	0.07	0.06	1.61	1,335

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.01	< 0.005	—	135
Library	—	—	—	—	—	—	—	—	—	—	—	—	1,942	1,942	0.14	0.02	—	1,951
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,076	2,076	0.15	0.02	—	2,086
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.01	< 0.005	—	135
Library	—	—	—	—	—	—	—	—	—	—	—	—	1,942	1,942	0.14	0.02	—	1,951
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,076	2,076	0.15	0.02	—	2,086
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	22.2	22.2	< 0.005	< 0.005	—	22.3
Library	—	—	—	—	—	—	—	—	—	—	—	—	322	322	0.02	< 0.005	—	323
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.02	< 0.005	—	345

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.01	< 0.005	—	135
Library	—	—	—	—	—	—	—	—	—	—	—	—	1,942	1,942	0.14	0.02	—	1,951
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,076	2,076	0.15	0.02	—	2,086
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	134	134	0.01	< 0.005	—	135
Library	—	—	—	—	—	—	—	—	—	—	—	—	1,942	1,942	0.14	0.02	—	1,951
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	2,076	2,076	0.15	0.02	—	2,086
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	22.2	22.2	< 0.005	< 0.005	—	22.3
Library	—	—	—	—	—	—	—	—	—	—	—	—	322	322	0.02	< 0.005	—	323
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.02	< 0.005	—	345

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Library	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Library	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Library	0.06	0.03	0.55	0.46	< 0.005	0.04	—	0.04	0.04	—	0.04	—	596	596	0.05	< 0.005	—	598
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.06	0.03	0.55	0.46	< 0.005	0.04	—	0.04	0.04	—	0.04	—	596	596	0.05	< 0.005	—	598

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Library	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Library	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.33	0.17	3.02	2.54	0.02	0.23	—	0.23	0.23	—	0.23	—	3,601	3,601	0.32	0.01	—	3,611
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Library	0.06	0.03	0.55	0.46	< 0.005	0.04	—	0.04	0.04	—	0.04	—	596	596	0.05	< 0.005	—	598
City Park	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.06	0.03	0.55	0.46	< 0.005	0.04	—	0.04	0.04	—	0.04	—	596	596	0.05	< 0.005	—	598

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	2.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	2.59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	1.05	7.07	8.12	0.11	< 0.005	—	11.6
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	1.05	7.07	8.12	0.11	< 0.005	—	11.6

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	6.36	42.7	49.1	0.65	0.02	—	70.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	1.05	7.07	8.12	0.11	< 0.005	—	11.6
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	1.05	7.07	8.12	0.11	< 0.005	—	11.6

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	52.6	0.00	52.6	5.26	0.00	—	184
City Park	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.97
Total	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	52.6	0.00	52.6	5.26	0.00	—	184
City Park	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.97
Total	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	8.71	0.00	8.71	0.87	0.00	—	30.5
City Park	—	—	—	—	—	—	—	—	—	—	—	0.05	0.00	0.05	< 0.005	0.00	—	0.16
Total	—	—	—	—	—	—	—	—	—	—	—	8.76	0.00	8.76	0.88	0.00	—	30.6

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	52.6	0.00	52.6	5.26	0.00	—	184
City Park	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.97
Total	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	52.6	0.00	52.6	5.26	0.00	—	184
City Park	—	—	—	—	—	—	—	—	—	—	—	0.28	0.00	0.28	0.03	0.00	—	0.97
Total	—	—	—	—	—	—	—	—	—	—	—	52.9	0.00	52.9	5.29	0.00	—	185
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Library	—	—	—	—	—	—	—	—	—	—	—	8.71	0.00	8.71	0.87	0.00	—	30.5
City Park	—	—	—	—	—	—	—	—	—	—	—	0.05	0.00	0.05	< 0.005	0.00	—	0.16
Total	—	—	—	—	—	—	—	—	—	—	—	8.76	0.00	8.76	0.88	0.00	—	30.6

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.41	0.41
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.5
Total	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Forklifts	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.5
Total	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.02
Total	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.5
Total	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	76.5
Total	0.04	0.03	0.29	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	76.2	76.2	< 0.005	< 0.005	—	76.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forklifts	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	—

undefine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9.02
Total	< 0.005	< 0.005	0.04	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.99	8.99	< 0.005	< 0.005	—	9.02

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	430
Total	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	430
Total	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergency Generato	0.05	0.04	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.4	19.4	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.5
Total	0.05	0.04	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.4	19.4	< 0.005	< 0.005	—	19.5

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	430
Total	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	430
Total	0.92	0.84	2.73	3.04	< 0.005	0.12	—	0.12	0.12	—	0.12	—	428	428	0.02	< 0.005	—	430
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergency	0.05	0.04	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.4	19.4	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19.5
Total	0.05	0.04	0.14	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.4	19.4	< 0.005	< 0.005	—	19.5

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequest ered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description

Demolition	Demolition	1/1/2024	10/31/2024	6.00	262	—
Site Preparation	Site Preparation	1/1/2024	10/31/2024	6.00	262	—
Grading	Grading	11/1/2024	12/31/2024	6.00	52.0	—
Building Construction	Building Construction	1/1/2025	7/31/2027	6.00	808	—
Paving	Paving	6/1/2027	12/31/2027	6.00	184	—
Architectural Coating	Architectural Coating	7/1/2026	9/30/2026	6.00	79.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	7.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	7.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Average	3.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45

Building Construction	Tractors/Loaders/Backh	Diesel	Average	3.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Average	2.00	7.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	7.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	7.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	2.00	8.00	367	0.40
Demolition	Excavators	Diesel	Average	3.00	7.00	36.0	0.38
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Interim	3.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	4.00	7.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Tier 4 Interim	2.00	8.00	423	0.48
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Building Construction	Forklifts	Diesel	Tier 4 Interim	3.00	7.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	8.00	367	0.29
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	3.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Interim	2.00	7.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Interim	2.00	7.00	89.0	0.36

Paving	Rollers	Diesel	Average	2.00	7.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	50.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	8.00	10.2	HHDT,MHDT
Demolition	Hauling	4.00	20.0	HHDT
Demolition	Onsite truck	1.00	1.00	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	0.00	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	75.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	10.0	10.2	HHDT,MHDT
Grading	Hauling	107	20.0	HHDT
Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	200	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	17.4	10.2	HHDT,MHDT
Building Construction	Hauling	6.88	20.0	HHDT
Building Construction	Onsite truck	1.00	1.00	HHDT

Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	0.00	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	1.00	1.00	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	1.00	1.00	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	50.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	8.00	10.2	HHDT,MHDT
Demolition	Hauling	4.00	20.0	HHDT
Demolition	Onsite truck	1.00	1.00	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	20.0	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	0.00	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	1.00	1.00	HHDT
Grading	—	—	—	—
Grading	Worker	75.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	10.0	10.2	HHDT,MHDT
Grading	Hauling	107	20.0	HHDT

Grading	Onsite truck	1.00	1.00	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	200	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	17.4	10.2	HHDT,MHDT
Building Construction	Hauling	6.88	20.0	HHDT
Building Construction	Onsite truck	1.00	1.00	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	0.00	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	1.00	1.00	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	20.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	0.00	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	1.00	1.00	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	168,945	56,315	13,260

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	102,000	—
Site Preparation	0.00	0.00	393	0.00	—
Grading	30,000	14,500	156	0.00	—
Building Construction	6,000	38,500	50.0	0.00	—
Paving	0.00	0.00	0.00	0.00	5.07

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	3.21	0%
Parking Lot	1.86	100%
Library	0.00	0%
Library	0.00	0%
Library	0.00	0%
City Park	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01
2025	0.00	690	0.05	0.01
2026	0.00	690	0.05	0.01

2027	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Library	1,600	1,709	1,200	568,814	10,936	11,681	8,200	3,887,845
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	4.68	11.8	13.1	2,519	32.0	80.4	89.8	17,214

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Library	1,600	1,709	1,200	568,814	10,936	11,681	8,200	3,887,845
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	4.68	11.8	13.1	2,519	32.0	80.4	89.8	17,214

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	168,945	56,315	13,260

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	690	0.0489	0.0069	0.00
Parking Lot	70,956	690	0.0489	0.0069	0.00
Library	619,919	690	0.0489	0.0069	2,261,536

Library	387,449	690	0.0489	0.0069	1,413,460
Library	19,372	690	0.0489	0.0069	70,673
City Park	0.00	690	0.0489	0.0069	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00	690	0.0489	0.0069	0.00
Parking Lot	70,956	690	0.0489	0.0069	0.00
Library	619,919	690	0.0489	0.0069	2,261,536
Library	387,449	690	0.0489	0.0069	1,413,460
Library	19,372	690	0.0489	0.0069	70,673
City Park	0.00	690	0.0489	0.0069	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00
Parking Lot	0.00	0.00
Library	2,002,490	0.00
Library	1,251,556	0.00
Library	62,578	0.00
City Park	0.00	187

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)

Other Non-Asphalt Surfaces	0.00	0.00
Parking Lot	0.00	0.00
Library	2,002,490	0.00
Library	1,251,556	0.00
Library	62,578	0.00
City Park	0.00	187

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	—
Parking Lot	0.00	—
Library	58.9	—
Library	36.8	—
Library	1.84	—
City Park	0.52	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	—
Parking Lot	0.00	—
Library	58.9	—
Library	36.8	—
Library	1.84	—
City Park	0.52	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Forklifts	Diesel	Average	1.00	4.00	82.0	0.20

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Forklifts	Diesel	Average	1.00	4.00	82.0	0.20

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	3.00	2.00	200	85.0	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	7.38	annual days of extreme heat
Extreme Precipitation	6.85	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Exposure Indicators	—
AQ-Ozone	51.9
AQ-PM	67.1
AQ-DPM	59.2
Drinking Water	92.5
Lead Risk Housing	62.6
Pesticides	0.00
Toxic Releases	75.7
Traffic	70.7
Effect Indicators	—
CleanUp Sites	4.12
Groundwater	26.2
Haz Waste Facilities/Generators	89.7
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	28.0
Cardio-vascular	49.2
Low Birth Weights	81.0
Socioeconomic Factor Indicators	—
Education	0.42
Housing	73.0
Linguistic	11.3
Poverty	32.3
Unemployment	15.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	46.99088926
Employed	90.28615424
Median HI	—
Education	—
Bachelor's or higher	94.07160272
High school enrollment	100
Preschool enrollment	79.00680098
Transportation	—
Auto Access	23.27730014
Active commuting	90.15783395
Social	—
2-parent households	2.681894007
Voting	38.18811754
Neighborhood	—
Alcohol availability	9.277556782
Park access	21.32683177
Retail density	93.54548954
Supermarket access	87.87373284
Tree canopy	10.83023226
Housing	—
Homeownership	2.181444886
Housing habitability	44.16784294
Low-inc homeowner severe housing cost burden	99.12742205
Low-inc renter severe housing cost burden	50.3143847
Uncrowded housing	77.4541255

Health Outcomes	—
Insured adults	61.8760426
Arthritis	98.1
Asthma ER Admissions	78.2
High Blood Pressure	98.0
Cancer (excluding skin)	85.3
Asthma	72.9
Coronary Heart Disease	98.1
Chronic Obstructive Pulmonary Disease	97.7
Diagnosed Diabetes	98.0
Life Expectancy at Birth	75.6
Cognitively Disabled	68.5
Physically Disabled	93.4
Heart Attack ER Admissions	63.3
Mental Health Not Good	76.1
Chronic Kidney Disease	98.6
Obesity	76.5
Pedestrian Injuries	91.5
Physical Health Not Good	95.9
Stroke	97.8
Health Risk Behaviors	—
Binge Drinking	7.0
Current Smoker	77.7
No Leisure Time for Physical Activity	96.2
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	95.8
Elderly	89.5
English Speaking	60.7
Foreign-born	69.7
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	1.2
Traffic Density	63.7
Traffic Access	87.4
Other Indices	—
Hardship	5.7
Other Decision Support	—
2016 Voting	38.7

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	47.0
Healthy Places Index Score for Project Location (b)	60.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Anticipated construction schedule approx. 4 years
Construction: Off-Road Equipment	Default equipment with over 75 hp Tier 4 interim
Construction: Trips and VMT	Increased default trips
Construction: Architectural Coatings	SCAQMD Rule 1113
Operations: Vehicle Data	Assumed all visitors visit for 1 or all the buildings
Construction: Dust From Material Movement	Anticipated cut and fill for project
Operations: Off-Road Equipment	Potential onsite equipment
Operations: Emergency Generators and Fire Pumps	Emergency generators

APPENDIX B

Health Risk Assessment

LA BREA TAR PITS MASTER PLAN HEALTH RISK ASSESSMENT

AUGUST 2023

PREPARED FOR

Los Angeles County Museum of Natural History Foundation

LEAD AGENCY

County of Los Angeles

PREPARED BY

SWCA Environmental Consultants

LA BREA TAR PITS MASTER PLAN
HEALTH RISK ASSESSMENT

Prepared for:

Los Angeles County Museum of Natural History Foundation
On behalf of County of Los Angeles Museum of Natural History
900 Exposition Boulevard
Los Angeles, California 90007
Attn: Dawn McDivitt, Chief Deputy Director

Lead Agency: County of Los Angeles

Prepared by:

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

SWCA Project No. 63953

August 2023

EXECUTIVE SUMMARY

A construction health risk assessment (HRA) for the proposed La Brea Tar Pits Master Plan (project) based on construction schedule and phasing information was conducted by SWCA Environmental Consultants on August 25, 2023. The objective of the impact assessment was to evaluate potential health risks at nearby sensitive receptors. As discussed in more detail in the report, no significant health impacts to off-site sensitive receptors are anticipated as a result of the project's construction or operation activities. The assessment predicts that the maximally exposed individual receptor (MEIR) could potentially be exposed to the following levels of impact during construction and operation of the project, which are below applicable thresholds of significance for health risks.

- Construction:
    - The chronic hazard index for diesel particulate matter (DPM) exposure at the MEIR would be 0.078, which is less than the threshold of significance of 1.0.
    - The excess cancer risk at the MEIR would be 8.95 cases per million, which is less than the South Coast Air Quality Management District (SCAQMD) threshold of significance of 10 cases per million.
- Operation:
    - The chronic hazard index for DPM exposure at the MEIR would be 0.003, which is less than the threshold of significance of 1.0.
    - The excess cancer risk at the MEIR would be 7.81 cases per million, which is less than the SCAQMD threshold of significance of 10 cases per million.
    - Since the maximum cancer risk would exceed 1 in 1 million, the cancer burden (increase in cancer cases in the population) was also estimated at 0.22 persons, which would not exceed the SCAQMD threshold of 0.5.

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Appendix A: Detailed Risk Calculations

1 INTRODUCTION

1.1 Purpose

In support of the air quality technical report, the health risk assessment (HRA) modeling analysis was prepared to estimate health risk impacts to existing sensitive receptors from exposure to toxic air contaminant (TAC) emissions from construction and operation of the proposed La Brea Tar Pits Master Plan (project). The analysis in this HRA uses air dispersion modeling to evaluate potential health risks associated with the project. Results of the modeling analysis are compared with the most recent California Environmental Quality Act (CEQA) significance thresholds established by the South Coast Air Quality Management District (SCAQMD). Per State CEQA Guidelines, Appendix G (14 California Code of Regulations [CCR] 15000 et seq.), the HRA directly addresses question (d): Would the project expose sensitive receptors to substantial pollutant concentrations?

1.2 Project Description

The project would involve construction and operation of a renovated La Brea Tar Pits. These facilities would be located within the city of Los Angeles. Project construction is anticipated be completed over a period of 4 years, beginning in 2024 and ending by 2028, when operations would begin. Table 1 lists the construction schedule phasing information. Figure 1 shows a map of the proposed project area.

Table 1. Construction Schedule

Phase Name	Phase Start Date	Phase End Date	Workdays per Week	Phase Duration (Workdays)
Demolition	1/1/2024	10/31/2024	6	262
Site preparation	1/1/2024	10/31/2024	6	262
Grading	11/1/2024	12/31/2024	6	52
Building	1/1/2025	7/31/2027	6	808
Architectural	7/1/2026	9/30/2026	6	79
Paving	6/1/2027	12/31/2027	6	184

1.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (California Air Resources Board [CARB] 2005). SCAQMD identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes

(SCAQMD 2022). The closest off-site sensitive receptors to the project site include residences located approximately 87 feet north and 87 feet east of the project site boundary.

1.4 Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute (short-term) and/or chronic (long-term) non-cancer health effects. A toxic substance released into the air is considered a TAC. Examples include certain aromatic and chlorinated hydrocarbons, diesel particulate matter (DPM), certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ system and may be experienced either by acute or chronic exposure to a given TAC.

California's air toxics control program began in 1983 with the passage of the Toxic Air Contaminant Identification and Control Act, Assembly Bill (AB) 1807, better known as the Tanner Bill. The Tanner Bill established a regulatory process for the scientific and public review of individual toxic compounds. When a compound becomes listed as a TAC under the Tanner process, CARB normally establishes minimum statewide emission-control measures to be adopted by air quality management districts and air pollution control districts. By 1992, CARB has listed 18 of the 189 federal hazardous air pollutants as state TACs. In April 1993, CARB added 171 substances to the state program to make the state TAC list equivalent to the federal list of hazardous air pollutants. In 1998, CARB designated diesel engine exhaust particulate matter (DPM) as a TAC (CARB 1998). The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. No short-term, acute relative exposure values are established and regulated, and therefore are not addressed in this construction-generated assessment.

The second major component of California's air toxics program, supplementing the Tanner process, was provided by the passage of AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. AB 2588 currently regulates over 600 compounds, including all of the Tanner-designated TACs.

Additionally, Proposition 65, passed by California voters in 1986, required that a list of carcinogenic and reproductive toxicants found in the environment be compiled, the discharge of these toxicants into drinking water be prohibited, and warnings of public exposure by air, land, or water be posted if a significant adverse public health risk is posed. The emission of any of listed substances by a facility would require a public warning unless health risks could be demonstrated to be less than significant. For carcinogens, Proposition 65 defines the "no significant risk level" as the level of exposure that would result in an increased cancer risk of greater than 10 in 1 million over a 70-year lifetime. The "no significant risk level" is 1/1,000 of the "no observable effect level" for reproductive toxicants.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On- Road Heavy Duty Diesel Vehicle (In-Use) Regulation, On-Road Heavy Duty (New) Vehicle Program, In-Use Off-Road Diesel Vehicle Regulation, and New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures reduce diesel

emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

1.5 Cancer Risk

Cancer risk is defined as the increase in lifetime probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, typically expressed as the increased probability in 1 million. The cancer risk from inhalation of a TAC is estimated by calculating the inhalation (and if applicable, ingestion and dermal) dose in units of milligrams (mg) per kilogram (kg) body weight per day based on an ambient concentration in units of micrograms per cubic meter ($\mu g/m^3$), breathing rate, and exposure period, and multiplying the dose by the inhalation cancer potency factor, expressed as $(mg/kg\ body\ weight\ per\ day)^{-1}$. Cancer risks are typically calculated for all carcinogenic TACs and summed to calculate the overall increase in cancer risk to an individual. The calculation procedure assumes that cancer risk is proportional to concentrations at any level of exposure and that risks due to different carcinogens are additive. This approach is generally considered a conservative assumption at low doses and is consistent with the current Office of Environmental Health Hazard Assessment (OEHHA) regulatory approach. Exposure to carcinogenic TACs does not imply that the exposed individual would contract cancer; rather, the cancer risk is a probability of developing cancer if other factors (e.g., heredity, exposure to environmental or workplace risks that compromise the immune system, overall health) would result in an increased susceptibility to developing cancer.

1.6 Acute and Chronic Non-Cancer Health Impacts

The non-cancer health impact of an inhaled TAC is measured by the hazard quotient, which is the ratio of the ambient concentration of a TAC in unit $\mu g/m^3$ divided by the reference exposure level $\mu g/m^3$. The reference exposure level (REL) is the concentration at or below which no adverse health effects are anticipated. The REL is typically based on health effects on a particular target organ system, such as the respiratory system, liver, or central nervous system. Hazard quotients of individual TACs are then summed for each target organ system to obtain a hazard index (HI).

RELs are designed to protect the most sensitive individuals in the population, including infants and children, by selecting appropriate toxicological data and including margins of safety. Accordingly, the evaluation methods are assumed to protect children and other sensitive subpopulations (groups of more highly susceptible individuals) from adverse health effects in the event of exposure (OEHHA 2008).

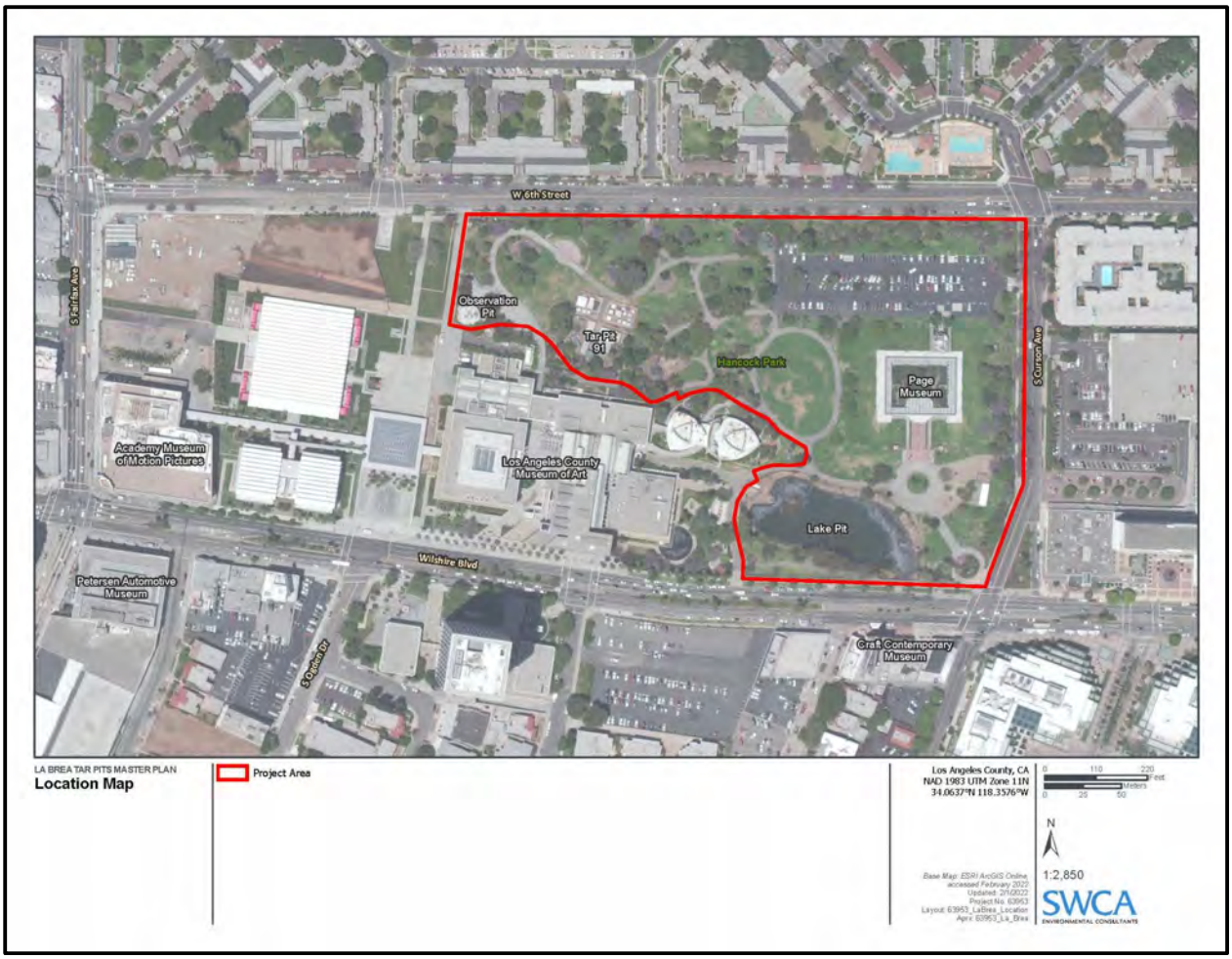

Figure 1. Project overview map.

2 SIGNIFICANCE CRITERIA

OEHHA's most recent guidance is the 2015 Risk Assessment Guidelines Manual (OEHHA 2015), which was adopted in 2015 to replace the 2003 HRA Guidance Manual. The Children's Environmental Health Protection Act of 1999 (Senate Bill 25), which requires explicit consideration of infants and children in assessing risks from air toxics, requires revisions of the methods for both non-cancer and cancer risk assessment and of the exposure assumptions in the 2003 HRA Guidance Manual. In response to Senate Bill 25, OEHHA released three technical support documents—addressing RELs (OEHHA 2008), cancer potency (OEHHA 2009), and exposure assessment and stochastic analysis (OEHHA 2012)—and adopted the 2015 Risk Assessment Guidelines Manual (OEHHA 2015). The technical support document for RELs and continuing work to reevaluate TACs to ensure adequate protection for infants and children has led to revisions of RELs for approximately 10 chemicals and chemical families. The basic methodology for evaluating acute and chronic health effects using the RELs otherwise remained the same as in the previous guidance manual.

The cancer risk methodology described in the exposure assessment and stochastic analysis technical support document and the 2015 Risk Assessment Guidelines Manual accounts for the higher sensitivity of infants and children by applying age-specific daily breathing rates and age-sensitivity factors (ASFs). According to the technical support document, "accounting for effects of early-in life exposure requires accounting for both the increased potency of early in life exposure to carcinogens and the greater exposure on a per kg body weight that occurs early in life due to behavioral and physiological differences between infants and children, and adults" (OEHHA 2012:1-6). In the absence of chemical-specific data, OEHHA recommends a default ASF of 10 for the third trimester to age 2 years, and an ASF of 3 for ages 2 through 15 years, to account for potential increased sensitivity to carcinogens during childhood (OEHHA 2015). (The ASF for adults is 1.) In addition to the ASFs, children have higher daily breathing rates per unit of body weight than adults. The OEHHA guidance manual considers the age-specific breathing rates in the cancer risk calculations.

In addition, OEHHA and CARB evaluated information from activity patterns databases to estimate the fraction of time at home (FAH) during the day. From the third trimester to age <2 years, 85% of time is spent at home. From age 2 through <16 years, 72% of time is spent at home. From age 16 years and older, 73% of time is spent at home. However, for facilities with any school within the 1 in 1 million or greater isopleth, the OEHHA recommends using an FAH of 100% for children under 16 years old (OEHHA 2015). Cancer risk parameters, such as ASFs, daily breathing rates, exposure period, FAH, and cancer potency factors were based on the values and data recommended by OEHHA as implemented in the risk calculations.

Table 2 presents the significance criteria used in this report to assess the significance of public health risks. These criteria are based on the OEHHA (OEHHA 2015), SCAQMD's Modeling Guidance for American Meteorological Society/ U.S. Environmental Protection Agency Regulatory Model (AERMOD) (SCAQMD 2006), and California Ambient Air Quality Standards (CAAQS).

Table 2. Thresholds of Significance for Public Health Risks

Risk Metric	Project-level Thresholds	Reference
Cancer Risk	10 cancers per million	OEHHA, SCAQMD
DPM Chronic Hazard Index (HI)	HI = 1 MEIR exposure/5 µg/m^3	OEHHA

In addition to cancer and non-cancer risk thresholds, if the cancer risk at the maximally exposed individual risk exceeds 1 in 1 million, the SCAQMD also requires the evaluation of cancer burden (increase in cancer cases in the population), to be compared to the threshold of 0.5 (SCAQMD 2019). No short-term, acute relative exposure values are established and regulated for DPM, and therefore these are not addressed in this assessment.

Non-cancer adverse health impacts, both acute (short term) and chronic (long term), are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the proposed project to a published reference exposure level (REL) that could cause adverse health effects as established by OEHHA. The ratio (referred to as the Hazard Quotient) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. If the overall HI for the highest-impacted organ system is greater than 1, then the impact is considered to be significant.

The HI is an expression used for the potential for non-cancer health effects. The relationship for the non-cancer health effects is given by the annual concentration (in $\mu g/m^3$) and the REL (in $\mu g/m^3$). The acute HI was determined using the "simple" concurrent maximum approach, which tends to be conservative (i.e., overpredicts).

The relationship for the non-cancer health effects is given by the following equation:

$$HI = C/REL$$

Where:

HI = Hazard index; an expression of the potential for non-cancer health effects.

C = Annual average concentration ($\mu g/m^3$) during the exposure period.

REL = Concentration at which no adverse health effects are anticipated.

The concentration level at or below which no adverse non-cancer health effects are anticipated for a specified exposure duration is termed the REL. RELs are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. RELs are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact. The chronic REL for DPM was established by the California OEHHA as 5 $\mu g/m^3$.

3 MODELING METHODOLOGY

3.1 Emission Calculations

3.1.1 Construction

Emissions from the construction phase of the project were estimated using the California Emissions Estimator Model (CalEEMod) Version 2022.1. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by Natural History Museums of Los Angeles County (Applicant) and CalEEMod default values. All assumptions pertaining to construction emissions, including phasing, equipment, and vehicle trips, are based on the Air Quality and

Greenhouse Gas Emissions Technical Report prepared for the project (SWCA Environmental Consultants 2023).

For purposes of estimating project emissions, and based on information provided by the project Applicant, construction is assumed to take place over 4 years from January 2024 through December 2027 (see Table 1). Construction-worker estimates and vendor truck trips by construction phase and construction equipment mix by construction phase were based on Applicant-provided information and CalEEMod defaults. CalEEMod default trip length values were used for the distances for worker and vendor trips.

This HRA focuses on DPM emitted from exhaust from on-site construction equipment, on-site truck travel, and worker, vendor, and haul diesel vehicles. Off-site on-road mobile source emissions are scaled based on a ratio of distance to determine the proportion of emissions that would occur within approximately 1,760 feet of the project site.

The daily emission rates from project construction were determined by dividing the maximum daily emissions (lbs/day) for each construction year by the 8 hours per day of construction. Table 3 presents the estimated unmitigated and mitigated construction exhaust particulate matter less than 10 microns in diameter (PM_{10}) emissions, a surrogate for DPM, generated during construction of the project. As shown in Section 4, the results of the HRA using the default construction emission factors in CalEEMod result in a potentially significant impact. Therefore, the mitigation measure MM-AQ-1 is included to reduce DPM emissions from construction equipment (see Section 4.4).

Table 3. Unmitigated and Mitigated Project On-Site and On-Road Construction Emissions

Year	Unmitigated Exhaust PM_{10} (lbs/hour)	Mitigated Exhaust PM_{10} (lbs/hour)
2024 (On-site)	0.306	0.034
2024 (On-road total)	0.001	0.0009
2024 (On-road per 1,760 feet)	3.27E-05	2.90E-05
2025 (On-site)	0.059	0.016
2025 (On-road total)	0.002	0.002
2025 (On-road per 1,760 feet)	5.68E-05	5.68E-05
2026 (On-site)	0.055	0.019
2026 (On-road total)	0.002	0.002
2026 (On-road per 1,760 feet)	5.68E-05	5.68E-05
2027 (On-site)	0.078	0.024
2027 (On-road total)	0.001	0.001
2027 (On-road per 1,760 feet)	4.08E-04	4.08E-05

Source: See Appendix A for risk calculations.

3.1.2 Operations

Operational year 2028 was assumed consistent with completion of project construction. Emissions from project operations include visitor, worker, and maintenance vehicle travel. For risk assessment purposes, PM_{10} in diesel exhaust is considered DPM, originating mainly from vehicle emissions off-site, and off-road/stationary equipment on-site. Visitor, worker, and maintenance traffic was modeled for one-way trip distances to 1,760 feet from the project site boundary to estimate emissions at proximate receptors.

Vehicle emission per day were obtained from CalEEMod and used to determine hourly emission rates. Per-day on-site emissions from potential off-site and stationary equipment were also obtained from CalEEMod to determine hourly emissions rates. Table 4 presents the estimated hourly operational emissions.

Table 4. Project On-Site and On-Road Operational Emissions

Year	Exhaust PM_{10} (lbs/hour)
2028 (On-site)	0.0013
2028 (On-road total)	0.05
2028 (On-road per 1,760 feet)	3.09E-03

Source: See Appendix A for risk calculations.

3.2 Air Dispersion Modeling

Air dispersion models calculate the atmospheric transport and fate of pollutants from the emission source. The models calculate the concentration of selected pollutants at specific downwind ground-level points, such as residential receptors. The transformation (fate) of an airborne pollutant, its movement with the prevailing winds (transport), its crosswind and vertical movement due to atmospheric turbulence (dispersion), and its removal due to dry and wet deposition are influenced by the pollutant's physical and chemical properties and by meteorological and environmental conditions. Factors such as distance from the source to the receptor, meteorological conditions, intervening land use and terrain, pollutant release characteristics, and background pollutant concentrations affect the predicted air concentration of an air pollutant. Air dispersion models have the capability to take all of these factors into consideration when calculating downwind ground-level pollutant concentrations.

A dispersion modeling analysis of DPM emitted from project construction diesel vehicles and off-road equipment was conducted on the areas surrounding the project site for the HRA. Furthermore, the TAC emissions from off-site vehicle travel and on-site off-road/stationary equipment were conducted on the project site for the operational HRA.

The AERMOD dispersion model (Version 21112) was used to estimate pollutant concentrations at specific distances from project emission sources using 5 years (2012–2016) of hourly meteorological data from the USC/Downtown L.A. Meteorological Station (KCQT) (Station ID 93134), obtained from SCAQMD.

Terrain elevations were obtained from commercially available digital terrain elevations developed by the U.S. Geological Survey (USGS) by using its National Elevation Dataset (USGS 2018). The National Elevation Dataset provides terrain elevations with 1-meter vertical resolution and 30-meter (1 arc-second) horizontal resolution based on a Universal Transverse Mercator (UTM) coordinate system. The USGS specifies coordinates in North American Datum 83, UTM Zone 10. Lakes Environmental software (Version 10.2.1) was used to process the National Elevation Dataset data and assign elevations to the receptor locations and sources. According to SCAQMD guidelines, the urban dispersion option was selected and Los Angeles County population for year 2021 (9,829,544 persons) was input into AERMOD.

This HRA evaluates the risk to existing residential receptors located in proximity to the project site. Receptors were placed assuming a nested grid of 2 × 2 meters. Receptors were only placed within the identified residential buildings. Flagpole receptors were included at a height of 1.8 meters and 4.8 meters, representing the first and second floors.

Off-site vehicle travel was modeled as a line of adjacent volume sources, and on-site truck travel and off-road/stationary equipment were modeled as four area sources making up the project site. The emission rates were proportioned over the area sources for on-site construction emissions and divided between the volume sources for off-site hauling emissions. To determine contaminant impacts during construction hours, the model's "hour-per-day" (HRDAY) scalar option was invoked to predict ground-level concentrations for emissions generated between the hours of 8:00 a.m. and 4:00 p.m., assuming 6 days per week. To determine contaminant impacts during operation hours, the model's "hour-per-day" (HRDAY) scalar option was invoked to predict ground-level concentrations for emissions generated between the hours of 8:00 a.m. and 4:00 p.m., conservatively assuming 6 days per week. Operation includes three emergency generators; however, testing would occur one engine at a time. The modeling includes one emergency generator running 2 hours per day for testing purposes.

3.3 Health Risk Assessment Methodology

Construction Health Risk Assessment

In March 2015, the OEHHA approved the 2015 Risk Assessment Guidelines Manual (OEHHA 2015). SCAQMD requires that all HRAs prepared for CEQA documents follow SCAQMD policies in conjunction with the 2015 Risk Assessment Guidelines Manual. Using concentrations generated by AERMOD, resulting cancer and non-cancer risk at the existing receptors from exposure to DPM emissions were assessed using the OEHHA-derived calculation method. For the purposes of this assessment, given the less-than-lifetime exposure period, and the higher breathing rates and sensitivity of children to construction-generated TACs, the cancer risk calculation assumes that the exposure would affect children early in their lives. For the residential construction health risk, the HRA assumes exposure would start in the third trimester of pregnancy and occur 8 hours per day, 6 days per week, for 4 years.

Operation Health Risk Assessment

For the operational health risk, the HRA assumes exposure would start in the third trimester through 30 years for all receptor locations. The SCAQMD has also established noncarcinogenic risk parameters for use in HRAs, since some TACs increase non-cancer health risk due to long-term (chronic) exposures and some TACs increase non-cancer health risk due to short-term (acute) exposures; however, no short-term, acute relative exposure values are established and regulated for DPM and therefore these are not addressed in this assessment. Noncarcinogenic risks are quantified by calculating a hazard index, expressed as the ratio between the ambient pollutant concentration and its toxicity or REL, which is a concentration at or below which health effects are not likely to occur. The chronic hazard index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system.

Carcinogenic Chemical Risk

Carcinogenic compounds are not considered to have threshold levels (i.e., dose levels below which there are no risks). Any exposure, therefore, will have some associated risk. The SCAQMD has established a maximum incremental cancer risk of 10 in 1 million (1.0E-05) for CEQA projects, and OEHHA also defines a typical risk management level as 10 in 1 million (OEHHA 2015).

Health risks associated with exposure to carcinogenic compounds can be defined in terms of the probability of developing cancer as a result of exposure to a chemical at a given concentration. The cancer risk probability is determined by multiplying the chemical's annual concentration by its cancer potency factor (CPF), a measure of the carcinogenic potential of a chemical when a dose is received through the inhalation pathway. It is an upper-limit estimate of the probability of contracting cancer as a result of continuous exposure to an ambient concentration of 1 $\mu g/m^3$ over a lifetime of 70 years.

Recent guidance from OEHHA recommends a refinement to the standard point estimate approach with the use of age-specific breathing rates and age sensitivity factors (ASFs) to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose for each age group. Once determined, contaminant dose is multiplied by the CPF in units of inverse dose expressed in milligrams per kilogram per day (mg/kg/day) to derive the cancer risk estimate. Therefore, to accommodate the unique exposures associated with the residential-based receptors, the following dose algorithm was used:

$$\mathbf{DOSE_{air} = (C_{air} \times \{BR/BW\} \times A \times EF \times ED \times 10^{-6}) / AT}$$

Where:

$DOSE_{air}$	= Dose through inhalation (mg/kg-day)
C_{air}	= Concentration in air ($\mu g/m^3$) (calculated by AERMOD)
{BR/BW}	= Daily breathing rate normalized to body weight (liters/kg body weight-day)
A	= Inhalation absorption factor (unitless)
EF	= Exposure frequency (unitless), days/365 days
10^{-6}	= Micrograms to milligrams conversion, liters to cubic meters conversion
ED	= Exposure duration (in years) for a specified age group
AT	= Averaging time for lifetime cancer risk (years)

The inhalation absorption factor (A) is a unitless factor that is only used if the cancer potency factor included a correction for absorption across the lung. For this assessment, the default value of 1 was used. For residential receptors, the exposure frequency (EF) of 0.96 is used to represent 350 days per year to allow for a 2-week period away from home each year (OEHHA 2015). This timeline is considered appropriate for potential residential exposures established by OEHHA (2015). For residential receptors, the 95th percentile daily breathing rates (BR/BW), exposure durations (ED) over the 4-year construction period, age sensitivity factors (ASFs), and fraction of time at home (FAH) for the various age groups are provided in Appendix A.

For construction analysis, the residential exposure duration spans the length of construction (e.g., 4 years). To calculate the overall cancer risk, the risk for each appropriate age group is calculated per the following equation:

$$\mathbf{RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times FAH}$$

Where:

$RISK_{inh\text{-}res}$	= Residential inhalation cancer risk
$DOSE_{air}$	= Daily inhalation dose (milligrams/kilogram [mg/kg]-day)
CPF	= Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
ASF	= Age sensitivity factor for a specified age group (unitless)
FAH	= Fraction of time spent at home (unitless)

The CPFs used in the assessment were obtained from OEHHA guidance. The excess lifetime cancer risks during the construction period to the maximally exposed resident were calculated based on the factors provided in Appendix A. The cancer risks for each age group are summed to estimate the total cancer risk for each toxic chemical species. For purposes of this assessment, the calculated residential cancer risks associated with construction activities are based on the following age groups: third trimester, 0 to 2 years old, 2 to 9 years old, and 16 to 30 years old. The final step converts the cancer risk in scientific notation to a whole number that expresses the cancer risk in “chances per million” by multiplying the cancer risk by a factor of 1x106 (i.e., 1 million). For construction, the calculated results are provided in Appendix A.

Non-Carcinogenic Hazards

An evaluation of the potential non-cancer effects of chronic chemical exposures was also conducted. Adverse health effects are evaluated by comparing the annual receptor level (ground) concentration of each chemical compound with the appropriate reference exposure limit (REL). Available RELs promulgated by OEHHA were considered in the assessment.

To quantify non-carcinogenic impacts, the hazard index approach was used. The HI assumes that chronic and acute subthreshold exposures adversely affect a specific organ or organ system (toxicological endpoint). For each discrete chemical exposure, target organs presented in regulatory guidance were used. To calculate the HI, each chemical concentration or dose is divided by the appropriate toxicity value.

For compounds affecting the same toxicological endpoint, this ratio is summed. Where the total equals or exceeds 1, a health hazard is presumed to exist. For construction, the chronic hazard analysis for DPM is provided in Appendix A. The calculations contain the relevant exposure concentrations and corresponding reference dose values used in the evaluation of noncarcinogenic exposures.

4 HEALTH RISK ANALYSIS RESULTS

4.1 Construction

The cancer risk calculations were performed by multiplying the AERMOD-predicted DPM concentrations in $\mu g/m^3$ due to DPM emissions from off-site vehicles and on-site construction equipment by the appropriate risk values. The potential exposure pathway for DPM includes inhalation only. The potential exposure through other pathways (e.g., ingestion) requires substance and site-specific data, and the specific parameters for DPM are not known for these pathways (CARB 1998).

The excess cancer risks to off-site receptors due to project construction are calculated assuming exposure during the entire calendar year to the emission rates presented in Appendix A for the respective calendar year. For construction analysis, the exposure duration spans the length of construction. As the length of construction is equal to 4 years, only the third trimester, 0–2, and 2–9 age bins apply to the construction analysis for the off-site residential receptors. A more detailed breakdown of the risk calculations is included in Appendix A.

Table 5 shows the maximum cancer and chronic health risks at the maximally exposed residential receptor from project construction. AERMOD concentrations per construction year are in Appendix A.

Table 5. Excess Cancer Risk – Unmitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	78.07	10	**Potentially Significant**
Chronic Hazard Index – Residential	HI value	0.08	1.0	Less than Significant

Source: SCAQMD (2022a)
Note: See Appendix A for detailed results.

As shown in Table 5, the HRA results from the unmitigated scenario show cancer risks exceeding the 10 in 1 million threshold and thus a potentially significant impact at the maximally exposed individual

residential receptors. These potentially significant health risk impacts triggered the requirement of MM-AQ-1 (see Section 4.4) in order to reduce project construction-generated DPM emissions to the extent feasible. The HRA results after incorporation of MM-AQ-1 are presented in Table 6.

Table 6. Excess Cancer Risk – Mitigated

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	8.95	10	**Potentially Significant**
Chronic Hazard Index – Residential	HI value	0.007	1.0	Less than Significant

Source: SCAQMD (2019)
Note: See Appendix A for detailed results.

As shown in Table 6, with the implementation of mitigation MM-AQ-1 requiring Tier 4 Interim equipment, the estimated cancer risk during project construction would be reduced below the SCAQMD threshold of 10 in 1 million (approximately 8.95 in a million). This level of risk would occur if an individual's exposure began in the third trimester of pregnancy and lasted for the duration of the project construction.

Non-cancer risk resulting from chronic exposure to construction DPM are also presented in Table 5 and Table 6. Risks are presented in terms of hazard index (HI), which is derived from the ratio of the concentration of DPM at the receptor over the REL. The project's construction impacts would have an HI of less than 1 at the MEIR, which indicates that the project would not expose sensitive receptors to chronically harmful levels of DPM (see Table 6). Therefore, the impacts to public health risk from construction of the project are less than significant. A more detailed summary of modeled results is included in Appendix A.

4.2 Operations

The operational cancer risk calculations were performed by multiplying the AERMOD-predicted TAC concentrations in µg/m³ due to TAC emissions from off-site vehicle travel and on-site off-road/stationary equipment by the appropriate risk values. The mandatory potential exposure through pathways (e.g., ingestion) are selected for the operation-generated TAC emissions. Table 7 summarizes the HRA results based on the HRA methodology described above and contained in Appendix A.

The excess cancer risks to off-site receptors due to project construction are calculated assuming exposure during the entire calendar year to the emission rates presented in Appendix A for the respective calendar year. Total excess cancer risks over 30 years are determined by adding the risks from each calendar year. A more detailed breakdown of the risk calculations is included in Appendix A. Operation of the project would result in a maximum excess cancer risk of approximately 7.81 in 1 million.

Table 7. Operations Excess Cancer Risk

Impact Parameter	Unit	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	per million	7.81	10	**Potentially Significant**
Chronic Hazard Index – Residential	HI value	0.003	1.0	Less than Significant

Source: SCAQMD (2022a)
Note: See Appendix A for detailed results.

As shown in Table 7, the project's potential cancer health risk of 7.81 in 1 million would not exceed the SCAQMD threshold of 10 in 1 million. Because the project-level threshold of significance is less than 10 cases per million, project operations would not result in significant impacts to excess cancer risk.

Non-cancer risk resulting from chronic exposure to operational DPM are also presented in Table 7. Risks are presented in terms of hazard index (HI), which is derived from the ratio of the concentration of DPM at the receptor over the REL. The project's operational impacts would have an HI of less than 1 at the MEIR, which indicates that the project would not expose sensitive receptors to chronically harmful levels of DPM. Therefore, the impacts to public health risk from operation of the project are less than significant. A more detailed summary of modeled results is included in Appendix A.

4.3 Cancer Burden

As determined, since the cancer risk from project operation at the maximally exposed individual resident exceeds 1 in 1 million, cancer burden—which has a SCAQMD significance threshold of 0.5—is evaluated. Unlike cancer risk, which is the lifetime probability (chance) of an individual developing cancer due to exposure to a carcinogenic compound, cancer burden estimates the number of theoretical cancer cases in a defined population resulting from a lifetime exposure to carcinogenic TACs. As described in the OEHHA guidance manual:

> The cancer burden can be calculated by multiplying the cancer risk at a census block centroid by the number of people who live in the census block, and adding up the estimated number of potential cancer cases across the zone of impact. The result of this calculation is a single number that is intended to estimate of the number of potential cancer cases within the population that was exposed to the emissions for a lifetime (70 years). (OEHHA 2015:8-16)

The SCAQMD has established a procedural screening approach for estimating cancer burden (SCAQMD 2019), which includes the following steps:

- Recalculate cancer risk from all TACs using a 70-year exposure duration.
- Estimate the distance at which the maximum individual cancer risk from a 70-year exposure duration falls below 1 in 1 million.
- Define a zone of impact in the shape of a circle, with the radius equal to the distance between the TAC source and the point at which the risk falls below 1 in 1 million.
- Estimate the residential population within this zone of impact based on census data or a worse-case estimate.
- Calculate the screening level cancer burden by multiplying the total residential population in the zone of impact by the maximum individual cancer risk.

The maximum estimated 70-year cancer risk for project operation was estimated at 9.11 in 1 million. The total population in the zone of impact area was estimated to be approximately 24,644 persons, based on the average densities of the Census Tracts that would be within the zone of impact (Census Tract 2151.01, 2151.02, 2162.01, 2163.02, 2145.01, 2145.03, 2145.04, and 2147) (U.S. Census Bureau 2020).

Multiplying the maximum estimated 70-year cancer risk by the project population gives a cancer burden of 0.22. Accordingly, the cancer burden indicates that less than one person could contract cancer assuming a 70-year exposure under the modeled scenario of TAC emissions and provided that other factors related to an individual's susceptibility to contracting cancer would occur. An estimated cancer burden of 0.22 would be less than the SCAQMD cancer burden threshold of 0.5. Thus, the impact with respect to potential cancer burden due to project operations would be less than significant.

4.4 Mitigation Measures

MM-AQ-1: To reduce the potential for health risks as a result of construction of the project, the Applicant shall:

- Prior to the start of construction activities, it shall be ensured that all 75-horsepower or greater diesel-powered equipment are powered with CARB-certified Tier 4 Interim engines, except where the County determines that Tier 4 Interim equipment is not available.
- All other diesel-powered construction equipment will be classified as Tier 3 or higher, at a minimum, except where the County determines Tier 3 equipment is not available.

There are several other SCAQMD rules and regulations that serve as mitigation measures for the project construction. These rules are:

- SCAQMD Rule 403, which requires projects to incorporate fugitive dust control measures;
- SCAQMD Rule 1113, which limits the volatile organic compound content of architectural coating; and
- SCAQMD Regulation XIII, New Source Review, which requires new on-site facility nitrogen oxide emissions to be minimized through the use of emission control measures (e.g., use of best available control technology for new combustion sources such as boilers and water heaters).

5 CONCLUSIONS

The results determined in this analysis reflect reasonable estimates of source emissions and exhaust characteristics, available meteorological data near the project site, and the use of currently approved air quality models. Given the limits of available tools for such an analysis, the actual impacts may vary from the estimates in this assessment. However, the combined use of the AERMOD dispersion model and the health impact calculations required by OEHHA and SCAQMD tend to overpredict impacts, such that they produce conservative (i.e., health protective) results. For this reason, the estimated cancer risks and non-cancer hazard indices reported in this analysis are likely upper-bound estimates for potential exposure to project-related emissions. In addition, the estimated cancer risks and non-cancer hazard indices represent the maximum exposed individual resident, and do not represent the risk over a broad area. The actual risks of cancer or non-cancer effects from the project are likely to be lower than presented herein.

Based on this analysis, project construction would result in potential chronic health risk and potential cancer health risk impacts at the maximally exposed residential receptor below the OEHHA threshold

without the need for mitigation. However, potential cancer health risk impacts from project construction at the proximate existing residential receptors would exceed the SCAQMD threshold. With implementation of mitigation measure MM-AQ-1, potential cancer risk at the maximally exposed residential receptor would be reduced to a less-than-significant level. Potential health risk at existing residential receptors from project operation would result in potential cancer health risk and chronic health risk that would not exceed the applicable SCAQMD thresholds. This would be a less-than-significant impact. The project would also result in less-than-significant cancer burden impacts.

6 REFERENCES

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APPENDIX A – Detailed Risk Calculations

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2024 - Unmitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.42218	µg/m3

Age Bin	Infant/Child				Adult	
	3rd trimester	0<2 years			16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})	1.461E-04	4.413E-04			1.057E-04	
Risk = DOSEair * CPF * ASF * ED/AT * FAH	4.880E-06	5.894E-05			1.697E-05	
Total Cancer Risk (per million)	4.8802	58.9404			16.9691	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**8.44E-02**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	4.22E-01	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (3rd trimester)	361	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (0 < 2 yrs)	1090		
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.4222	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (3rd trimester)	0.25	years	Exposure duration (years)
	ED (0 < 2 years)	1		
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (3rd trimester-2 yrs)	10	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (3rd trimester-2 yrs)	0.85	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2025 - Unmitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.07602	µg/m3

Age Bin	Infant/Child				Adult	
		0<2 years			16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})		7.946E-05			1.903E-05	
Risk = DOSEair * CPF * ASF * ED/AT * FAH		1.061E-05			3.056E-06	
Total Cancer Risk (per million)		10.6131			3.0555	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**1.52E-02**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	7.60E-02	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (0 < 2 yrs)	1090	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.0760	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (0 < 2 years)	1	years	Exposure duration (years)
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (3rd trimester-2 yrs)	10	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (3rd trimester-2 yrs)	0.85	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2026 - Unmitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.07098	µg/m3

Age Bin	Infant/Child				Adult	
			2<9 years		16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})			4.295E-05		1.776E-05	
Risk = DOSEair * CPF * ASF * ED/AT * FAH			1.458E-06		2.853E-06	
Total Cancer Risk (per million)			1.4578		2.8530	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**1.42E-02**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	7.10E-02	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (2 < 9 yrs)	631	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.0710	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (2 < 9 years)	1	years	Exposure duration (years)
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (2 - 16 years)	3	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (2 - 16 years)	0.72	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2027 - Unmitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.10585	µg/m3

Age Bin	Infant/Child				Adult	
			2<9 years		16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})			6.405E-05		2.649E-05	
Risk = DOSEair * CPF * ASF * ED/AT * FAH			2.174E-06		4.255E-06	
Total Cancer Risk (per million)			2.1739		4.2545	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**2.12E-02**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	1.06E-01	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (2 < 9 yrs)	631	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.1059	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (2 < 9 years)	1	years	Exposure duration (years)
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (2 - 16 years)	3	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (2 - 16 years)	0.72	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

Construction Cancer Risk by Year				
Exposure Year	Age	Infant/Child - Exposure Information		Infant/Child Cancer Risk
		DPM Conc (ug/m3)		
		Year	Annual	(per million)
0	-0.25-0*	2024	0.42218	4.880
1	0-1	2024	0.42218	58.940
2	1-2	2025	0.07602	10.613
3	2-3	2026	0.07098	1.458
4	3-4	2027	0.10585	2.174
5	4-5	0	-	-
6	5-6	0	-	-
7	6-7	0	-	-
8	7-8	0	-	-
9	8-9	0	-	-
10	9-10	0	-	-
11	10-11	0	-	-
12	11-12	0	-	-
13	12-13	0	-	-
14	13-14	0	-	-
15	14-15	0	-	-
16	15-16	0	-	-
17	16-17	0	-	-
18	17-18	0	-	-
19	18-19	0	-	-
20	19-20	0	-	-
21	20-21	0	-	-
22	21-22	0	-	-
23	22-23	0	-	-
24	23-24	0	-	-
25	24-25	0	-	-
26	25-26	0	-	-
27	26-27	0	-	-
28	27-28	0	-	-
29	28-29	0	-	-
30	29-30	0	-	-
		Total Cancer Risk - Infant/Child		**78.065**
Threshold:	**10.0000**			
Cancer Burden:	**2.5925**		**24644**	**persons**

*3rd Trimester of pregnancy

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2024 - Mitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.03648	µg/m3

Age Bin	Infant/Child				Adult	
	3rd trimester	0<2 years			16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})	1.263E-05	3.813E-05			9.130E-06	
Risk = DOSEair * CPF * ASF * ED/AT * FAH	4.217E-07	5.093E-06			1.466E-06	
Total Cancer Risk (per million)	0.4217	5.0930			1.4663	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**7.30E-03**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	3.65E-02	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (3rd trimester)	361	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (0 < 2 yrs)	1090		
	BR/BW (2 < 9 yrs)	631		
	BR/BW (2 < 16 yrs)	572		
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.0365	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (3rd trimester)	0.25	years	Exposure duration (years)
	ED (0 < 2 years)	1		
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (3rd trimester-2 yrs)	10	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (3rd trimester-2 yrs)	0.85	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2025 - Mitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.01769	µg/m3

Age Bin	Infant/Child				Adult	
		0<2 years			16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})		1.849E-05			4.427E-06	
Risk = DOSEair * CPF * ASF * ED/AT * FAH		2.470E-06			7.110E-07	
Total Cancer Risk (per million)		2.4697			0.7110	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**3.54E-03**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	1.77E-02	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (0 < 2 yrs)	1090	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.0177	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (0 < 2 years)	1	years	Exposure duration (years)
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (3rd trimester-2 yrs)	10	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (3rd trimester-2 yrs)	0.85	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2026 - Mitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.02039	µg/m3

Age Bin	Infant/Child				Adult	
			2<9 years		16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})			1.234E-05		5.103E-06	
Risk = DOSEair * CPF * ASF * ED/AT * FAH			4.188E-07		8.196E-07	
Total Cancer Risk (per million)			0.4188		0.8196	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**4.08E-03**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	2.04E-02	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (2 < 9 yrs)	631	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.0204	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (2 < 9 years)	1	years	Exposure duration (years)
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (2 - 16 years)	3	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (2 - 16 years)	0.72	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

La Brea Tar Pits Master Plan Construction Health Risk Calculations

Construction Year 2027 - Mitigated		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.02639	µg/m3

Age Bin	Infant/Child				Adult	
			2<9 years		16<30 years	
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})			1.597E-05		6.605E-06	
Risk = DOSEair * CPF * ASF * ED/AT * FAH			5.420E-07		1.061E-06	
Total Cancer Risk (per million)			0.5420		1.0607	
Cancer Risk Threshold	**10**					

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**5.28E-03**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	2.64E-02	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (2 < 9 yrs)	631	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.0264	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (2 < 9 years)	1	years	Exposure duration (years)
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (2 - 16 years)	3	Age Sensitivity Factor	
	ASF (16 - 70 years)	1		
FAH	FAH (2 - 16 years)	0.72	Fraction of time spent at home (unitless)	
	FAH (16 - 70 years)	0.73		

Construction Cancer Risk by Year				
Exposure Year	Age	Infant/Child - Exposure Information		Infant/Child Cancer Risk
		DPM Conc (ug/m3)		
		Year	Annual	(per million)
0	-0.25-0*	2024	0.03648	0.422
1	0-1	2024	0.03648	5.093
2	1-2	2025	0.01769	2.470
3	2-3	2026	0.02039	0.419
4	3-4	2027	0.02639	0.542
5	4-5	0	-	-
6	5-6	0	-	-
7	6-7	0	-	-
8	7-8	0	-	-
9	8-9	0	-	-
10	9-10	0	-	-
11	10-11	0	-	-
12	11-12	0	-	-
13	12-13	0	-	-
14	13-14	0	-	-
15	14-15	0	-	-
16	15-16	0	-	-
17	16-17	0	-	-
18	17-18	0	-	-
19	18-19	0	-	-
20	19-20	0	-	-
21	20-21	0	-	-
22	21-22	0	-	-
23	22-23	0	-	-
24	23-24	0	-	-
25	24-25	0	-	-
26	25-26	0	-	-
27	26-27	0	-	-
28	27-28	0	-	-
29	28-29	0	-	-
30	29-30	0	-	-
		Total Cancer Risk - Infant/Child		**8.945**
Threshold:	**10.0000**			
Cancer Burden:	**0.3204**		**24644**	**persons**

*3rd Trimester of pregnancy

La Brea Tar Pits Master Plan Operations Health Risk Calculations

Operation Year 2028		
PM_{10} (µg/m3)		
Annual Avg Concentration:	0.0132	µg/m3

Age Bin	Infant/Child				Adult	
	3rd trimester	0<2 years	2<9 years	2<16 years	16<30 years	16<70 years
DOSEair = (Cair*(BR/BW)*A*EF*10^{-6})	4.569E-06	1.380E-05	7.987E-06	7.240E-06	3.304E-06	2.949E-06
Risk = DOSEair * CPF * ASF * ED/AT * FAH	1.526E-07	3.686E-06	1.898E-06	3.441E-06	5.306E-07	1.827E-06
Total Cancer Risk (per million)	0.1526	3.6857	1.8977	3.4405	0.5306	1.8269

Total Cancer Risk (per million)		
70-year exposure	9.11E-06	9.11
30-year exposure	7.81E-06	7.81
9-year exposure	5.74E-06	5.74
	Cancer Risk Threshold	**10**

70-year exposure - Cancer Burden	0.22	
30-year exposure - Cancer Burden	0.19	
9-year exposure - Cancer Burden	0.14	
	Number of Persons	**24644**
	Cancer Burden Threshold	**0.5**

Chronic Noncancer Hazard		
Hazard Quotient = Ci/RELi =	**2.64E-03**	
Threshold:	**1.00**	
Ci - Concentration (annual average)	1.32E-02	µg/m3
RELi - Reference Exposure Level for Diesel Exhaust	5	

	10+6	1.00E+06	per million	
	CPF	1.1E+00	$(mg/kg/day)^{-1}$	Cancer Potency Factor for DPM
BR/BW	BR/BW (3rd trimester)	361	L/kg bodyweight- day	Daily Breathing rate normalized to body weight
	BR/BW (0 < 2 yrs)	1090		
	BR/BW (2 < 9 yrs)	631		
	BR/BW (2 < 16 yrs)	572		
	BR/BW (16 < 30 yrs)	261		
	BR/BW (16 < 70 yrs)	233		
	$_{10}$-6	1.00E-06	Micrograms to milligrams conversions, liters to cubic meters conversion	
	Cair	0.0132	ug/m^3	Concentration in air (ug/m^3), modeled annual average concentration
	A	1	Inhalation absorption factor	
	EF	0.96	days/year	Exposure frequency (days/year)
ED	ED (3rd trimester)	0.25	years	Exposure duration (years)
	ED (0 < 2 years)	2		
	ED (2 < 9 years)	7		
	ED (2 < 16, 16 < 30 years)	14		
	ED (16 - 70 years)	54		
	AT	70	years	Averaging time period over which exposure is averaged
ASF	ASF (3rd trimester-2 yrs)	10	Age Sensitivity Factor	
	ASF (2 - 16 years)	3		
	ASF (16 - 70 years)	1		
FAH	FAH (3rd trimester-2 yrs)	0.85	Fraction of time spent at home (unitless)	
	FAH (2 - 16 years)	0.72		
	FAH (16 - 70 years)	0.73		

APPENDIX D

Historic Resources Technical Report

Historic Resources Technical Report, La Brea Tar Pits Master Plan, Los Angeles, California

JANUARY 2023

PREPARED FOR

Los Angeles County Museum of Natural History Foundation

LEAD AGENCY

County of Los Angeles

PREPARED BY

SWCA Environmental Consultants

HISTORIC RESOURCES TECHNICAL REPORT, LA BREA TAR PITS MASTER PLAN, LOS ANGELES, CALIFORNIA

Prepared for

Los Angeles County Museum of Natural History Foundation
On behalf of County of Los Angeles Museum of Natural History
900 Exposition Boulevard
Los Angeles, California 90007
Attn: Dawn McDivitt, Chief Deputy Director

Lead Agency: County of Los Angeles

Prepared by

Debi Howell-Ardila, MHP
Senior Team Lead, Architectural History

Dan Herrick, MHC
Historic Preservation Specialist

Susan Zamudio-Gurrola, MHP
Architectural Historian

Leslie Heumann
Senior Strategic Advisor

SWCA Environmental Consultants
320 N. Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

SWCA Project No. 63953

January 2023

EXECUTIVE SUMMARY

Purpose and Scope:

The 13-acre La Brea Tar Pits Master Plan project site is located within the eastern and northeastern portions of the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902). The La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County of Los Angeles but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the Los Angeles County Museum of Natural History, including the La Brea Tar Pits and Page Museum. The County of Los Angeles (County) is the Lead Agency under the California Environmental Quality Act (CEQA); the Museum of Natural History is a County departmental unit. The Foundation retained SWCA Environmental Consultants (SWCA) to prepare a Historic Resources Technical Report in support of the La Brea Tar Pits Master Plan (proposed project) in the City of Los Angeles, California.

The Foundation proposes a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex, including renovations to the Page Museum and changes to portions of the surrounding Hancock Park. The project site is located at 5801 W. Wilshire Boulevard in the Mid-Wilshire corridor of Los Angeles, California. The project site is adjacent to the Los Angeles County Museum of Art (LACMA).

This report provides the substantial evidence required under the California Environmental Quality Act (CEQA) 1) to determine the historic resource status of the properties within and directly adjacent to the project site, and 2) to assess the possibility for direct and/or indirect significant adverse impacts to historical resources that would result from project implementation. (Archaeological and tribal cultural resources are addressed in a separate accompanying study.) For purposes of this report, the CEQA Area of Potential Effects (APE) encompasses the project site and directly adjacent parcels one parcel over.

Dates of Investigation:

In support of this study, field surveys took place on February 25 and July 29, 2022. All properties within the CEQA APE were inspected and photographed. In addition, to accurately characterize the proposed project, SWCA met with the Foundation and the design team in order to review project drawings, architectural plans and conceptual sketches, and site design concepts.

To characterize all properties within the CEQA APE, SWCA conducted primary- and secondary-source research in a wide variety of collections. Research focused on a variety of materials relating to the history and development of the project site and its role in the history of institutional/cultural development in Los Angeles. Materials consulted included historical maps, photographs, and newspapers; aerial and ground photographs; publications and journal articles; among other materials.

Following fieldwork, subject properties were documented, evaluated, and assigned the appropriate California Historical Resources (CHR) status code. The principal elements of the proposed project were studied for potential direct and indirect impacts to historical resources pursuant to CEQA.

Research, evaluations, analysis, and report preparation took place between February and August 2022.

Summary of Findings:

As a result of this study, SWCA identified three historic resources within the project footprint: the La Brea Tar Pits Historic District (eligible at the state and local levels), the Page Museum (eligible at the federal, state, and local levels), and the Hancock Park Observation Pit (eligible at the federal, state, and local levels). Another eight resources were identified adjacent to the project footprint: Pavilion for Japanese Art, Park La Brea Garden Apartment Historic District, Prudential Square (5757 W. Wilshire Boulevard), Craft and Folk Art Museum (5814 W. Wilshire Boulevard), Hancock Park Building (5820 W. Wilshire Boulevard), CMAY Gallery (formerly Arthur Murray Dance Studio, 5828 W. Wilshire Boulevard), Office Building (5850 W. Wilshire Boulevard), and the Mutual Benefit Life Plaza (5900 Wilshire Boulevard).

Based on available project information, the potential exists for **significant and unavoidable direct adverse impacts** to **both** the La Brea Tar Pits Historic District and the Page Museum. Although the project would retain the Page Museum, it is anticipated that project implementation would render the resource no longer eligible at the federal, state, and local levels, resulting in material impairment.

Although the project would retain many contributing features of the La Brea Tar Pits Historic District, it is anticipated that project implementation would render the historic district no longer eligible at the state and local levels, resulting in material impairment.

No significant, indirect adverse impacts would be likely to result from project implementation.

Conclusion:

Due to the potential for direct, significant adverse impacts to historic resources, the Environmental Impact Report (EIR) must include a range of feasible alternatives and mitigation measures/project design features capable of reducing, avoiding, and/or eliminating significant adverse impacts.

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1. INTRODUCTION

Project Purpose and Scope

The 13-acre La Brea Tar Pits Master Plan project site is located within the eastern and northeastern portions of the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902). The La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County of Los Angeles but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the Los Angeles County Museum of Natural History, including the La Brea Tar Pits and Page Museum. The Foundation retained SWCA Environmental Consultants (SWCA) to prepare a Historic Resources Technical Report in support of the proposed La Brea Tar Pits Master Plan (proposed project) in the City of Los Angeles, California.

The County of Los Angeles (County) is the Lead Agency under the California Environmental Quality Act (CEQA); the Museum of Natural History is a County departmental unit.[1]

The Foundation proposes a redevelopment, or "reimagining," of the La Brea Tar Pits site, including the Page Museum and portions of the surrounding Hancock Park. The Foundation proposes a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex, including renovations to the Page Museum. The project site is located at 5801 W. Wilshire Boulevard in the Mid-Wilshire corridor of Los Angeles, California. Hancock Park was established on the site in the early twentieth century. The project site is adjacent to the Los Angeles County Museum of Art (LACMA).

The project site encompasses the La Brea Tar Pits, whose facilities include the 1977 Page Museum; 1952 Observation Pit; various tar pit excavation sites and features, primarily with temporary construction serving as support facilities; a concession and public restroom building; a multipurpose lawn and recreational areas; hardscaping/landscaping features throughout the park; and a surface parking lot.

This study was conducted to address potentially significant adverse direct and indirect impacts to historical resources to facilitate compliance with the California Environmental Quality Act (CEQA), as codified in Public Resources Code (PRC) Section 5024.1, Title 14 California Code of Regulations (CCR) Section 15064.5 of the CEQA Guidelines, and PRC Sections 21083.2 and 21084.1.

This study pertains only to historical resources. Archaeological and tribal cultural resources are addressed in a separate, accompanying study.

Key Personnel

The lead author and investigator for this study was Senior Team Lead for Architectural History, Debi Howell-Ardila, MHP. Dan Herrick, Historic Preservation Specialist, served as co-author and researcher of the report. Susan Zamudio-Gurrola, MHP, contributed to researching and writing the report. SWCA Senior Strategic Advisor, Leslie Heumann, provided oversight and quality assurance/quality

[1] In accordance with Chapter 2.94 of the Los Angeles County Code and various other operating agreements, the County Museum of Natural History is a department of the County and has administrative charge and control over all County matters relating to history and science, and shall also include the administration of Hancock Park (except that area of said park devoted to the Los Angeles County Museum of Art [LACMA]), and the care, safeguarding, and maintenance of all exhibits, equipment, and structural improvements directly relating to exhibits, the administration and maintenance of LACMA, and other property hereafter acquired for or devoted to history and science.

control (QA/QC). John Dietler, Ph.D., RPA, served as the Principal-in-charge of the project, and Bobbette Biddulph was the Project Manager.

Copies of the report are on file with the City of Los Angeles, Los Angeles County Museum of Natural History Foundation, SWCA's Pasadena office, and the South Central Coastal Information Center at California State University, Fullerton.

2. PROJECT DESCRIPTION

Project Location

The La Brea Tar Pits is located at 5801 W. Wilshire Boulevard within the 23-acre Hancock Park (APN 5508-016-902). The project site spans 13 acres of the eastern and northwestern portions of Hancock Park. The project site is directly adjacent to the Los Angeles County Museum of Art (LACMA), which is presently under construction. LACMA is not included within the project site.

Located in the Wilshire Community Plan Area, the project site is located approximately 5.5 miles west of downtown Los Angeles. It is bounded by West 6th Street to the north, South Curson Avenue to the east, Wilshire Boulevard to the south, and LACMA to the west, in the "Miracle Mile" neighborhood of Los Angeles (Figure 1, Figure 2, and Figure 3).

Proposed Project

The proposed project is a reimagining of the La Brea Tar Pits complex, including the Page Museum and surrounding Hancock Park. Maintaining the current uses of these spaces—as an international destination for research and as a local destination for recreation—is a core objective of the project.

In addition, retaining the Page Museum's iconic Pleistocene frieze, visible laboratory, and Ice Age gardens and landscapes are also included as part of the proposed project. As a primary objective, the project would update and expand the use of these spaces, modernize the interpretations and exhibits, make more of the collection visible to the public, increase research and presentation space, and make the site more environmentally sustainable through the capture of stormwater.

Overall, the Master Plan consists of nine principal project components, as shown in Figure 4. These are: 1) Page Museum Renovations, 2) Wilshire Gateway Entry Plaza and Lake Pit, 3) Enhanced Central Green, 4) Revamped Pit 91, 5) New Museum Building, 6) New Public Promenade, 7) New Pedestrian Path, 8) 6th Street Entry Gateway, and 9) Support Building. Figure 4 shows the proposed site plan with each of these nine project components labeled and numbered.

The EIR for the La Brea Tar Pits Master Plan provides the full description of the proposed project. The following summarizes project elements most pertinent for historical resources.

Figure 1. Project vicinity map

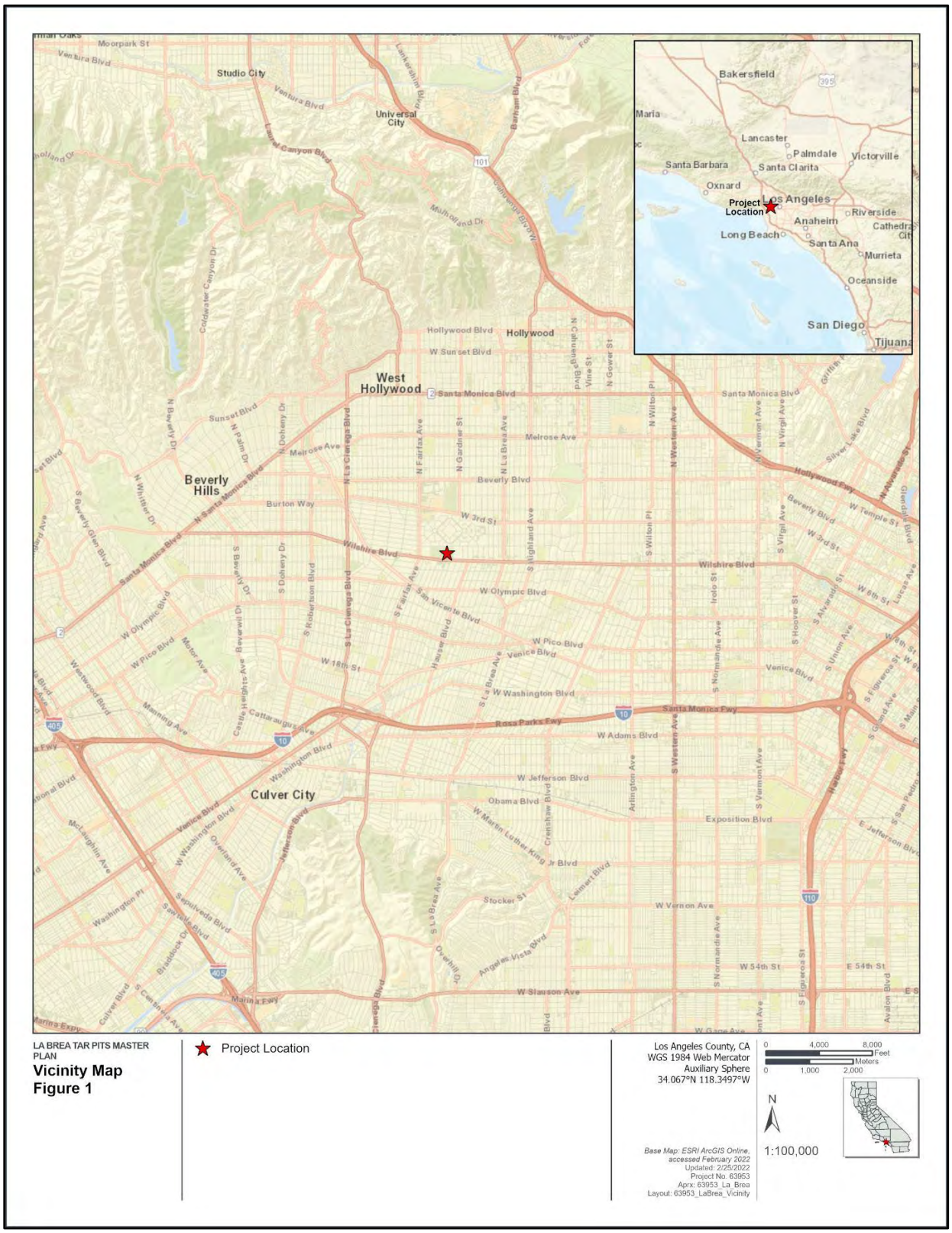


Figure 2. Project site shown on U.S. Geological Survey 7.5-minute quadrangle

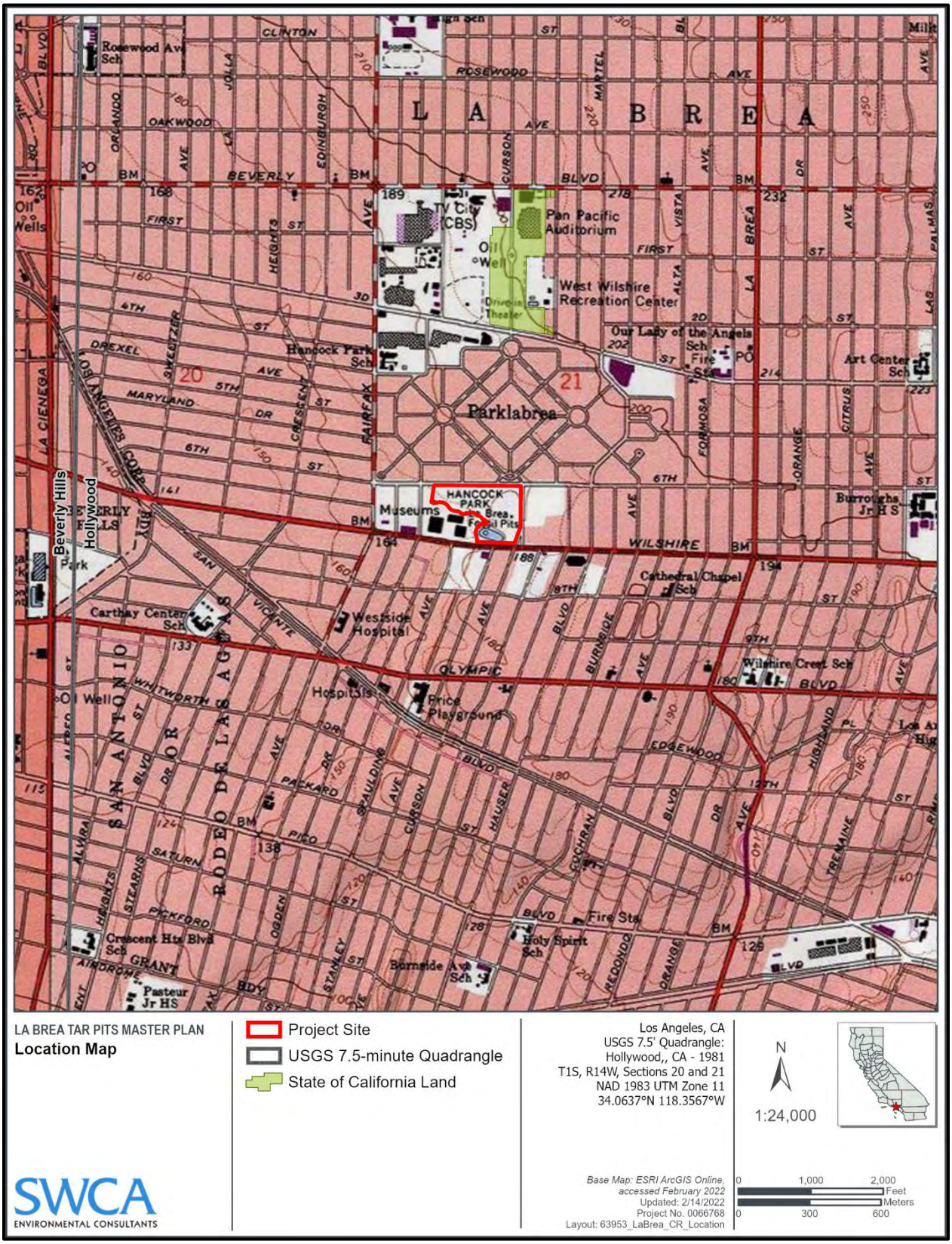


Figure 3. Project site shown on 2020 aerial photograph

Page Museum Renovations

The project would renovate the existing Page Museum to allow for enlarged exhibition space, additional storage, a ground floor café, and retail space (Figure 5 and Figure 6). The vegetation in the existing central atrium of the Page Museum would be removed to allow for the display of additional exhibitions and provide additional classroom and laboratory space (Figure 7). The enlarged collections storage could accommodate approximately 45,000 to 62,000 cubic feet of storage using a mixture of 7-foot-tall and 10-foot-tall compactors and open shelving. The final selection of storage systems and the layout would be developed through future phases of design. In addition, space for visiting researchers would be added.

The second floor of the Page Museum would contain two classrooms and a multipurpose space. An outdoor café and bar would be located next to these spaces on the center terrace on the west side of the Page Museum.

A sloped green roof would be installed to the north of the Page Museum and would curve to the west. The project would add extensive sustainability features to the Page Museum. In addition, the project would demolish the existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. A new 2,000-gross-square-foot (gsf) satellite maintenance and support building would be constructed for additional storage, administration, and research space directly west of the parking lot.

New Museum Building

A new two-story museum building would be located northwest of the Page Museum. The building would be approximately 40,000 gsf and would increase the total museum square footage to 104,000 gsf. The new museum building would be a maximum height of 30 feet. The new museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock.

The Page Museum and new museum building would be continuously connected on the first floor (see Figure 5 and Figure 6). The first-floor central lobby would face southwest toward the Central Green and branch off into the Page Museum to the east and the new museum building to the west. An updated retail and café would be located off the lobby and look out over the Central Green. The buildings would be disconnected on the second floor, which would rise above the earthen berm. The separated facilities would be accessible through sloped outdoor walkways from the Central Green or interior staircases in the museum. There would be pedestrian entrances leading into the central lobby from the Central Green and from the parking lot. The existing Page Museum entrance would be converted to an educational group and tour entrance, which would be connected to a new school drop-off area on South Curson Avenue.

Figure 4. Proposed site plan, La Brea Tar Pits Master Plan

Figure 5. Proposed ground floor building program

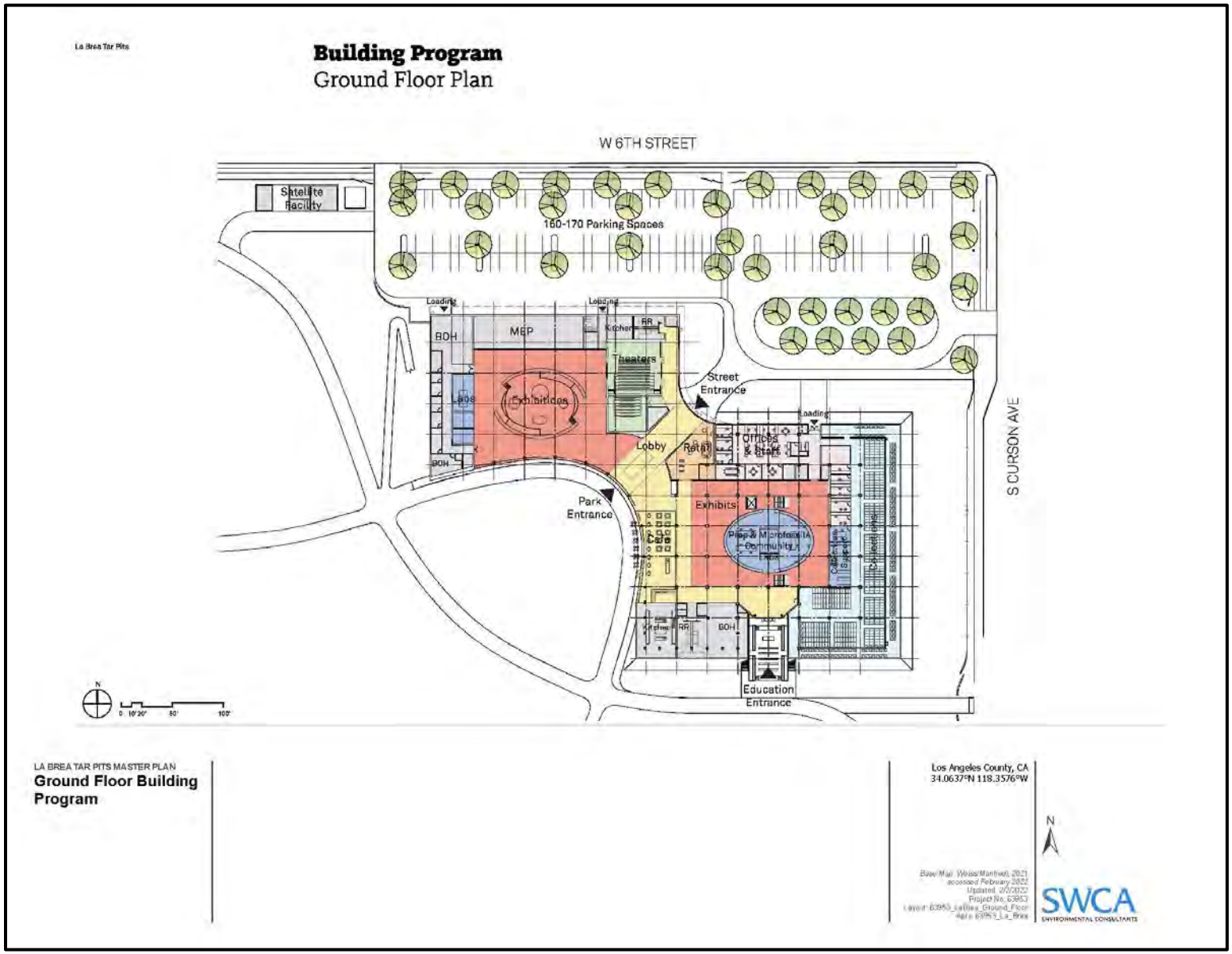


Figure 6. Proposed building program, promenade level plan

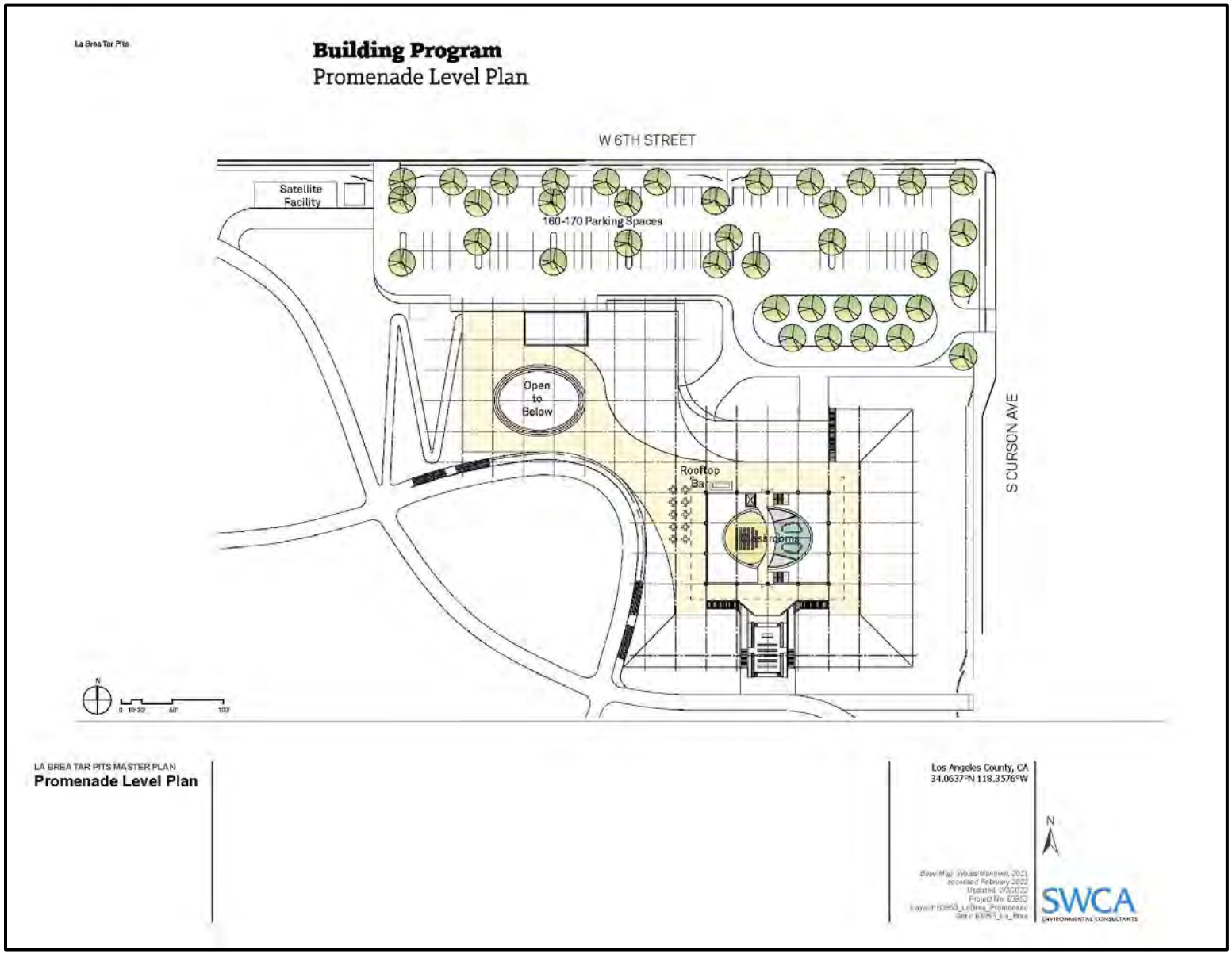
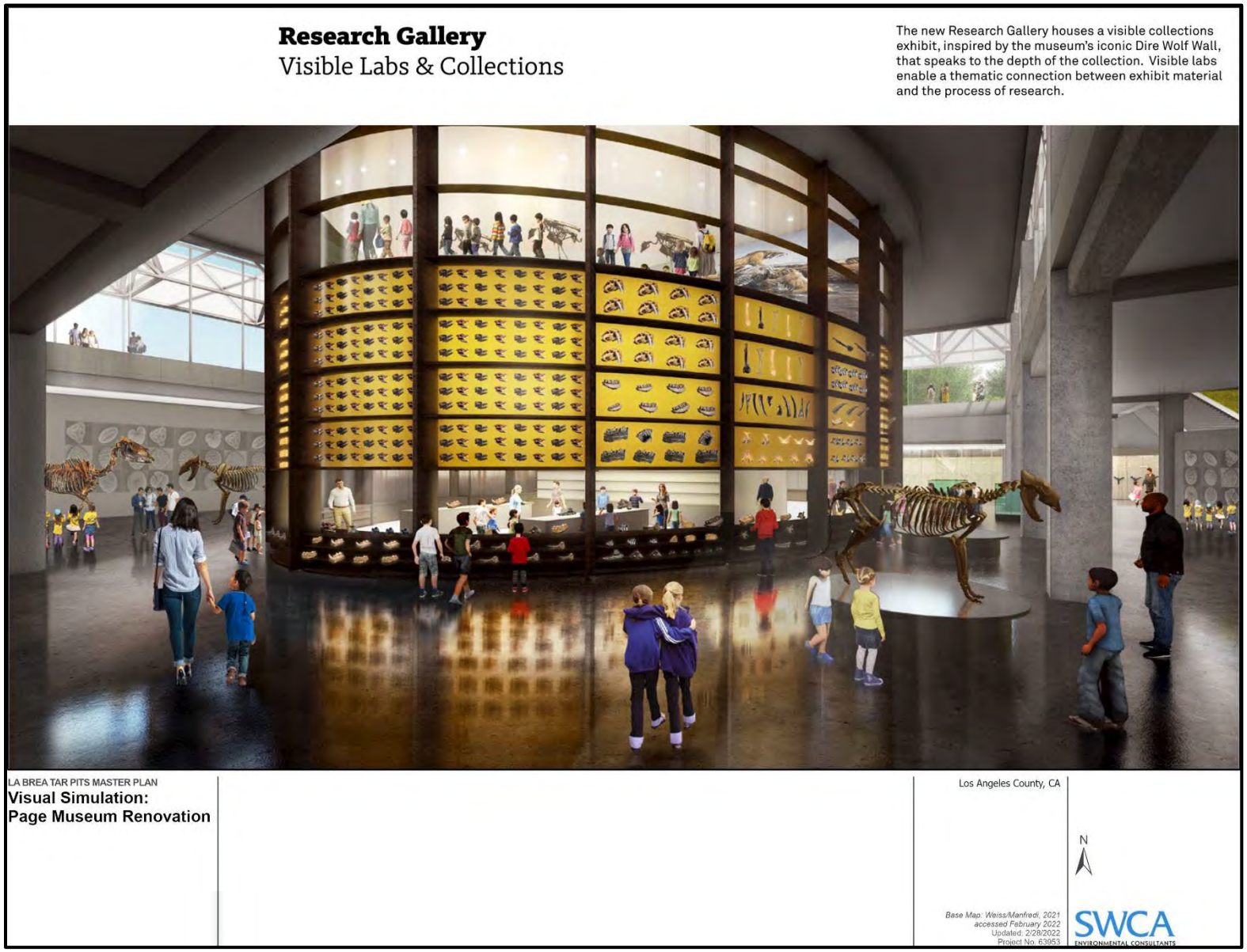


Figure 7. Visual simulation, Page Museum renovation



ADDED MUSEUM PROGRAMMING

All three existing theaters in the Page Museum would be renovated to serve as offices and collections storage. Two new theaters would be built in the new museum building. The project would replace the existing 3D Theater in the Page Museum, which is 1,120 square feet and contains 57 seats, and create a new Small Theater in the new museum building. The existing 2D Theater (1,630 square feet) and Ice Age Theater (1,540 square feet) in the Page Museum would be replaced by the Large Flexible Theater in the new museum building. The Large Flexible Theater would be 2,700 square feet and contain 170 to 190 removable seats.

Wilshire Gateway and Lake Pit

The project would renovate the existing entrance to the La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza; this would provide orientation, spaces for gathering and queuing, and restrooms (Figure 8). A picnic area would also be located under the shaded canopy.

A pedestrian bridge and walking path would be constructed over the large tar lake, referred to in this study as the “Lake Pit,” with interpretive signage. Directly to the east of the Lake Pit, a new garden bioswale would be installed to manage stormwater and would include vegetation related to the Pleistocene era. The mammoths and mastodon sculptures would be relocated here.

6th Street Gateway

The project would renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive. Similar to the Wilshire Gateway, a shaded canopy and welcome pavilion would provide orientation, legibility, and amenities. As a visible point of arrival from the residential communities to the north, this new entry would welcome visitors to a shaded park where recreational needs are balanced with the research activities of La Brea. Amenities would include play areas, picnic areas, seating and interpretation zones at the protected tar seeps, the gentle topography and bioswales along Lake Pit, and the revitalized destinations of the Dorothy Brown Amphitheater, Observation Pit, and Pit 91. Along the south edge of the loop path, connections would allow access to other Hancock Park programs and transportation connections.

Tar Pits

The project would renovate the existing facilities at all the tar pits in the northeastern portion of the project site (Figure 9). The extended chain fencing around Pit 9, Pit 13, and Pits 3, 4, 61, and 67 would be removed. The project would construct clearly defined viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage. The project would relocate the wooden fossil boxes, research facilities, and ongoing excavation associated with Project 23 to space within and adjacent to the new museum building. The temporary storage and research buildings adjacent to Project 23 would be demolished or repurposed within the project site.

Pit 91 would continue to be a key research and interpretation destination in the park (Figure 10 and Figure 11). The project would demolish the current viewing station overlooking Pit 91 and construct a shaded outdoor classroom with canopy. While excavation at Pit 91 could be completed in a few years, the site would be maintained and enhanced to support future excavation and education opportunities. In addition, the new support facilities at Pit 91 would continue to support temporary excavation sites at adjacent Pit 10 or other future field sites.

Figure 8. Proposed Wilshire Gateway

Figure 9. Visual simulation, tar pits

Figure 10. Visual simulation, Pit 10 and Pit 91, outdoor classroom

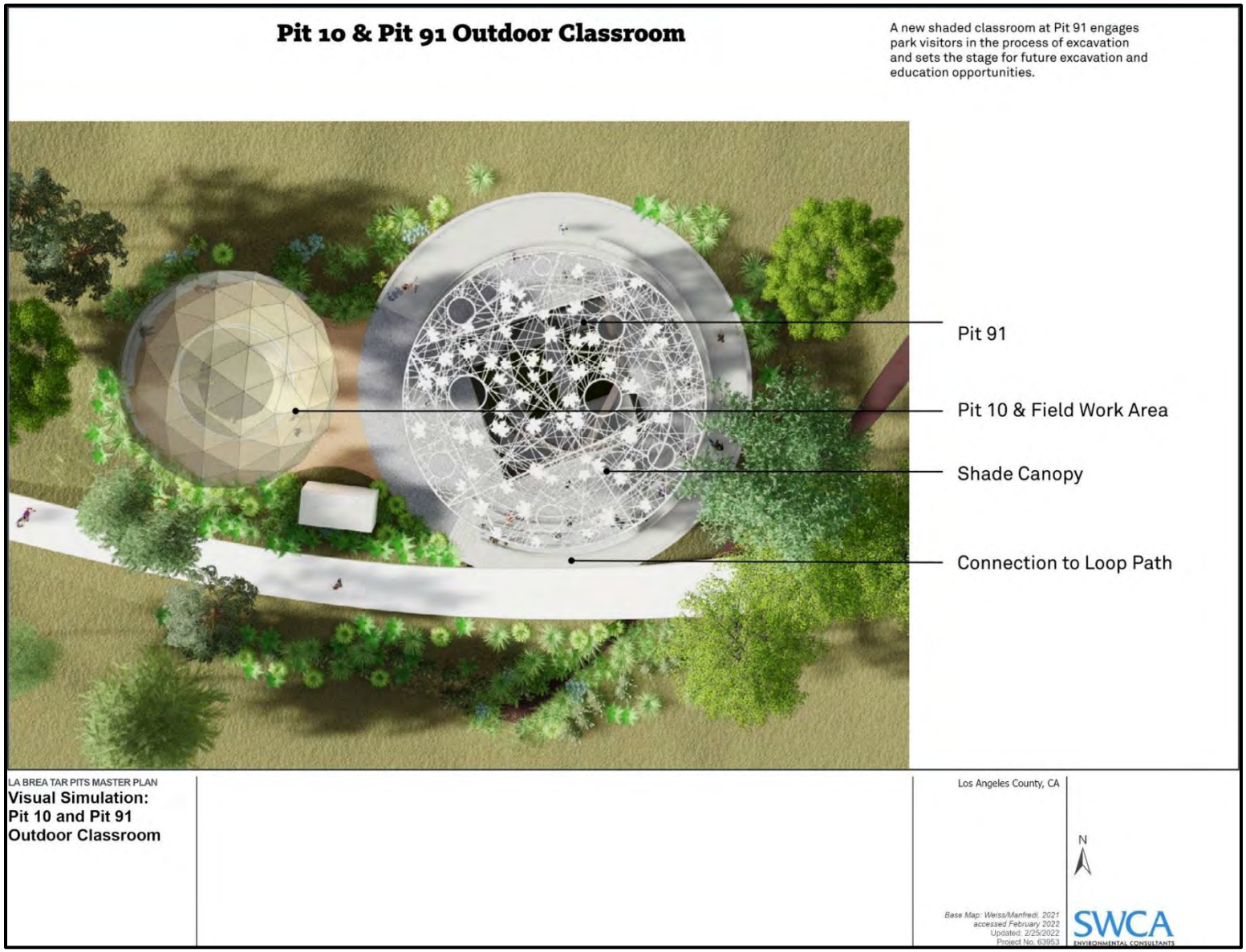
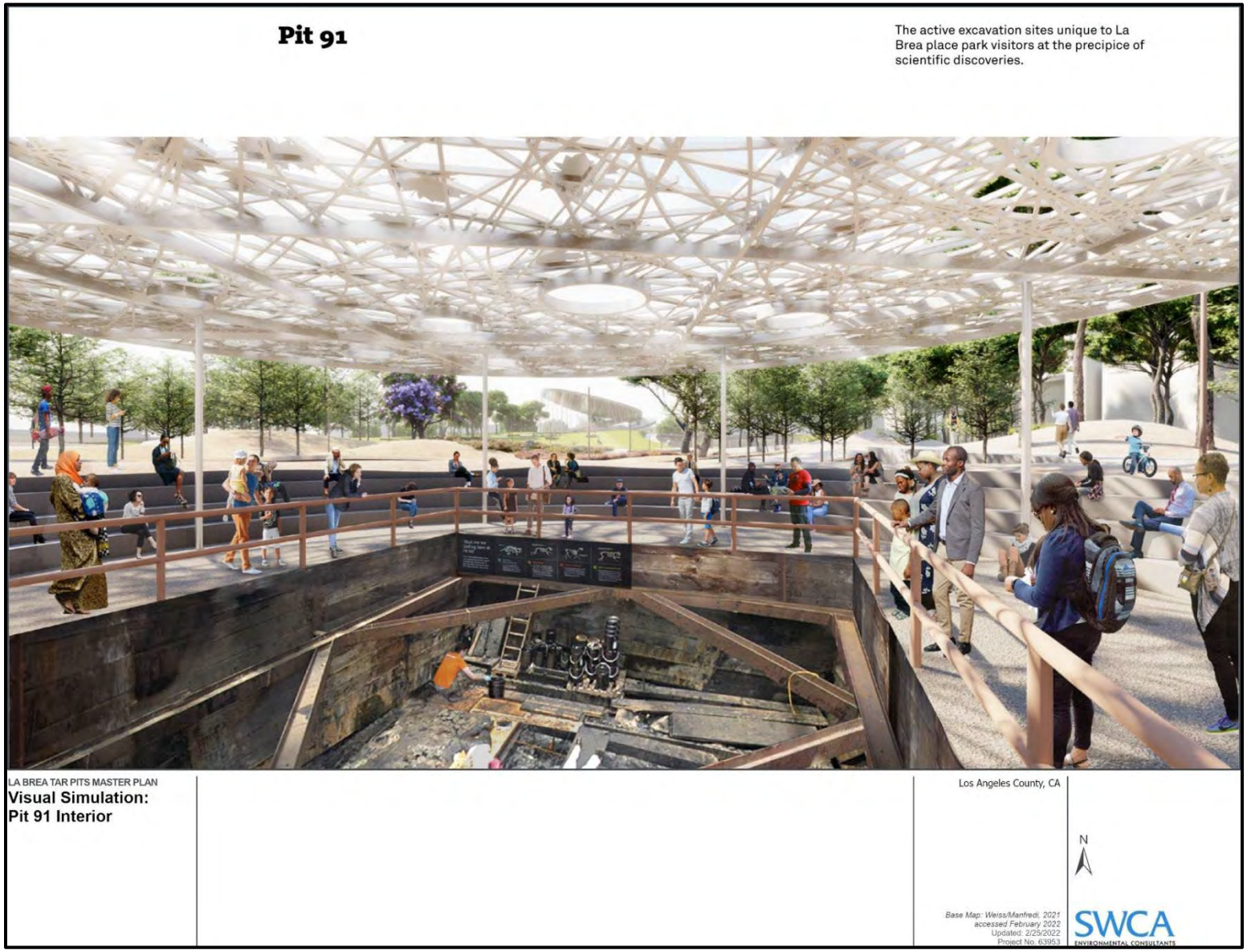


Figure 11. Visual simulation, Pit 91 interior



Pedestrian Path and Recreation

The project would reconfigure the existing pedestrian pathways on-site into a continuous 1-kilometer paved pedestrian path linking the disparate existing elements of the site: the Lake Pit and Wilshire Gateway in the southeast, Central Green, museum, tar seeps, and 6th Street Gateway in the northwest. The path would feature three distinct loops, each one reflecting distinct themes (Figure 12).

The Central Green would be at the center of the project site, directly to the southwest of the Page Museum and new museum building. This large common grass lawn provides a setting for community activities, recreation, events, and public gathering. The project would improve the infrastructure to create a drivable path for food trucks to access the Central Green. To the west of the 6th Street Gateway, the project would add a children's play area, picnic areas, and a small dog park. Vegetated berms around recreation areas would create seating areas and elevated vantage points.

Landscaping

As shown in Figure 13, the planting and landscaping concept for Hancock Park is divided into three distinct zones encircled by the looping path system. Each loop of the pedestrian path has its own usage and distinguishing theme representing different geologic epochs—Pleistocene in the southeastern loop, Holocene in the northwestern loop, and Anthropocene in the central loop. As noted above, the Pleistocene Garden would be approximately 10,000-11,000 square feet in size, located directly east of the Lake Pit, and incorporate a biofiltration area to help manage stormwater. It would be planted with herbaceous and woody species. The western loop would consist of a Holocene landscape with climate-appropriate native plantings to ease water consumption, ensure appropriate maintenance, and promote sustainable growth. A forested woodland consisting of Torrey Pine and Coast Live Oak would be planted with the intention of providing a focal area and shade. The western loop also contains Oil Creek, which will be developed into a biofiltration zone for stormwater management and would be planted with Sequoia and Monterey Pine trees in wetter pockets. The Central Lawn would be a common lawn.

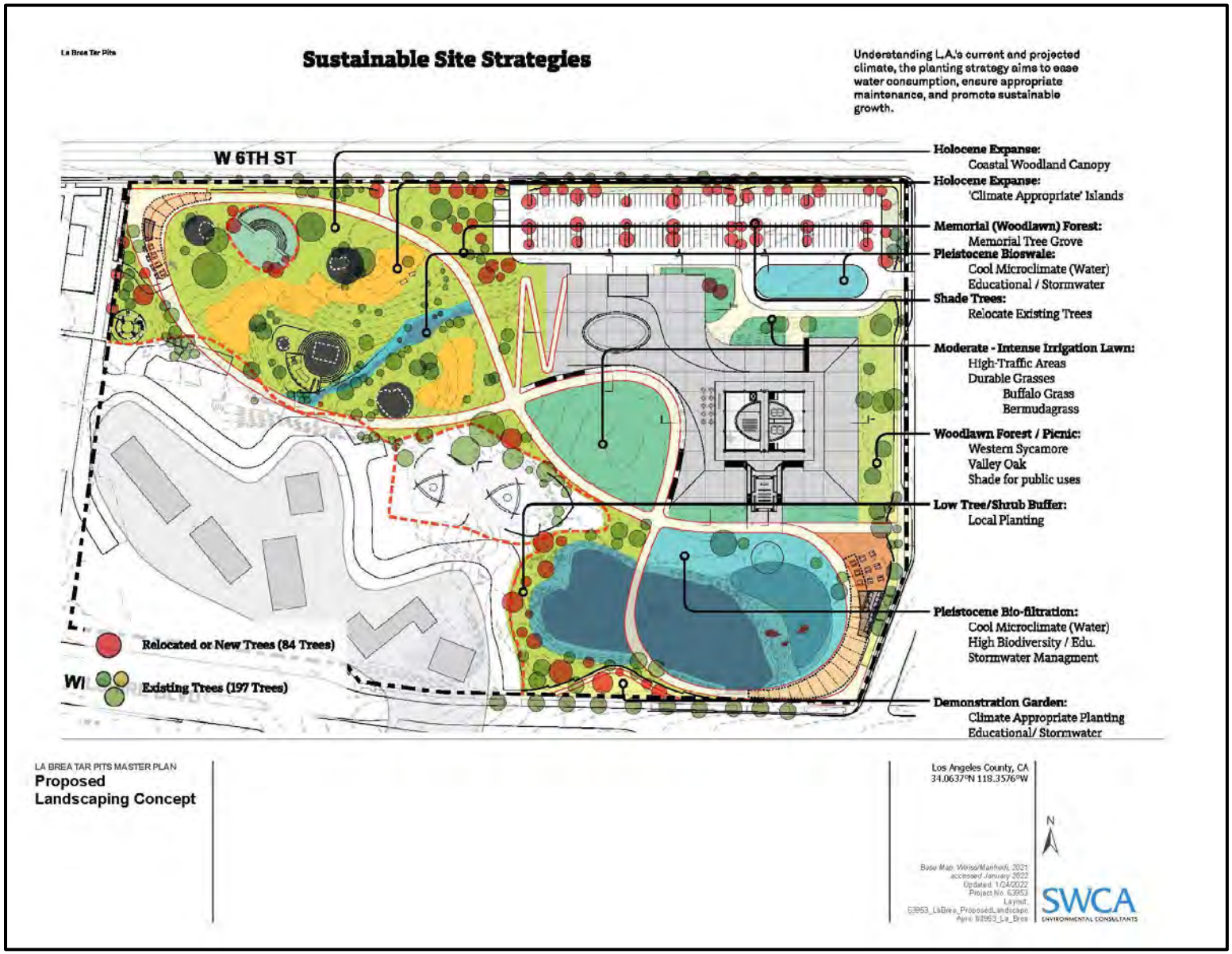
The woodland forest zone of the western loop would be extended along the park’s peripheral edges (northern, southern, eastern, and western) to provide shade to the picnic areas and the parking lot to the north. Tree species are expected to include Torrey Pine, Coast Live Oak, Western Sycamore, and Valley Oak and would support the development of a unified canopy across the site.

As stated above, there are 197 trees currently on the project site. The planting strategy includes the introduction or relocation of approximately 84 trees on-site. The relocated trees would be from existing locations within the project site. New plantings would be consistent with the planting and landscape concept and plant palette included in the Master Plan. New plantings would be selected for resilience to disease and with consideration for their ability to create shaded areas at the park. Trees that would be removed include non-native trees and/or trees that have been diseased or are not in good health. Species such as the Western Sycamore, California Buckeye, and Redwood would be preserved, unless they are diseased or in locations where new built features are planned, specifically the museum expansion and shifted parking lot on the northern side of the site. If healthy, these trees could be moved to the west of the parking lot, adjacent to the maintenance and support building.

At this juncture of the planning process, a tree assessment and landscaping plan have not been developed. More detailed plans for tree removal and planting would not be developed until after the EIR is completed.

Figure 12. Visual simulation, pedestrian pathway

Figure 13. Proposed landscaping concept



Circulation and Vehicle Parking

The existing parking lot would be expanded from 63,000 square feet to 65,000 square feet and shifted to the northeast corner of Hancock Park. The parking lot would hold approximately 160 to 170 vehicle parking spaces, an increase of approximately 5 to 15 spaces. The project would add new landscaping and vehicle access lanes to the parking lot. A vehicular drop-off loop would facilitate vehicle circulation and visitor entry through a pedestrian entrance to the museum leading from the parking lot.

Three loading and service entrances would accommodate deliveries for labs, exhibition material, food service, events, and staff offices. Two of the entrances would be from the parking lot into the new museum building on the north side, the third entrance would be from the parking lot into the Page Museum, also on the north side.

The proposed project includes a new school drop-off area from South Curson Avenue, adjacent to Wilshire Gateway picnic area. This inset loading area would accommodate school buses. School buses would also be able to access the parking lot from South Curson Avenue and drop-off in the loading area in the parking lot.

3. REGULATORY SETTING

This regulatory framework section identifies the federal, state, and local laws, statutes, guidelines, and regulations that govern the identification and treatment of cultural resources as well as the analysis of potential impacts to cultural resources. The lead agency must consider the provisions and requirements of this regulatory framework when rendering decisions on projects that have the potential to affect cultural resources.

Federal Regulations

National Historic Preservation Act of 1966

Enacted in 1966 and amended in 2000, the National Historic Preservation Act (NHPA) instituted a multifaceted program, administered by the Secretary of the Interior, to encourage sound preservation policies of the nation's cultural resources at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the goals of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation.

National Register of Historic Places

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (36 Code of Federal Regulations [CFR] 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials,

workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion B: It is associated with the lives of persons who are significant in our past;
- Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; and/or
- Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Ordinarily cemeteries, birthplaces, or graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that are primarily commemorative in nature, are not considered eligible for the NRHP, unless they satisfy certain conditions. In general, a resource must be 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

In addition to meeting these criteria, a property must retain historic integrity, which is defined in National Register Bulletin 15 as the "ability of a property to convey its significance." [2] In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity.

To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

1. Location – the place where the historic property was constructed or the place where the historic event occurred;
2. Design – the combination of elements that create the form, plan, space, structure, and style of a property;
3. Setting – the physical environment of a historic property;
4. Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
6. Feeling – a property's expression of the aesthetic or historic sense of a particular period of time;
7. Association – the direct link between an important historic event or person and a historic property.

For the purposes of this study's indirect impact analysis, the aspects of setting and feeling are of particular relevant for this discussion; areas of particular relevance are highlighted below. The National Park Service defines the quality of setting in the following way:

> Setting is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the character

[2] National Park Service (NPS). 1990. *National Register Bulletin 15, How to Apply the National Register Criteria for Evaluation*, p. 44. Washington, D.C.: U.S. Department of the Interior, National Park Service.

> of the place in which the property played its historical role. It involves how, not just where, the property is situated and its relationship to surrounding features and open space.
>
> Setting often reflects the basic physical conditions under which a property was built and the functions it was intended to serve. In addition, the way in which a property is positioned in its environment can reflect the designer's concept of nature and aesthetic preferences.
>
> The physical features that constitute the setting of a historic property can be either natural or manmade, including such elements as: Topographic features (a gorge or the crest of a hill); vegetation; simple manmade features (paths or fences); and relationships between buildings and other features or open space.
>
> These features are their relationships should be examined not only within the exact boundaries of the property, but also between the property and its surroundings. This is particularly important for districts.[3]

The National Park Service defines the quality of feeling in the following way:

> Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character.[4]

National Natural Landmarks Program

Authorized by the Historic Sites, Buildings and Antiquities Act, the National Natural Landmarks program is administrated by the National Park Service for resources located on federal, state, or local lands. As codified in 36 CFR 62, the National Natural Landmarks program seeks to encourage the identification, study, designation, recognition, and preservation of nationally significant ecological and geological resources that reflect the nation's natural heritage (including paleontological/fossil-based resources).

State Regulations

The policies of the NHPA are implemented at the state level by the California Office of Historic Preservation, a division of the California Department of Parks and Recreation. The Office of Historic Preservation is also tasked with carrying out the duties described in the PRC and maintaining the California Historic Resources Inventory and California Register of Historical Resources (CRHR). The state-level regulatory framework also includes CEQA, which requires the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical resources.

California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is, according to PRC Sections 21083.2 and 21084.1, "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of

[3] NPS, 1990, p. 45.

[4] NPS, 1990, p. 45.

Historical Interest program, identified as significant in historical resources surveys or designated by local landmarks programs, may be nominated for inclusion in the CRHR.

According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

Criterion 2: It is associated with the lives of persons important in our past;

Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values;

Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

California Environmental Quality Act

CEQA requires a lead agency to analyze whether historical resources may be adversely impacted by a proposed project. Under CEQA, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Answering this question is a two-part process: first, the determination must be made as to whether the proposed project involves historical resources. Second, if historical resources are present, the proposed project must be analyzed for a potential substantial adverse change in the significance of the resource.

According to CEQA Guidelines Section 15064.5, for the purposes of CEQA, historical resources are:

1. A resource listed in, or formally determined eligible for listing in, the California Register of Historical Resources (PRC 5024.1, Title 14 CCR, Section 4850 et seq);
2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC;
3. Any building, structure, object, site, or district that the lead agency determines eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historical resource under CEQA) if the resource meets the criteria for listing on the California Register (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

According to CEQA Guidelines Section 15064.5 and PRC Section 5024.1, the fact that a resource is not listed or determined eligible for listing in the California Register or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be an historical resource. According to CEQA Guidelines Section 15064.5(b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment.

SUBSTANTIAL ADVERSE CHANGE TO HISTORICAL RESOURCES

CEQA Guidelines Section 15064.5 specifies that "substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." Material impairment occurs when a project alters in an adverse manner or demolishes "those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion" or eligibility for inclusion in the NRHP, CRHR, or local register. In addition, pursuant to CEQA Guidelines Section 15126.2, the "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

CEQA Guidelines Section 15064(d) further defines direct and indirect impacts in the following manner:

1. A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project.
2. An indirect physical change in the environment is a physical change in the environment, which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment.
3. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES

In accordance with CEQA Guidelines and 14 CCR Section 15126.4(b)(1), a project that has been determined to conform with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (*Secretary's Standards*) is generally considered a project that will not cause a significant adverse impact to historical resources. The *Secretary's Standards* and associated Guidelines are not "prescriptive but are intended to promote responsible preservation practices."[5] The standards offer recommendations for maintaining, repairing, and replacing historic features, as well as for designing additions.

As developed by the National Park Service, the *Secretary's Standards* consist of four related treatment approaches: preservation, rehabilitation, restoration, and reconstruction. It is anticipated that rehabilitation would be the appropriate approach for the proposed project. Rehabilitation, which is the most flexible treatment approach of the four, is defined as the process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

The 10 *Secretary's Standards for Rehabilitation* are:

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

[5] Weeks, K.D., and A.E. Grimmer. 2001. *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Washington, D.C.: U.S. Department of the Interior. Available at: http://www.nps.gov/tps/standards/rehabilitation/rehabilitation-guidelines.pdf. Accessed July 11, 2022.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Secretary's Standards compliance begins with the identification and documentation of the "character-defining," or historically significant, features of the historical resource. According to *Preservation Brief 17, Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*, identifying character-defining features consists of a three-step process.[6] Step 1 involves assessing the physical aspects of the building exterior as a whole, including its setting, shape and massing, orientation, roof and roof features, projections, and openings. Step 2 looks at the building more closely—at materials, trim, secondary features, and craftsmanship. Step 3 encompasses the interior, including individual spaces, sequences of spaces, finishes and materials.

In 2017, the National Park Service issued an update to the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*.[7] The updated document includes additional, project-specific detail on how to comply with and implement the *Secretary's Standards*. Table 1 summarizes the recommendations

[6] Nelson, L.H., FAIA. 1982. *Preservation Briefs #17: Architectural Character—Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving their Character*. U.S. Department of the Interior, National Park Service. Available at: https://www.nps.gov/tps/how-to-preserve/briefs/17-architectural-character.htm. Accessed July 11, 2022.

[7] Grimmer, A.E. 2017. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*. U.S. Department of the Interior, National Park Service, Technical Preservation Services.

for historic building sites that are of particular relevance to the proposed project. Table 2 summarizes the recommendations for significant settings of historic districts and neighborhoods.

Table 1. *Standards for Rehabilitation*, Recommended Treatments for Historic Building Sites[8]

Recommended	Not Recommended
Identifying, retaining, and preserving features of the building site that are important in defining its overall historic character. Site features may include 1) walls, fences, or steps; circulation systems, such as walks, paths or roads; 2) vegetation, such as trees, shrubs, grass, orchards, hedges, windbreaks, or gardens; 3) landforms, such as hills, terracing, or berms; 4) furnishings and fixtures, such as light posts or benches; 5) decorative elements, such as sculpture, statuary, or monuments; 6) water features, including fountains, streams, pools, lakes, or irrigation ditches; and 7) subsurface archaeological resources, other cultural or religious features, or burial grounds which are also important to the site.	Removing or substantially changing buildings and their features or site features which are important in defining the overall historic character of the property so that, as a result, the character is diminished.
Retaining the historic relationship between buildings and the landscape	Removing or relocating buildings or landscape features, thereby destroying the historic relationship between buildings and the landscape. Removing or relocating buildings on a site or in a complex of related historic structures (such as a mill complex or farm), thereby diminishing the historic character of the site or complex. Moving buildings onto the site, thereby creating an inaccurate historic appearance. Changing the grade level of the site if it diminishes its historic character. For example, lowering the grade adjacent to a building to maximize use of a basement, which would change the historic appearance of the building and its relation to the site.
Protecting and maintaining buildings and site features by providing proper drainage to ensure that water does not erode foundation walls, drain toward the building, or damage or erode the landscape	Failing to ensure that site drainage is adequate so that buildings and site features are damaged or destroyed; or, alternatively, changing the site grading so that water does not drain properly
Minimizing disturbance of the terrain around buildings or elsewhere on the site, thereby reducing the possibility of destroying or damaging important landscape features, archaeological resources, other cultural or religious features, or burial grounds	Using heavy machinery or equipment in areas where it may disturb or damage important landscape features, archaeological resources, other cultural or religious features, or burial grounds
Protecting buildings and landscape features when working on the site	Failing to protect building and landscape features during work on the site or failing to repair damaged or deteriorated site features
Designing new onsite features…when required by a new use, so that they are as unobtrusive as possible, retain the historic relationship between the building or buildings and the landscape, and are compatible with the historic character of the property Designing new exterior additions to historic buildings or adjacent new construction that are compatible with the historic character of the site and preserves the historic relationship between the building or buildings and the landscape.	Introducing new construction on the building site which is visually incompatible in terms of size, scale, design, material, or color, which destroys historic relationships on the site

[8] Grimmer, 2017, pp. 137–142.

Table 2. *Standards for Rehabilitation*, Recommended Treatments for Setting (Districts)[9]

Recommended	Not Recommended
Identifying, retaining, and preserving building and landscape features that are important in defining the overall historic character of the setting. Such features can include 1) circulation systems, such as roads and streets; 2) furnishing and fixtures, such as light posts or benches; 3) vegetation, gardens and yards; 4) adjacent open space, such as fields, parks, commons, or woodlands; and 5) important views or visual relationships.	Removing or substantially changing those building and landscape features in the setting which are important in defining the historic character so that, as a result, the character is diminished.
Retaining the historic relationship between buildings and landscape features in the setting. For example, preserving the relationship between a town common or urban plaza and the adjacent houses, municipal buildings, roads, and landscape and streetscape features.	Altering the relationship between the buildings and landscape features in the setting by widening existing streets, changing landscape materials, or locating new streets or parking areas where they may negatively impact the historic character of the setting. Removing or relocating buildings or landscape features, thereby destroying the historic relationship between buildings and the landscape in the setting.
Protecting buildings and landscape features when undertaking work in the setting	Failure to protect buildings and landscape features during work in the setting
Evaluating the overall condition of materials and features to determine whether more than protection and maintenance, such as repairs to materials and features in the setting, will be necessary	Failing to undertake adequate measures to ensure the protection of materials and features in the setting.
Repairing features in the setting by reinforcing the historic materials. Repairs may include the replacement in kind or with a compatible substitute material of those extensively deteriorated or missing parts of setting features when there are surviving prototypes, such as fencing, paving materials, trees, and hedgerows. Repairs should be physically and visually compatible.	Failing to repair and reinforce damaged or deteriorated historic materials and features in the setting. Removing material that could be repaired or using improper repair techniques. Replacing an entire feature of the building or landscape in the setting when repair of materials and limited replacement of deteriorated or missing components are feasible
Designing new exterior additions to historic buildings or adjacent new construction that are compatible with the historic character of the setting that preserve the historic relationship between the buildings and the landscape.	Introducing new construction into historic districts which is visually incompatible or that destroys historic relationships within the setting, or which damages or destroys important landscape features
Removing non-significant buildings, additions, or landscape features which detract from the historic character of the setting	Removing a historic building, a building feature, or landscape feature which is important in defining the historic character of the setting.

Local Regulations

County of Los Angeles

HISTORIC PRESERVATION ORDINANCE

In September 2015, the County of Los Angeles (County) Board of Supervisors adopted a Historic Preservation Ordinance (HPO) and Mills Act Program for all unincorporated territories of the County. As stated by the County Department of Regional Planning, the HPO:

- Specifies criteria and procedures for the designation of landmarks and historic districts;
- Specifies criteria and procedures for reviewing proposed work on designated landmarks or on property within historic districts;
- Establishes penalties for unauthorized work, including demolition, on landmarks or historic district contributors;

[9] Grimmer, 2017, pp. 143–146.

- Requires maintenance of landmarks and historic district contributors to prevent deterioration;
- Prohibits work, including demolition, on property nominated but not yet designated as a landmark or historic district;
- Encourages adaptive reuse of landmarks and historic district contributors by providing relief from parking requirements;
- Provides for the enhancement of historic districts by the establishment of development guidelines and standards, and by allowing streetscape improvements that are compatible with the areas historic character.[10]

As codified in Chapter 22.124, the HPO established the County Register of Landmarks and Historic Districts, along with the following designation criteria in unincorporated communities of the County:

A. A structure, site, object, tree, landscape, or natural land feature may be designated as a landmark if it is 50 years of age or older and satisfies one or more of the following criteria:

    1. It is associated with events that have made a significant contribution to the broad patterns of the history of the nation, State, County, or community in which it is located;

    2. It is associated with the lives of persons who are significant in the history of the nation, State, County, or community in which it is located;

    3. It embodies the distinctive characteristics of a type, architectural style, period, or method of construction, or represents the work of an architect, designer, engineer, or builder whose work is of significance to the nation, State, County, or community in which it is located; or possesses artistic values of significance to the nation, State, County, or community in which it is located;

    4. It has yielded, or may be likely to yield, significant and important information regarding the prehistory or history of the nation, State, County, or community in which it is located;

    5. It is listed, or has been formally determined eligible by the United States National Park Service for listing, in the National Register of Historic Places, or is listed, or has been formally determined eligible by the State Historical Resources Commission for listing, on the California Register of Historical Resources;

    6. If it is a tree, it is one of the largest or oldest trees of the species located in the County; or

    7. If it is a tree, landscape, or other natural land feature, it has historical significance due to an association with an historic event, person, site, street, or structure, or because it is a defining or significant outstanding feature of a neighborhood.

B. Property less than 50 years of age may be designated as a landmark if it meets one or more of the criteria set forth in subsection A of this Section, and exhibits exceptional importance.

C. The interior space of a property, or other space held open to the general public, including but not limited to a lobby, may be designated as a landmark or included in the landmark designation of a property if the space qualifies for designation as a landmark under subsections A or B of this Section.

[10] Los Angeles County Department of Regional Planning. 2015. Historic Preservation Ordinance. Available at: https://planning.lacounty.gov/preservation/ordinance. Accessed July 11, 2022.

D. Historic districts. A geographic area, including a noncontiguous grouping of related properties, may be designated as an historic district if all of the following requirements are met:

    1. More than 50 percent of owners in the proposed district consent to the designation;

    2. The proposed district satisfies one or more of the criteria set forth in subsections A.1 through A.5, inclusive, of this Section; and

    3. The proposed district exhibits either a concentration of historic, scenic, or sites containing common character-defining features, which contribute to each other and are unified aesthetically by plan, physical development, or architectural quality; or significant geographical patterns, associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of parks or community planning.

According to HPO Section 22.124.080, landmarks and historic districts may be nominated for designation through resolution by the Board of Supervisors or the Landmarks Commission. For purposes of this study, County criteria are applied to CEQA APE properties owned by the County of Los Angeles.

City of Los Angeles

Although the project site is located within the city of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the proposed project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Areas adjacent to the project site are under the jurisdiction of the City. Consideration of the city-level regulatory framework in this study fulfills the intended purpose of CEQA as disclosing all relevant information associated with the proposed project.

LOS ANGELES HISTORIC-CULTURAL MONUMENTS

Local landmarks in the city are known as Historic-Cultural Monuments and are managed under the aegis of the City of Los Angeles Planning Department, Office of Historic Resources. Originally adopted in 1962, and most recently amended in 2018, the City of Los Angeles Cultural Heritage Ordinance establishes the criteria and process for designation of Historic-Cultural Monuments.

In accordance with Section 22.171.7, a Historic-Cultural Monument "is any site (including significant trees or other plant life located thereon), building, or structure of particular historical or cultural significance to the City of Los Angeles" that meets at least one of the following criteria:

1. Is identified with important events of national, state, or local history, or exemplifies significant contributions to the broad cultural, economic or social history of the nation, state, city or community;
2. Is associated with the lives of historic personages important to national, state, city, or local history; or
3. Embodies the distinctive characteristics of a style, type, period, or method of construction; or represents a notable work of a master designer, builder, or architect whose individual genius influenced his or her age.

In Los Angeles, the Cultural Heritage Commission may recommend approval or disapproval of applications for designation; this recommendation is made to the City Council, which may adopt a designation by majority vote.

HISTORIC PRESERVATION OVERLAY ZONES

Local historic districts in the city of Los Angeles are known as Historic Preservation Overlay Zones (HPOZ). As described by the City of Los Angeles Office of Historic Resources, the Historic Preservation Overlay Zone (HPOZ) Ordinance was adopted in 1979, and amended in 2004:

> To identify and protect neighborhoods with distinct architectural and cultural resources, the City … developed an expansive program of Historic Preservation Overlay Zones … HPOZs, commonly known as historic districts, provide for review of proposed exterior alterations and additions to historic properties within designated districts.

The project site does not fall within any HPOZ.

4. METHODOLOGY

The following section presents an overview of the methodology used in this report. To consider potential direct and indirect impacts to historical resources, the CEQA Area of Potential Effects (CEQA APE) consists of parcels within and directly adjacent to the proposed project footprint (Figure 14).

Research and Literature Review

To characterize all properties within the CEQA APE, SWCA conducted primary- and secondary-source research in a wide variety of collections. A phase of literature review of previous studies was completed, and data gaps were identified to guide research efforts. Research focused on a variety of materials relating to the history and development of the project site and its role in the history of institutional/cultural development in Los Angeles. Materials consulted included historical maps, photographs, and newspapers; aerial and ground-based photographs; publications and journal articles; among other materials. Sources included the following publicly accessible collections:

- City of Los Angeles Office of Historic Resources (Historic-Cultural Monuments, SurveyLA)
- David Rumsey Historical Map Collection
- Environmental Data Resources, Inc.
- Huntington Library Digital Archives
- Library of Congress
- Combined collections of Los Angeles Public Library and University of Southern California libraries
- Sanborn Fire Insurance Company Maps
- U.S. Geological Survey (USGS) historical topographic maps
- University of California, Santa Barbara Digital Library

For the purposes of this investigation, the results of Los Angeles's citywide historical resources survey undertaking, SurveyLA, for the Wilshire Community Plan Area were used for all properties falling within the CEQA APE, unless a preponderance of evidence suggested that alternative conclusions were more appropriate.

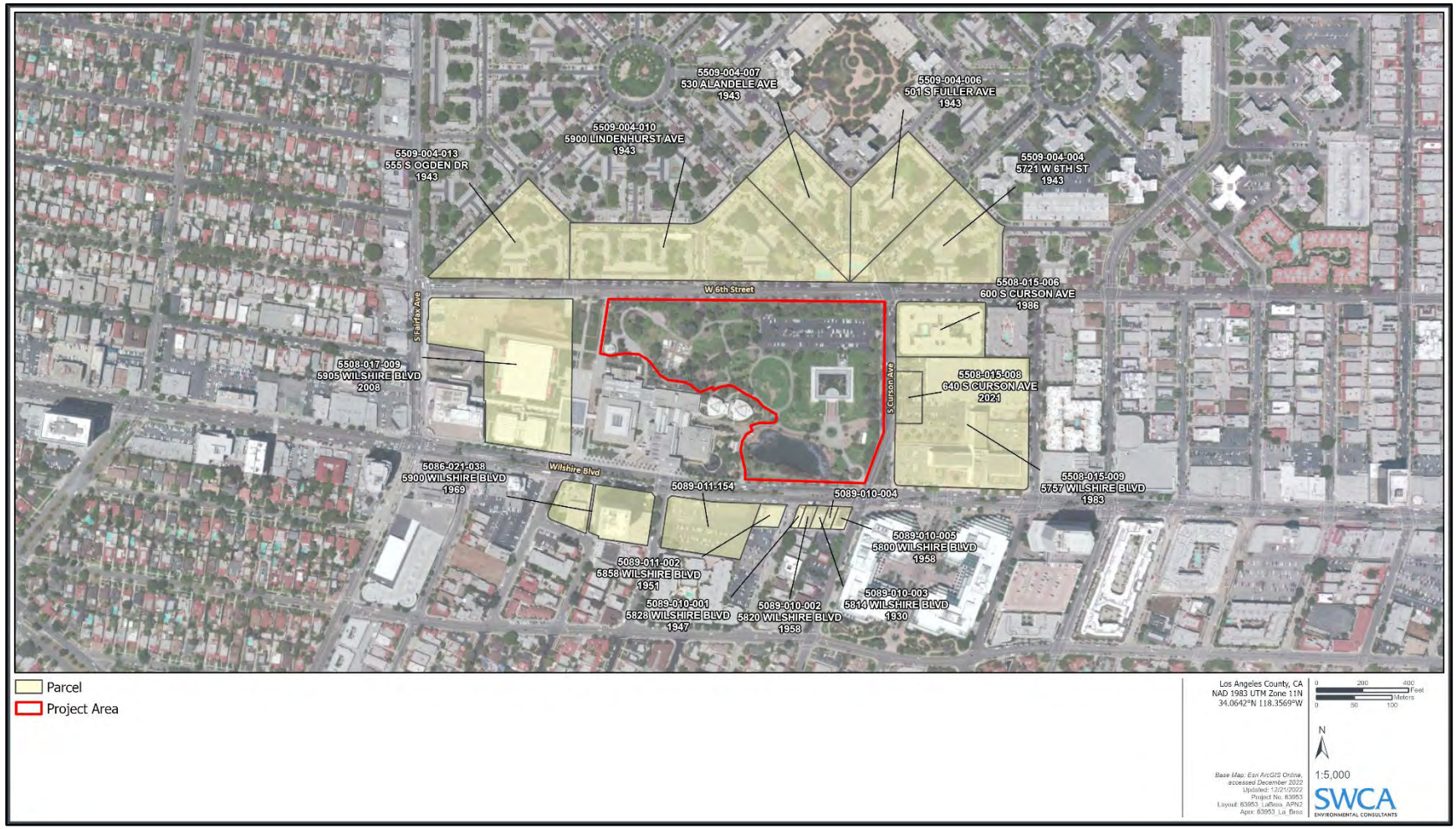
Field Survey and Project Team Coordination

To accurately assess the proposed project, SWCA met with the Foundation and the design team to review project drawings, architectural plans, and site design concepts. Field surveys took place in February 2022 and July 2022. Properties within the CEQA APE were inspected and photographed. Digital photography and field notes allowed for a thorough depiction of the subject properties and their existing conditions. Figure 15 shows the target properties included in the field survey.

Subject properties were assigned the appropriate California Historical Resources (CHR) status code (full results are presented in Section 6, Historical Resources Survey and Results). The principal elements of the proposed project were studied for potential direct and indirect impacts to historical resources pursuant to CEQA. Those results are presented in Section 7 (Impacts Analysis).

Figure 14. CEQA APE, with project footprint enclosed in red, and broader APE in yellow

Figure 15. Target properties, addresses, and dates of construction, historical resources survey area



5. HISTORIC SETTING AND CONTEXT

National Register Bulletin 24, *Guidelines for Local Surveys*, states that the historic context developed in support of historical resource surveys should analyze and describe the "broad pattern of historical development in a community or its region that may be represented by historic resources."[11] Developing a historic context for survey areas is further described by the National Register as vital for providing a basis for any assessment, helping researchers successfully identify all significant resources and helping eliminate unintended biases. Through a review of the history of the state and region under consideration, the historic context should define important patterns of development that may be reflected in the area's historical resources.

The National Register defines context as "a body of information about our history according to the stages of development occurring at various times and places."[12] Theme, place, and time are the basic elements that define historic context. The context statement incorporates stages of physical development, including the evolution of building forms and architectural style, as well as highlighting facets of industries or events.

Historic context is also linked to the built environment through the concept of property type. A property type is "a grouping of individual properties based on a set of shared physical or associative characteristics. Physical characteristics may relate to structural forms, architectural styles, building materials, or site type. Associative characteristics may relate to the nature of associated events or activities, to associations with a specific individual or group of individuals."[13] Historic contexts, therefore, become a useful tool for gauging the relative importance and integrity of properties.

The following context draws on available sources and archival research to offer an overview of the regional and site-specific historic context. Material specific to the project site and surrounding areas, including the Wilshire Boulevard "Miracle Mile," Hancock Park, and the larger Wilshire Community Plan Area is drawn from the City of Los Angeles Department of City Planning study, *Historic Resources Survey Report: Wilshire Community Plan Area*, prepared in 2015 by Architectural Resources Group, Inc., for the Office of Historic Resources.

City of Los Angeles: From Pueblo to City

On September 4, 1781, 44 settlers from Sonora, Mexico, accompanied by the governor, soldiers, mission priests, and several Native Americans, arrived at a site alongside the *Rio de Porciúncula* (later renamed the LA River).[14] They founded a pueblo called *La Reyna de los Angeles*, or the town of the Queen of the Angels.[15] By 1786, the area's abundant resources and the availability of little-compensated Native American labor allowed the pueblo to attain self-sufficiency, and funding by the Spanish government ceased.

Less than 1 month after the pueblo's founding, Los Angeles residents began constructing an extensive water management system. They diverted water from the river (near the present North Broadway bridge) into a ditch named the *Zanja Madre* (mother ditch), which in turn fed numerous smaller zanjas. The city's

[11] U.S. Department of the Interior, National Park Service. 1985 [1977]. *National Register Bulletin 24, Guidelines for Local Surveys: A Basis for Preservation Planning.* Washington, D.C. Available at: http://www.cr.nps.gov/nr/publications/bulletins/nrb24/chapter1.htm.

[12] NPS, 1990, p. 7.

[13] National Park Service (NPS). 1997. *National Register Bulletin 16B: How to Complete the National Register Multiple Property Documentation Form*, p. 14. Washington, D.C.: U.S. Department of the Interior, National Park Service.

[14] Ríos-Bustamante, A. 1992. *Mexican Los Angeles: A Narrative and Pictorial History*. Mountain View, California: Floricanto Press.

[15] Treutlein, T.E. 2004. Los Angeles, California: The Question of the City's Original Spanish Name. In *The Founding Documents of Los Angeles: A Bilingual Edition*, edited by Doyce B. Nunis Jr. Los Angeles, California: Historical Society of Southern California.

residents used this water for ranching and agriculture, as well as domestic purposes such as drinking, bathing, and clothes washing.[16] The Los Angeles zanja system was expanded and improved in subsequent decades and remained in use until the early 1900s, as many zanja segments were converted into masonry-lined canals, iron or cement pipes, or brick-lined, subsurface conduits.[17]

Following Mexican independence from Spain, the pueblo slowly grew in size, as the removal of economic restrictions attracted settlers to Los Angeles. The population continued to expand throughout the Mexican period, and, on April 4, 1850, only 2 years after the Mexican–American War and 5 months prior to California's earning statehood, the City of Los Angeles was formally incorporated. Los Angeles maintained its role as a regional business center in the early American period and the transition of many former rancho lands to agriculture, as well as the development of citriculture in the late 1800s, further strengthened this status.[18] These factors, combined with the expansion of port facilities and railroads throughout the region, contributed to the real estate boom of the 1880s in Los Angeles.[19, 20]

Part of this rapid expansion of Los Angeles was achieved through the marketing of Southern California and its Mediterranean climate, which enticed people of all economic means to relocate to the region. This included some of America's wealthiest individuals, who constructed residences as winter homes allowing them to escape the colder climates of the financial and industrial centers of the East Coast and Midwest. The development of new industries was also paramount to this growth during the late nineteenth and early twentieth centuries, specifically the production of oil, real estate development, citriculture, and the entertainment and film industry.

Los Angeles continued to grow outward from the city core in the twentieth century, in part due to oil production and to its strategic location as a wartime port. The military presence led to the aviation and eventually aerospace industries having a large presence in the city and region. Hollywood became the entertainment capital of the world through the presence of the film and television industries, and continues to maintain that position. These industries established a Los Angeles-centered elite that would be formative in the development of the region's first cultural institutions during the twentieth century, raising its prominence on the world stage. Through the continued promotion of the region through the motion picture and entertainment industry, growing tourism, and from hosting large-scale events, such as the Summer Olympic Games in 1932, Los Angeles had quickly become one of the world's great cities.

Today, with nearly 4 million residents, Los Angeles is the second largest city in the United States (by population), and it remains a city with worldwide influence, while continuing to struggle with its population's growth and needs. The early development of cultural and civic institutions in the city laid the groundwork for Los Angeles' current status as one of the leading cities for museums.

Development of Cultural Institutions in Los Angeles

Through the late nineteenth and early twentieth century, Los Angeles continued to expand both in terms of population growth and new construction; the development of cultural institutions to serve the growing population took root gradually. An early catalyst was the influx of new wealth, which spurred a variety of new museums, botanical gardens, and other cultural institutions. The trend of wealthy individuals as collectors, benefactors, and patrons would continue to be the predominant catalyst for the development of

[16] Newmark, H. 1977 [1915]. *Reminiscences of the Fifties. Los Angeles: Biography of a City*, edited by J. Caughey and L. Caughey, pp. 132–140. Berkeley: University of California Press.

[17] Costello, J.G., and L. Wilcoxon. 1978. *An Archaeological Assessment of Cultural Resources in Urban Los Angeles*. Prepared for the City of Los Angeles in connection with construction project La Placita de Dolores, LAN-887. On file at the South Central Coastal Information Center, California State University, Fullerton.

[18] Caughey, J., and L. Caughey (eds.) 1977. *Reminiscences of the Fifties. Los Angeles: Biography of a City*. Berkeley: University of California Press.

[19] Caughey and Caughey, 1977.

[20] Dumke, G.S. 1944. *The Boom of the Eighties in Southern California*. San Marino, California: Huntington Library Publications.

cultural institutions and museums throughout the history of Los Angeles, although some public partnerships would also contribute to this expansion.[21]

EARLY MUSEUMS AND INSTITUTIONS (1885–1941)

The first museum founded in Los Angeles was the Southwest Museum of the American Indian, which was established in 1907 by Charles F. Lummis. Lummis had famously trekked overland from Cincinnati to Los Angeles in 1884, where he became a reporter and eventual editor for the *Los Angeles Times*. A polymathic and somewhat larger-than-life character, Loomis was a self-described journalist, writer, artist, architect, photographer, and aspiring social scientist who was heavily influenced by his experiences in the Southwest and Southern California.[22]

In addition to being an early advocate for the preservation of the Spanish Missions, Lummis was outspoken about the treatment of the Native Americans and the eradication and erosion of indigenous cultures. Although not particularly wealthy, Lummis started to collect a variety of artifacts through his travels in the southwest, which included intricate woven baskets and other items to be displayed as part of the museum's collection. What he lacked in finances, Lummis made up for in his connections by networking with a variety of museums, organizations, and institutions throughout the United States with the aim of bolstering Los Angeles as a cultural center.

The fruit of these early efforts by Lummis was the Southwest Museum of the American Indian, constructed in 1912. The museum opened to the public in 1913 (Figure 16).[23]

Figure 16. Southwest Museum of the American Indian, ca. 1914

Source: Los Angeles Public Library

During this same period, the Los Angeles County Museum of History, Science, and Art was established. Constructed in Exposition Park and officially opened in 1913, the county museum was set within a grand Beaux Arts inspired building that housed a variety of collections, each within wings dedicated to history, science, and the fine arts. While some collections were slow to be amassed, namely the fine arts, others were quick to expand and outgrow the facilities (Figure 17).[24] This is particularly true of the science

[21] GPA Consulting. 2017. *Los Angeles County Museum of Art, Los Angeles, California – Historical Resources Technical Report*, p. 45.

[22] Burton, D. 2017. National Register of Historic Places Registration Form – Southwest Museum (Amendment), pp. 8.5–8.7. National Park Service.

[23] Burton, 2017.

[24] GPA Consulting, 2017, p. 46.

wing, which would largely house the wealth of prehistoric fossils removed from the tar pits at Rancho La Brea.

Over the following decades, the County Museum constructed new wings to house the expanded collections. Owned by the County of Los Angeles and operated by a separate board, the Los Angeles County Museum of History, Science, and Art was unique compared to other museums of the day in that it was a fundamentally a public institution, as opposed to other museums that would be reliant on private collections and endowments. Still, the county museum was sponsored by a network of organizations and donors who built the collection and supplemented the support provided by the County.[25]

Figure 17. Original 1913 building of the Los Angeles County Museum of History, Science, and Art in Exposition Park, ca. 1930 (left); Los Angeles County Museum of History, Science, and Art, with expansion under construction, ca. 1925 (right)

Source: Los Angeles Public Library

As Los Angeles continued to grow, wealth, and cultural prominence during the 1910s and 1920s, new museums were established. One of the premier institutes established during this period included the Huntington Library, Museum, and Gardens (the Huntington). Founded in 1919, the Huntington was located in San Marino on the grand estate of Henry E. Huntington, one of Los Angeles' most wealthy entrepreneurs. Huntington had amassed an impressive collection of art, decorative arts, books, and manuscripts, in addition to developing an elaborate series of gardens with an impressive horticultural collection.[26] In 1920, the Huntington opened the library component on the estate after completing a new building known as the Main Exhibit Hall. In 1928, a year after Huntington's death, the residence at the estate was converted into the Huntington Art Gallery. This coincided with opening the gardens to visitors, who could wander the grounds and thematic enclaves representing different gardening traditions and the collection of rare and exotic plants. Since its founding, the Huntington has continued to develop its collections and serve as one of the primary cultural institutions in the Los Angeles area.[27]

The Pasadena Institute of Art, now known as the Norton Simon Museum, was founded in 1924 as a wealthy social club that promoted nineteenth century European and American art. Originally located in the grand Reed Mansion in a wealthy enclave of Pasadena, the Pasadena Institute of Art would sporadically grow its collection as various wealthy benefactors bequeathed their collections to the

[25] Reiner, B. 1974. *National Register of Historic Places Inventory-Nomination Form – Natural History Museum of Los Angeles County*, p. 5. National Park Service. April.

[26] GPA Consulting, 2017, p. 52.

[27] GPA Consulting, 2017, pp. 52–53.

museum. It relocated in 1940 to a new space and was eventually rebranded as the Pasadena Art Museum.[28]

A departure from the promotion of fine arts during the first half of the twentieth century in Los Angeles was the creation of the Griffith Observatory. Fascinated with astronomy, Griffith J. Griffith created a fund to establish an observatory, planetarium, and museum as a public institution within the donated lands of Griffith Park. The fund was granted to the City of Los Angeles in 1919 after his death. While construction would take over a decade to occur, the City of Los Angeles partnered with the Works Progress Administration (WPA) to construct the iconic Art Deco style building set prominently on Mount Hollywood in Griffith Park. The facility was completed in 1935 and has continued to promote the study of astronomy ever since.[29]

POSTWAR EXPANSION OF CULTURAL INSTITUTIONS AND MUSEUMS (1945- PRESENT)

The post-World War II period in Los Angeles was defined by monumental growth in terms of population and wealth. The expansion of the aerospace, entertainment, real estate development, tourism, and a variety of other industries led to a vast expansion of cultural institutions throughout the region. One of the first was the California Museum of Science and Industry, which was founded in 1951 in the former State Exhibition Building in Exposition Park. Through extensive donations by Howard F. Ahmanson, a wealthy philanthropist involved multiple museums, the California Museum of Science and Industry would serve as the primary science center for Los Angeles, ultimately evolving into the California Aerospace Museum in 1984 and the California Science Center starting in 1996.[30]

One of the largest museum expansions of the postwar period was the construction of the Los Angeles County Museum of Art (LACMA). By the 1950s, the Los Angeles County Museum of History, Science, and Art was actively pursuing expanded art gallery facilities for its growing collection. The county museum initially hoped to expand its existing presence in Exposition Park, but shifted its focus to the County-owned Hancock Park, directly west adjacent to the La Brea Tar Pits. While the proposal was controversial, the plans moved forward with the support of extensive donations made by wealthy patrons.

Instantly one of the premier institutions in Los Angeles and the western United States, LACMA has continued to grow and expand with the support of an extensive network of donors and benefactors, in addition to continued support from the County of Los Angeles.[31] This coincided with the expansion of other cultural institutions, most notably the Los Angeles Music Center in downtown Los Angeles, which includes the Dorothy Chandler Pavilion, Ahmanson Theater, and Mark Taper Forum, all of which were completed between 1964 and 1967.[32] Similar to LACMA, these civic institutions came to fruition through the support of a network of wealthy donors interested in establishing a premier performing arts center for the City. Indeed, the development of LACMA and the Los Angeles Music Center would solidify Los Angeles' reputation as a cultural center of national significance.[33]

Other institutions expanded and founded in the postwar period include the Pasadena Museum of Art, which was greatly expanded between 1974 to 1975 with a new facility to accommodate the fine art

[28] GPA Consulting, 2017, p. 51.

[29] Harnisch, 2013.

[30] Allgov.com. n.d.. California Science Center. Available at: http://www.allgov.com/usa/ca/departments/business-consumer-services-and-housing-agency/california_science_center?agencyid=175#historycont. Accessed July 28, 2022.

[31] GPA Consulting, 2017, pp. 46–47.

[32] GPA Consulting, 2017, p. 49.

[33] GPA Consulting, 2017.

collection of benefactor Norton Simon; the museum was renamed in his honor and continues to operate as the Norton Simon Museum.[34]

One highly influential art collector and patron of the arts in Los Angeles was J. Paul Getty, a businessman who made his fortune in the oil industry. Beginning in 1948, Getty gifted a number of pieces from his collection to the Los Angeles County Museum of Art. In the 1950s, Getty took "greater and greater steps to make art available for the public's education and enjoyment," first by establishing the J. Paul Getty Museum Trust in 1953, then by opening the J. Paul Getty Museum in 1954, in his ranch house in present-day Pacific Palisades.[35] Expanding on this foundation, in 1974 Getty's established the Getty Villa, a reconstruction of a Roman villa that showcased Getty's collection of antiquities and fine arts. The Getty Foundation would eventually outgrow this facility, constructing the now-iconic Getty Center complex overlooking Sepulveda Pass between 1984 and 1997.[36]

In 1975, Los Angeles-based businessman and philanthropist George C. Page donated millions to the County of Los Angeles for the construction of a museum at the La Brea Tar Pits. While plans for a museum at the property had been in various stages of planning since the 1920s, plans failed to materialize until Page became involved in the process. Although administered by the Museum of Natural History of Los Angeles, Page secured an influential role in the project through his donation, selecting the design team and working throughout the entirety of the planning and construction process. The resulting George C. Page Museum, sited east of the tar pits in Hancock Park, opened in 1977 with the focus on the prehistoric finds of the La Brea Tar Pits.[37]

Other museums founded during the second-half of the twentieth century covered a wide range of subject matter and collections, although almost all were developed through the donations of wealthy patrons. The museums of Los Angeles were located throughout the expanse of the city and surrounding region, but were typically clustered in particular areas, such as downtown, the Miracle Mile neighborhood along Wilshire Boulevard (referred to as "Museum Row" for its growing collection of museums), and the Westside and Sepulveda area. Through the second half of the twentieth century, prominent additions to Museum Row on Wilshire Boulevard have included the Academy Museum of Motion Pictures, in the former May Company building at 6065 Wilshire Boulevard, and the Peterson Automotive Museum, at 6060 Wilshire Boulevard.

Opened in 2021, the Academy Museum of Motion Pictures was originally designed by A.C. Martin and Associates as a department store for the May Company; the distinctive Streamline Moderne-style building was constructed in 1939. In the early 1990s, the department store closed, and the building was sold to LACMA in 1994, reopening as LACMA West in 1999. In 2014, the building was leased to the Academy of Motion Picture Arts and Sciences for use as the Academy Museum of Motion Pictures. The former May Company building was rehabilitated and expanded, with a distinctive, spherical addition and connector designed by Renzo Piano.

The Peterson Automotive Museum was originally designed by Welton Becket and Associates as Seibu of Los Angeles, "the U.S.'s first big Japanese-owned department store," which operated at the location from 1962 through 1965 when the store closed.[38] After a stint as the site of Orbachs department store until 1986, the building was remodeled in 1994 by the Russell Group (Marc Whipple, AIA) for use as the Petersen Automotive Museum. In 2014, Kohn, Pedersen and Fox (KPF Architects) remodeled the

[34] GPA Consulting, 2017, pp. 51–52.

[35] The Getty. n.d. Getty History, About the Getty. Available at: https://www.getty.edu/about/whoweare/history.html. Accessed August 5, 2022.

[36] The Getty, n.d., p. 53.

[37] Biederman, P.W. 1990. "Founder Used Marketing Skill to Package Tar, Bones, Ancient History". *Los Angeles Times*, 29 July 1990. ProQuest Historical Newspapers.

[38] "Retailing: A Touch of Tokyo." March 23, 1962. Time Magazine. Available at: https://content.time.com/time/subscriber/article/0,33009,829151,00.html. Accessed December 21, 2022.

museum building to its current appearance. Along with LACMA and the La Brea Tar Pits, these institutions form the core of present-day Museum Row.

Los Angeles also features a wide variety of smaller museums, institutions, cultural centers, and historic sites that cover a wide range of historic, artistic, and socio-cultural themes, ranging from specific community and ethnic histories to more popular culture, ephemera, and avant-garde collections. A majority of these smaller institutions, of which there are dozens throughout the region, are predominantly operated by non-profit organizations, but can include a variety of public and private partnerships as part of their operations.

Development of Public Parks in Los Angeles

EARLY PLAZAS, PARKS, AND PLEASURE GROUNDS (1781-1903)

Public park spaces have been an integral component of Los Angeles since its initial founding as a Spanish settlement. In accordance with Spanish Colonial town planning traditions and guidelines – outlined in *Ordenanzas de Descubrimiento, Nueva Población y Pacificación de las Indias,* commonly referred to as the "Law of the Indies" – newly established townsites were to be organized around central plazas. While the Los Angeles Plaza changed location, size, and configuration in response to flooding events, the concept of a central plaza was consistent throughout the City's Spanish and Mexican eras.

By 1815, the Los Angeles Plaza was established in its current location and was primarily defined by an expanse of open space with a square configuration formed by the adjacent gridded street network, Plaza Church, and a series of low-profile adobe buildings. It remained in this condition following the 1840s annexation of California by the United States until 1859, when the plaza was redeveloped as a semi-public park space with a central water storage building (Figure 18). The plaza was made fully public again in 1870 and re-landscaped in the simple iteration of the nineteenth century Anglo-American tradition with a central fountain, circular walking paths, and decorative wrought-iron fence.[39] A similar early park was the Lower Plaza, now known as Pershing Square. Founded on undeveloped lands from the original Pueblo settlement, the Los Angeles Plaza was declared a municipal park in 1866. It remained largely undeveloped for several years, but a series of plantings and other improvements happened organically until an official landscape plan was developed in the 1880s.[40]

[39] Prosser, D. 2017. *SurveyLA: Los Angeles Historic Resource Survey – Los Angeles Citywide Historic Context Statement, Public and Private Institutional Development/ Government Infrastructure and Services/ Municipal Parks, Recreation, and Leisure, 1886-1978,* p. 5-7. Prepared for the City of Los Angeles, Department of City Planning, Office of Historic Resources.

[40] Los Angeles Conservancy. 2020. Pershing Square. Available at https://www.laconservancy.org/locations/pershing-square. Accessed August 16, 2022.

Figure 18. Los Angeles La Plaza, ca.1857

Source: Los Angeles Public Library

By the late nineteenth century, the concepts of the "pleasure ground" and "wilderness parks" became the model for the development of public parks in Los Angeles. Characterized by their romantic and idyllic picturesque qualities, the pleasure ground and wilderness parks were born out of the American Transcendentalist movement of the late nineteenth century, which promoted natural and open spaces as a regenerative experience in contrast to the conditions within industrialized urban centers of the period.[41] Although intended to be natural settings, pleasure-ground parks were carefully designed and maintained to create the illusion of a natural, organic setting, whereas the wilderness park model would retain large areas of land as is, with some landscaped elements along the periphery and at select locations.

In Los Angeles, these park types also had a practical role in redeveloping land that had no profitable use or was perceived as undevelopable, either through uneven terrain, poor drainage, or other site conditions that impeded construction. The land for these early pleasure grounds and wilderness parks was often either donated to Los Angeles for development and public use, or was developed as a promotional tool for selling adjacent real estate and eventually transferred to the City.[42]

The first park developed during the late nineteenth century in Los Angles, beyond the two plaza parks, was Elysian Park. Included within the original pueblo lands and located northwest of the city's core, Elysian Park was founded in the wilderness park model with over 500 hundred acres of land with steep hills forming the parklands. Elysian Park was officially established in 1886.[43] The second park was Westlake Park, now known as MacArthur Park. Centered within the residential neighborhood and early streetcar suburb of Westlake, located west of the central business core, the land of Westlake Park was characterized by swamp-like conditions. Seen as a detriment to both residents and real-estate interests, the land of Westlake Park was redeveloped as a pleasure-ground park through a public-private partnership between the City and a group of citizens. As with many pleasure grounds, Westlake Park's wetlands were redeveloped into a lake as a central water feature, whereas the surrounding spaces were redeveloped with rolling hills and various plantings for garden strolls and picnicking. A boat house, consistent with the Victorian tradition, was also constructed along the lake.[44]

[41] Prosser, 2017, pp. 7-8.

[42] Prosser, 2017, pp. 7-8.

[43] Prosser, 2017, p. 8.

[44] Prosser, 2017, pp. 7-9.

In 1889, Eastlake Park was created in the now-known neighborhood of Lincoln Heights on land donated to the City by the Southern Pacific Railroad. Similar to Westlake Park, Eastlake Park was centered around a water feature of two lakes. Associated in part with the original zanjas water conveyance system of Spanish and Mexican-era Los Angeles, the two lakes served as storage reservoirs in addition to providing scenic and recreational value within the park. The park became one of the most popular destinations in Los Angeles, known for its idyllic scenery and notable attractions, which would eventually include rides and other carnival like amenities.[45]

In 1889, the City of Los Angeles created the Department of Parks to design and manage the growing numbers of parks. Administered by the Parks Commission, the Department of Parks would come to internally design, relandscape, and manage twelve parks by 1903. In addition to the original plazas and the two pleasure ground parks of Westlake and Eastlake, the Department of Parks acquired, designed, and developed Echo Park (established 1891), Hollenbeck Park (established 1892), and Sunset Park (established 1895, now known as Lafayette Park), as well as smaller park spaces such as Prospect Park, St. James Place, South Park.[46] By far the largest park in Los Angeles was that of Griffith Park. Named after Griffith J. Griffith – a wealthy mining magnate, industrialist, and an infamous character in Los Angeles during the late nineteenth and early twentieth century – the park was founded on several thousand acres of the former Rancho Los Feliz that Griffith ultimately donated to the City of Los Angeles for use as a public park in 1896.[47] Due to its vast size and mountainous topography, Griffith Park was retained in the wilderness park tradition by retaining much of the existing landscape with limited improvements through new circulation patterns and development along the more accessible peripheries.[48]

The most notable outlier from City of Los Angeles-owned parks during this period was Exposition Park. Located south of the central core of Los Angeles and established in 1872, Exposition Park, known at the time as Agricultural Park, was used as an agricultural fairground, complete with a horse racing track. Having earned a reputation for vice and being seen as a nuisance, the 160-acre parcel containing Agricultural Park was purchased by the State of California in 1880 to reuse the land as an agricultural exhibition space and use as a pleasure ground.[49]

DEVELOPMENT OF MUNICIPAL PARKS (1904-1941)

During the early twentieth century, the public park evolved from the pleasure ground and wilderness park models to a more modern iteration of the municipal park. In addition to planned and manicured open spaces – expressed in a mixture of picturesque and formal compositions – municipal parks began featuring a series of amenities and facilities that catered to a variety of recreational uses, marking a shift from a "passive enjoyment of the landscape," to more developed activities and amenities.[50] Consistent with the Progressive-era reforms of the early twentieth century, the municipal park model would often feature various educational and cultural programs, as well as the promotion of the outdoors and sport, all through purpose-built buildings, structures, playing fields, and other facilities.[51]

Early examples of the municipal park model came through the re-imagining and partial redevelopment of the existing pleasure ground parks through the introduction of new amenities and facilities. This was evident with the creation of the Griffith Park Zoo and the greenhouses of the Eastlake Park Conservatory,

[45] Prosser, 2017, p. 9.

[46] Prosser, 2017, pp. 9-11.

[47] Harnisch, L. 2013. "A Cosmic Gift to L.A." *Los Angeles Times*, February 26, 2013. ProQuest Historical Newspapers.

[48] Prosser, 2017, p. 10.

[49] Prosser, 2017, p. 11.

[50] Prosser, 2017, p. 11.

[51] Prosser, 2017, p. 11.

both in their namesake parks as well as a series of golf courses, horseshoe pits, and similar recreational elements.[52]

The first of the pleasure ground parks to be remodeled in the municipal park tradition was Eastlake Park. During the early twentieth century, Eastlake Park evolved from its original picturesque composition with the removal of insular roads for pleasure drives, ornamental bridges, and the expansion of picnic grounds and other open spaces for activities. While Eastlake Park did have a small zoo for a period of time, this too was removed and the area was redeveloped for park activities, transitioning the animals to a new zoo space at Griffith Park, which was designed and constructed in the Rustic tradition.[53]

Elysian Park was also transitioned from pure wilderness park to include more municipal park elements. Although the park was still in part celebrated for its wild and outwardly appearing natural qualities, new hiking trails, roadways, picnic areas, and camping facilities were developed to promote outdoor recreation in proximity to the growing communities in the Los Angeles area.[54] Similarly, Griffith Park saw the slow introduction of new elements and amenities, particularly along the more gentle slopes on the eastern side of the parklands. In addition to the Griffith Park Zoo that was constructed between 1912 to 1913, Griffith Park saw the construction of a municipal golf courses in 1914, 1923, and the 1930s; development of tennis courts, hiking trails, new picnic grounds, children's camps, and playgrounds; and construction of the Greek Theatre perming arts venue and the Griffith Observatory, both of which opened to the public in the 1930s.[55] While Griffith Park would come to boast many of the early recreational amenities and publicly facing cultural institutions, it retained much of its mountainous and undeveloped lands, which promoted outdoor recreation.

The state-owned Exposition Park was also redeveloped during this period to include cultural institutions, such as the Los Angeles County Museum of History, Science, and Art. The park was also re-landscaped in the City Beautiful tradition, which included more formal garden spaces with axial pathways throughout a series of sunken gardens, rose gardens, and prominent water fountains and other features. Many other smaller parks were also re-landscaped in accordance with the City Beautiful tradition, including the original plaza space of 6th Street Park, which was renamed Central Park following its remodel in 1910.[56]

As other communities throughout Los Angeles County grew alongside the namesake city, they too established a series of municipal parks. In 1902, the City of Pasadena constructed two new parks, the Central and Memorial parks, both of which were developed in the City Beautiful tradition. While Pasadena had garden spaces open to the public, such as the Busch Gardens, these were primarily private estates. The momentum for public parks increased during the early twentieth century and quickly expanded to include several parks during the 1910s and 1920s, including Brookside Park, which utilized extensive acreage in the Arroyo Seco for a variety of recreational purposes with a community center, golf course, swimming pool, walking trails, the Rose Bowl stadium, and other facilities that marked the shift towards increased recreation as a primary function of public parks.[57]

In addition to the re-imagining of the existing park spaces, there was an increased emphasis on the creation of smaller neighborhood parks and recreation centers during this period. The City of Los Angeles' Department of Playgrounds and Recreation was created in the 1920s, which reflected the increased mission of expanding both adult and children's recreational opportunities throughout Los Angeles. This resulted in a variety of new playgrounds; recreational club houses, bath houses, and public

[52] Prosser, 2017, p. 11.

[53] Prosser, 2017, pp. 12-13.

[54] Prosser, 2017, pp. 13-14.

[55] Prosser, 2017, pp. 15-17.

[56] Prosser, 2017, p. 6.

[57] Sapphos Environmental, Inc. 2012. *National Register of Historic Places Registration Form – Historic Designed Gardens in Pasadena, 1873-1975*, pp. E.39–E41. National Park Service.

swimming pools; and the promotion of public beaches throughout the region.[58] While some of these elements were introduced into existing parks, such as the recreational clubhouse at Echo Park, many were developed in new park spaces throughout the city. The collection of these recreational amenities within small municipal parks gave rise to the recreation center model, which included facilities that catered to variety of recreational pursuits.[59]

The development of these recreational facilities and other park improvements continued during the 1930s, despite the challenging economic conditions of the Great Depression. This was due largely to the Roosevelt Administration's New Deal policies and the creation of the WPA and similar programs that were tasked with employing citizens to construct new public amenities, including park landscapes and facilities. While the WPA was involved with countless park improvement projects throughout the Los Angeles region, one of the most notable developments was the construction of the Rancho Cienega Playground, now the Rancho Cienega Sports Park, as one of the largest municipal recreational facilities. Amenities included a running track, athletic fields and courts, public sports stadium, and a variety of other buildings, structures, and site improvements that catered to the emphasis on recreation and sport as essential public services.[60] The WPA was involved in other Los Angeles County communities as well, resulting in numerous recreational facilities, such as the Santa Anita Regional Recreational Center in Arcadia, Franklin Delano Roosevelt Park in Florence, Charles Farnsworth Park in Altadena, Belvedere Community Regional Park in East Los Angeles, and extensive upgrades to Brookside Park in Pasadena, among others.[61] The emphasis on sport was reflected in other parks as well, both on a smaller and significantly larger scale. This is particularly evident at the state-owned Exposition Park, where the Los Angeles Memorial Coliseum and Olympic Swim Stadium were constructed for the 1934 Olympic Games in Los Angeles.[62]

POSTWAR PARKS IN LOS ANGELES (1945–PRESENT)

The postwar period in Los Angeles saw exponential population growth and the proliferation of suburban residential neighborhoods. With the decentralization of sprawling new neighborhoods that extended throughout the region, new community parks and recreational centers were seen as fundamental components of these developments. In just the City of Los Angeles, plans for thirty new neighborhood recreation centers and thirteen regional sports centers were developed by the late 1940s. The neighborhood recreation centers were typically three to seven acres, would feature a recreation center or clubhouse, and would be surrounded by park land with picnic spaces, playgrounds, open space, and occasionally a playing field. The larger regional recreation centers would cover 10 to 20 acres and feature expanded recreational facilities, including public swimming pools, athletic fields, gymnasiums, and other recreation buildings that could serve multiple purposes.[63] All facilities would also include parking lots, consistent with the suburban environment and the inherent dependence on cars as the primary mode of transportation. The recreation center would be the standard model for park development during the 1950s and 1960s in communities throughout Los Angeles County, California, and the broader United States.

[58] Prosser, 2017, p. 22.

[59] Prosser, 2017, pp. 22-25.

[60] Prosser, 2017, pp. 28-29.

[61] Architectural Resources Group, Inc. 2016. *City of Arcadia Citywide Historic Context Statement*, p. 4. Prepared for the City of Arcadia Development Services, Planning Division; The Living New Deal, 2014. "Franklin Delano Roosevelt Park." Available at: https://livingnewdeal.org/projects/franklin-delano-roosevelt-park-los-angeles-ca/, accessed August 17, 2022; The Living New Deal, 2014. "Charles S. Farnsworth Park," Available at https://livingnewdeal.org/projects/charles-s-farnsworth-park-altadena-ca/. Accessed August 17, 2022; The Living New Deal, 2014. "Belvedere Community Regional Park." Available at: https://livingnewdeal.org/projects/belvedere-community-regional-park-los-angeles-ca/. Accessed August 17, 2022; The Living New Deal, 2016. "Brookside Park Improvements." Available at: https://livingnewdeal.org/projects/brookside-park-improvements-pasadena-ca/. Accessed August 17, 2022.

[62] State of California, Exposition Park. n.d. Park History. Available at: http://expositionpark.ca.gov/about-us/park-history/. Accessed August 18, 2022.

[63] Prosser, 2017, pp. 29-30.

While postwar parks utilized the modernist architectural vocabulary and focused on a variety of recreational amenities and sports facilities, later postwar parks in Los Angeles would revert to a more picturesque and natural aesthetic. This was reflected in new regional parks, which retained a combination of recreational facilities and amenities, as well as more naturally apparent landscapes as part of the promotion of outdoor education and a more tranquil experience, marking a return to a more wilderness park and pleasure ground-based ethos within the context of the emerging environmental conservation concerns.[64] This was evident at larger park developments in communities within the San Fernando Valley and other suburban areas where more rugged land was still accessible, such as Chatsworth Park and a series of interconnected parks set within the canyons of the Porter Ranch development.[65] The County of Los Angeles Department of Parks and Recreation was also instrumental in promoting the new emphasis on natural landscapes and conservation by overseeing a variety of regional natural areas, wildlife sanctuaries, historical and cultural sites, in addition to the various arboreta, botanical gardens, lakes, and other parks under their purview.[66]

During the 1970s and 1980s, some parks in Los Angeles, particularly those in core urban areas, entered into a state of perceived decline. Driven in part by increased suburbanization and the middle-class's focus on the private residential backyard, many public parks became underutilized and associated with increased vandalism, violence, and criminal activity. Increased maintenance and security costs coupled with budget cuts perpetuated this decline of parks in Los Angeles during this period. However, despite these challenges, as well as new challenges such as increased homelessness, various parks and recreation agencies throughout Los Angeles County have continued to develop, rehabilitate, and market park properties for the public's use and accommodate shifting trends in recreation.[67]

History and Context of the Project Site

Rancho La Brea, Early Settlement

The project site and the surrounding area was initially inhabited by Native Americans who the Spanish called Gabrielino, and who today call themselves Gabrieleño, Tongva, and Kizh. They maintained a network of villages throughout the Los Angeles River basin, including a village near the tar pits. The tar pits were an uncommon and valuable resource, providing the bituminous coating that could be used for creating impermeable barriers for canoes and water carrying vessels.[68] The first Europeans to document the La Brea tar pits were part of the Spanish expedition under Gaspar de Portolà, who came across them in 1769 while enroute from San Diego to San Francisco. With the founding of Spanish settlements in the region, particularly the Pueblo de Los Angeles, the tar pits continued to be an important resource for the growing community as a construction material, particularly as a roof sealant. Roadways were established along the former Native American trails, connecting the tar pits with the pueblo. The most prominent of these was El Camino Viejo, which was frequented by ox-driven wagons carrying the bituminous material, referred to as *brea*, from the tar pits to the pueblo for building applications.[69]

Following Mexican Independence, the area around the tar pits was provisionally granted in 1828 as Rancho La Brea to Antonio Jose Rocha, a Portuguese immigrant who was a blacksmith and prominent settler in Pueblo de Los Angeles. The land grant, which covered portions of present-day Mid-Wilshire,

[64] Prosser, 2017, p. 38.

[65] Prosser, 2017, pp. 38-39.

[66] County of Los Angeles Department of Parks and Recreation. 2022. Park History. Available at: https://parks.lacounty.gov/about-us/. Accessed August 17, 2022.

[67] Prosser, 2017, pp. 43-44.

[68] Architectural Resources Group, Inc. 2015. *SurveyLA: Historic Resources Survey Report, Wilshire Community Plan Area*, p. 10. Prepared for City of Los Angeles Department of City Planning, Office of Historic Resources.

[69] McCawley, William, 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles*. Mali-Ballena Press, Banning, California.

Hollywood, and West Hollywood, was specifically given with the condition that the public could continue to travel to the tar pits to extract the brea material as needed. While Rocha and his family established an adobe ranch house on the rancho, portions of the 4,400-acre property were sold off over the following years.[70]

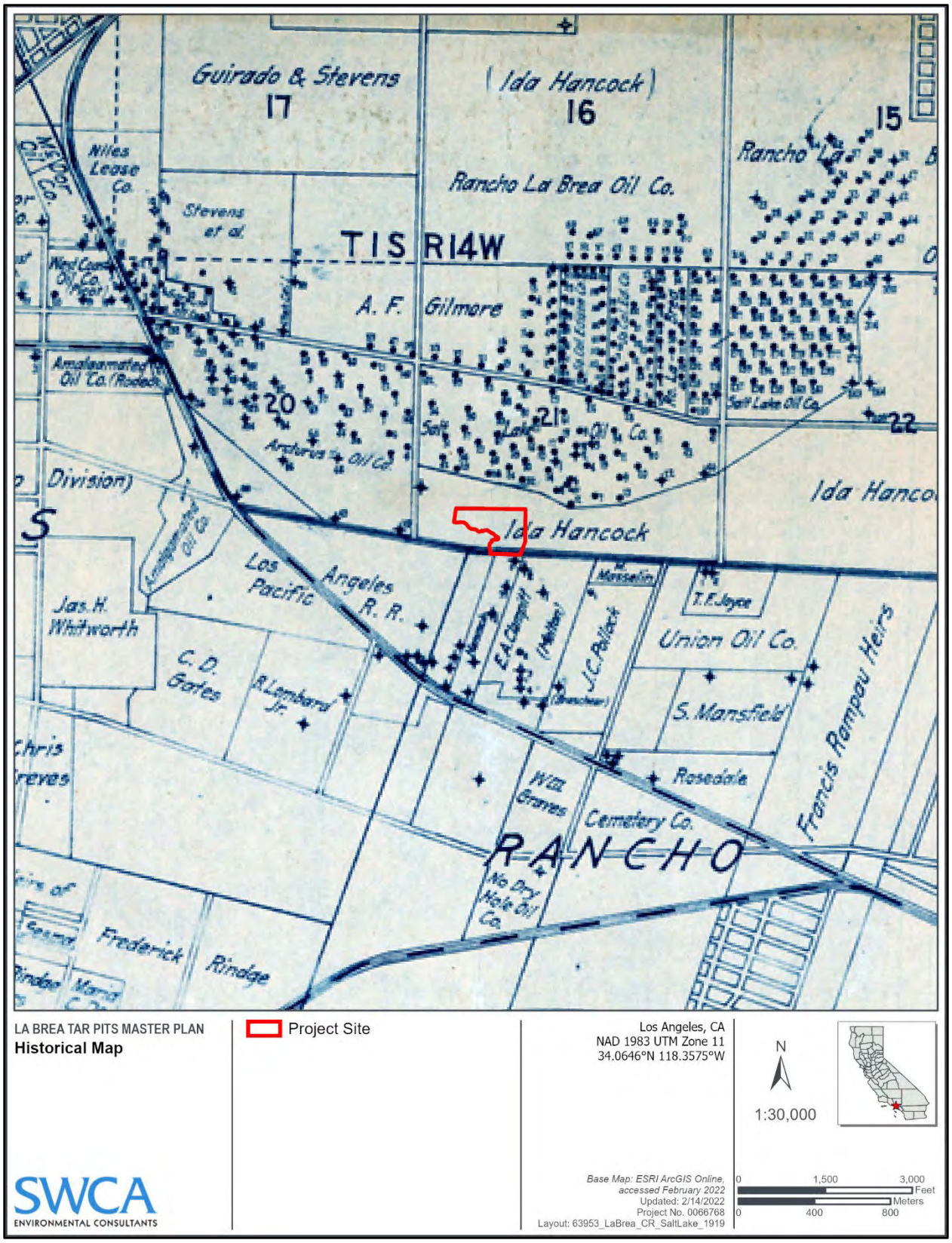
In 1849, Major Henry Hancock came to California as part of the California Gold Rush, initially settling in San Francisco before relocating south to Los Angeles. Through his work as a surveyor, Major Hancock was responsible for surveying the former land grants, often on the behalf of the original grantees as part of the lengthy legal battles regarding ownership following the annexation of California by the United States. Hancock worked on behalf of the Rocha family in their claim to the Rancho La Brea lands, and ultimately purchased the property when the Rochas were unable to pay the extensive legal expenses incurred during the drawn-out process.[71] Major Hancock and his wife Ida primarily used the ranch for raising livestock, but also excavated asphaltum and shipped the materials from the tar pits throughout California. The excavations on the property ultimately filled with water to create the large asphaltum lakes that famously characterized the property over the following decades.

Rancho La Brea was one of several properties owned by Major and Ida Hancock throughout California (Figure 19). With multiple political and commercial pursuits throughout the state, the Hancocks were prominent in San Francisco, Sacramento, as well as Los Angeles.

[70] Seaman, F.J. 1914. A brief history of Rancho La Brea. In *Annual Publication of the Historical Society of Southern California* 9(3):253–254.

[71] Architectural Resources Group, 2015, p. 10.

Figure 19. The large-scale holdings of Ida Hancock in the vicinity of the project site, 1919, with dots indicating location of oil wells



Following Major Hancock's death in 1883, his wife, Ida Hancock relocated with their three children to the rancho, where they continued with livestock ranching.[72] From their ranch home on the banks of one of the oil lakes, the Hancocks led a relatively modest life during this period. However, by the end of the nineteenth century, oil exploration was becoming commonplace in the Los Angeles basin, and exploration of the Rancho La Brea lands was of particular interest to early oil prospectors.

In the early 1900s, Ida Hancock leased a portion of Rancho La Brea to the Salt Lake Oil Company, which quickly struck oil and spurred a significant boom in well development and oil production. Ida Hancock, along with her son George Allen Hancock, founded the Rancho La Brea Oil Company, which began developing wells and producing oil on the unleased portions of their property.[73]

In a short period, the Rancho La Brea lands surrounding the ranch house and tar pits would become a vast oil field, characterized by a landscape of derricks (Figure 20), and the Hancocks would be considered one of the wealthiest families in California.[74]

Figure 20. Colorized photograph of Rancho La Brea with the Hancock ranch complex at center and oil field in the background, ca. 1910

Source: California State Library, California Revealed Digital Preservation Initiative

[72] Seaman, 1914, p. 254.

[73] Seaman, 1914, pp. 254–255.

[74] Seaman, 1914, p. 255.

FOSSIL EXCAVATIONS AT RANCHO LA BREA

While fossil excavations would not begin until the early 1900s, the existence of fossils in the La Brea Tar Pits had been observed as early as 1875, by Dr. William Denton in a paper presented to the Boston Society of Natural History.[75] Early twentieth-century oil exploration, however, brought to light the extent and significance of the site's paleontological resources. In light of the importance of the site and following its 1923 donation to the County of Los Angeles the long-term use and character of the large parcel now encompassing Hancock Park diverged significantly from the surrounding, densely developed neighborhood. In the early twentieth century, Rancho La Brea had already been recognized as home to one of the most important collections of late Pleistocene asphaltic fossils in the world.

During the era of oil exploration, between 1901 and 1902, geologist W.W. Orcutt visited Rancho La Brea to conduct studies on the feasibility of oil production for the Union Oil Company. As part of these investigations, Orcutt discovered fossils of prehistoric animals, including teeth from saber-toothed cats.[76]

Based on this discovery, in 1906, paleontologist Dr. John C. Merriam from University of California, Berkeley, was granted access to conduct a dig on the property, forming the first official and scientific paleontological excavation of the property. Along with a group of students, Dr. Merriam and his team began to dig out and recover fossils, procuring them for exhibition at the university.

News of the dig spurred interest from other institutions, including Occidental College, University of California, Los Angeles, Los Angeles Museum (now the Natural History Museum of Los Angeles County), the Southern California Academy of Sciences, and even Los Angeles High School, all of which conducted digs and secured enough material to reconstruct their own skeletons (Figure 21).[77]

Figure 21. Excavations of fossils at Rancho La Brea with oil derricks in the background, 1911 (left); workers cleaning extracted fossils, ca. 1915 (right)

Source: Los Angeles Public Library

[75] Kegley, H. 1940. "Something Bigger Than Barnum: A Monument to Monsters." Los Angeles Times, 10 March 1940. ProQuest Historical Newspapers. Available at: https://www.proquest.com/latimes/index.

[76] Seaman, 1914, p. 255.

[77] Bartlett, D.W., 1927. "Progress Made in Developing Tomb of Giants: Creation of New Park at La Brea Pits Gives City Unique Monument." *Los Angeles Times*, 27 March 1927. ProQuest Historical Newspapers; Kegley, H. 1940. "Something Bigger Than Barnum: A Monument to Monsters," *Los Angeles Times*, 10 March 1940, ProQuest Historical Newspapers. Available at: https://www.proquest.com/latimes/index.

As word spread of the concentration of fossils at Rancho La Brea and requests for concessions to excavate continued to pour in, the Hancock family reevaluated their approach and drastically reduced the number of institutions that would be allowed to dig on the property. Priority was granted (exclusively) to local institutions, primarily the Los Angeles County Museum of History, Science, and Art (the predecessor to the Natural History Museum) which was given a 2-year concession to excavate and uncover as many fossils as feasible. The concession featured a strict time limit, so the County provided the necessary grants to recover the maximum amount of material within the allotted period.

Led by museum directors Frank S. Daggett and William Alanson Bryan, alongside a team of ornithologists and paleontologists, a crew of a dozen worked steadily for the entire 2-year concession; the team's painstaking process, along with a preview of treasures unearthed, was described in a feature-length article in the 27 March 1927 issue of the *Los Angeles Times*.[78]

As described in the article, in terms of process, the team would locate a deposit of fossils, then start digging a long trench to cover the lateral extent of the deposit, before digging outwards in 3-foot transects. Bone locations were then removed for processing, cataloguing, and transfer to the museum's facility at Exposition Park. During the dig, the team excavated over 100 pits, of which 30 included noteworthy deposits. From these deposits, the team extracted hundreds of thousands of fossilized prehistoric animal bones, which were catalogued and transported to the museum. At the time, this find was considered the largest collection of Pleistocene fossils in the world, representing thousands of animals, including wolves, saber-toothed cats, giant sloths, short-nosed bears, birds, camels, bison, and the iconic mammoths and mastodons, among others.

While the fossils uncovered by the Los Angeles County Museum of History, Science, and Art dig were too plentiful for a single exhibition, the museum constructed a special exhibition space called "La Brea Hall," where some of the most iconic and complete skeletons were displayed. In addition to the exhibits in La Brea Hall, Hancock Park and the La Brea Tar Pits became an extremely popular tourist destination; by 1940, the park attracted an estimated 500 visitors each weekday, and 1,000 each Sunday.[79]

Newspaper coverage in the *Los Angeles Times* in 1940 presented an overview of the offerings of La Brea Hall; as shown in Figure 22 below; captions read "Dr. John A. Comstock, left, and Dr. William Bryan examine a reconstructed bear of the glacial period; the bones were found in the tar pits" (left image) and "This skeletal exhibit at the museum represents 25 years of work—digging, scraping, classifying and assembling" (right image).

[78] Bartlett, 1927.

[79] Kegley, 1940.

Figure 22. Exhibits at La Brea Hall, 1940

Source: Los Angeles Times, 10 March 1940

Hancock Park

The project site falls within the larger 23-acre Hancock Park, which has remained intact as a relatively undeveloped open space, public park, and cultural institution in the Mid-Wilshire neighborhood for nearly a century.[80] The complex is characterized by a mixture of recreational space, walkways, hardscaping, mature trees and landscaping, the La Brea Lake Pit, seeps, and excavation pits, and museums/exhibition spaces both on-site and in the surrounding vicinity. Established in the early 1920s, Hancock Park owes its tenure and significance to the naturally occurring tar pits and paleontological fossil deposits throughout and beneath its surface (described in the previous section).

FOUNDING YEARS

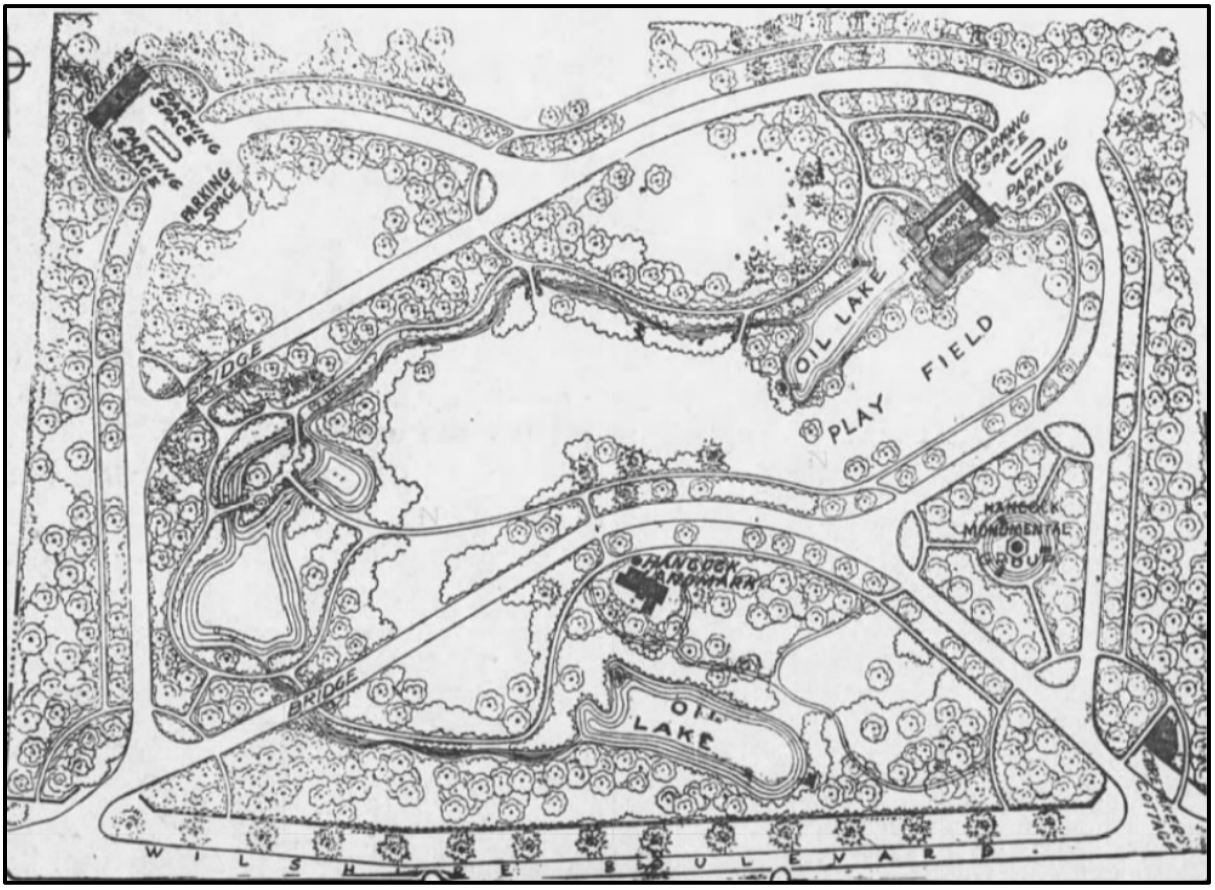
In 1915, in light of the site's scientific importance, G. Allan Hancock (son and heir of Henry and Ida Hancock) and the County of Los Angeles began discussing a potential donation of the tar pits and 32 acres of the adjacent property for a park and museum, which would preserve the space in perpetuity for scientific investigations and public enjoyment and education. Stipulations of the donation, as outlined by Hancock, included construction of a small museum for exhibiting fossils and sculpted recreations of the prehistoric mammals; landscape development with trees, ornamental shrubs, and fencing; parking and

[80] Not to be confused with the Los Angeles residential neighborhood of Hancock Park, which is located east of the project site.

circulation catering to automobiles; and the general condition prohibiting oil development on the property.[81] To solidify these stipulations and provide a robust vision for the park's development, Hancock commissioned landscape architect Paul G. Thiene to prepare a plan in 1916; Thiene worked in conjunction with his associate at the time, renowned architect Lloyd Wright.[82] Theine, a German-born landscape architect and horticulturalist, worked for a number of prominent horticulturalists and landscape designers in the early twentieth century. By 1910, Thiene was working with renowned landscape architects, Frederick Law Olmsted, Jr., and John Charles Olmsted. He assisted the Olmsted brothers with the San Diego Panama-California Exposition. Although the Olmsted brothers left the Balboa Park commission, Thiene continued to work on the project with Bertram Grosvenor Goodhue. Theine's contributions to Balboa Park attracted multiple high-profile commissions for private gardens throughout the southland.[83] This included G. Allen Hancock, who commissioned Thiene to prepare a preliminary plan for Hancock Park as part of the proposed donation.

An article in *The Los Angeles Times* outlined details of the plan developed by Thiene in partnership with Lloyd Wright, including a rendering of the site plan, which reflected a picturesque, and Olmstedian design (Figure 23). The Thiene and Wright plan was never realized, but the plans represent the first attempt to apply a unified master plan and design to the park and its cultural resources.

Figure 23. Site plan for Hancock Park, 1916, Paul G. Thiene and Frank Lloyd Wright, Jr.



Source: Los Angeles Times, 12 December 1916

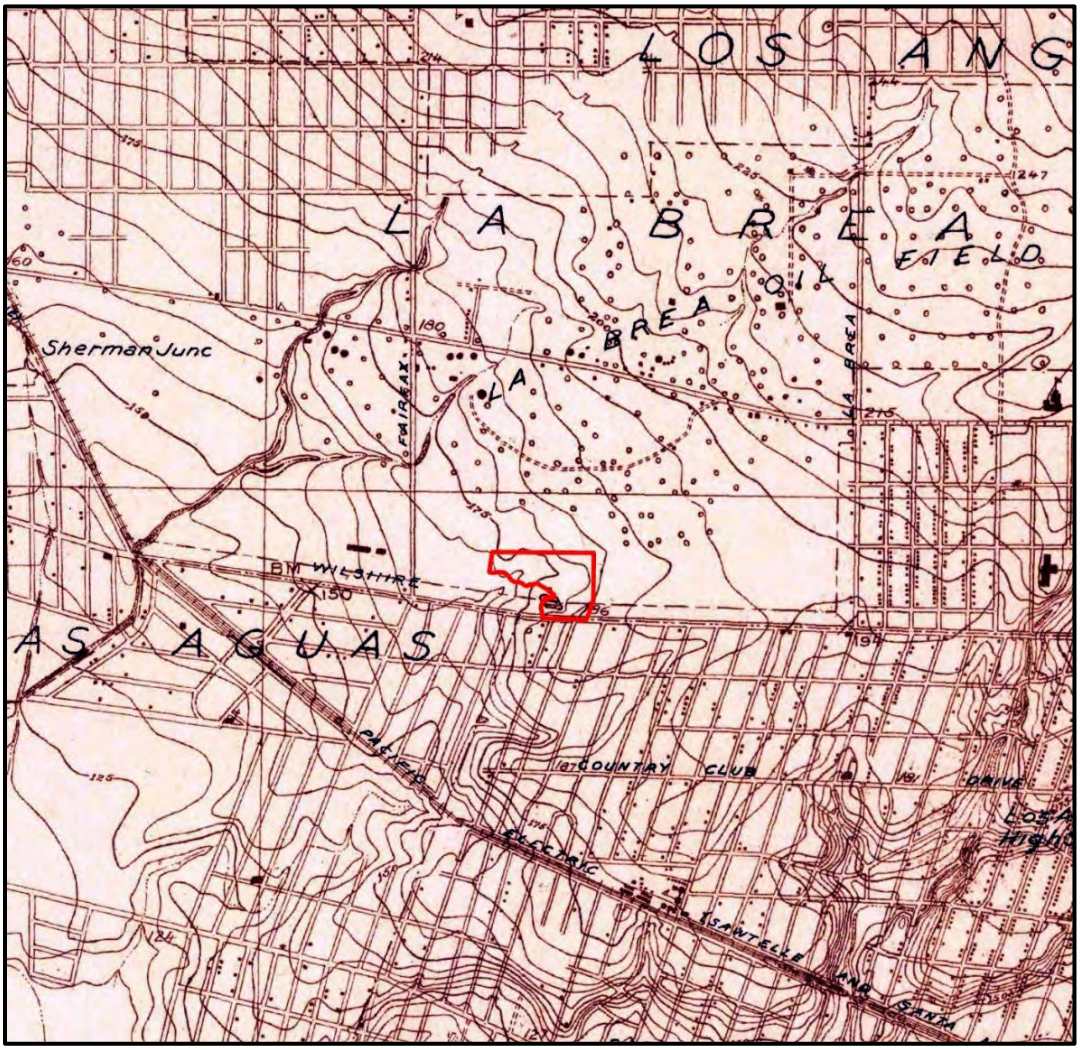
[81] "Unique Among World Parks," *The Los Angeles Times*, May 2, 1916.

[82] "Deed to Hancock Park is Given to County," *The Los Angeles Times*, December 12, 1916.

[83] Carter, N.C. 2022. Place Studies - Paul Thiene in Southern California. Library of American Landscape History. Available at: https://lalh.org/place-studies/paul-thiene-in-southern-california-2019/. Accessed April 27, 2022.

In subsequent years, Hancock and the County continued discussions on the terms for the donation of the property for use as a public park. By 1923, ongoing negotiations around the Hancock land gift were showing promise. The land gift was reduced to approximately 25 acres and included revised stipulations by Hancock, which required that the entirety of the land be used for public park purposes, the tar pits remain unchanged and open for visitors to observe, that work on the park must begin immediately, and that no fence more than 5 feet high would be erected closer than 30 feet from the street.[84] The terms were finalized in December 1923, and the land was officially transferred to the County in 1924 (Figure 24).[85] Reporting from the time suggests that no formal plans were submitted as part of the transfer, but Hancock's stated wish was that the property be developed as one of the City's finest urban parks. With no accompanying financial gift with the property, however, the County was responsible for funding improvements. In light of this, the County adopted a phased approach, beginning on limited projects while a unified, overall plan was developed.

Figure 24. Project site as of 1924, as surrounding areas were in the process of rapid subdivision and development; as of 2022, Hancock Park's oversized parcel remains one of the few in the area



Source: 1924 USGS Hollywood topographic map

[84] "Land Gift for County Park," *The Los Angeles Times,* November 27, 1923.

[85] "Hancock Park to County," *The Los Angeles Times,* December 12, 1923; "La Brea Tar Pits History," La Brea Tar Pits & Museum. Available at: https://tarpits.org. Accessed April 27, 2022.

PRE-WORLD WAR II EXPANSION (1926–1944)

As the donation of Hancock Park was finalized, during the Roaring 1920s, the park's surrounding vicinity was in the midst of a significant transformation. During Los Angeles's 1920s boom, this area (along with many others throughout Los Angeles and Southern California) shifted from expansive ranch lands and oil fields to a rapidly developing metropolis. During Hancock Park's first decade, the City experienced rapid urban development and exponential growth. Due to Hancock's gift, however, the large open space and cultural resources on the site of Hancock Park weathered the development pressure that was steadily transforming all surrounding areas of the neighborhood.

During this time, the original El Camino Viejo roadway, which connected the tar pits with the Pueblo de Los Angeles in the City's original downtown, was developed as Wilshire Boulevard. Wilshire continued along the original alignment along the southern boundary of the former Rancho La Brea land grant, extending west towards Santa Monica and the Pacific Ocean. With the growth and expansion of Los Angeles in the early 1920s, and the original downtown increasingly clogged with traffic congestion, the developer A. W. Ross sought to capitalize on this momentum; he saw Wilshire Boulevard as the perfect location for a new commercial district.[86]

With the completion of the Ambassador Hotel in 1921 (Wilshire Boulevard and Normandie Avenue) in 1921, along with the construction of high-end communities like Hancock Park and Beverly Hills, Ross realized that the City's westward expansion along Wilshire was inevitable. He sought to create a new, vibrant commercial corridor. Focusing on the segment between Highland and Fairfax avenues, Ross began to speculatively purchase the vacant lots that were subdivided from agricultural and oil field properties that defined the area. To many, the idea of the commercial district seemed fantastical, especially in an area defined by the tar pits, crowded oil fields, and open farmland.[87] Nevertheless, Ross continued to strategically purchase property for development along and adjacent to Wilshire Boulevard.

By the mid-1920s, limited development had occurred, and the moniker "Miracle Mile" had been created. By the 1930s, Wilshire Boulevard had become an established, highly sought-after commercial corridor with grand Art Deco and Moderne office buildings, department stores, theaters (and well-advertised parking lots, which provided a welcomed relief and draw for shoppers and visitors). The increasing urbanization of the area continued to encroach around Hancock Park throughout this period.

In 1926, during the initial phase of Ross's plans for the Miracle Mile, renewed plans for Hancock Park were announced by the County. New designs for "Pleistocene Park," as the Hancock Park property was referred to, featured notable similarities to the 1916 plans, with extensive plantings around the park perimeter, a central open lawn and recreational field, the preservation of the open tar pools and oil lakes, and the restoration of the original creek that extended diagonally through the site (Figure 25). However, the updated plan included some variations, including the omission of on-site parking and automobile circulation through the park, formal landscaping and collections of monuments, and plans for a pedestrian bridge extending from Wilshire Boulevard across the Lake Pit, leading directly into a new museum.[88] These changes reflected an updated vision of providing a space that looked and felt like a Pleistocene (rather than Beaux Arts classical) environment, by creating a semi-immersive parkland focusing on the paleontological significance of the site.

In addition to removing automobile circulation from the park, the key elements of this reimagining of the "dawn-era landscape" included restoring water features, a robust planting plan along the perimeter of the property, preserving open pits for interpretive and scenic purposes, and the adding statues of prehistoric

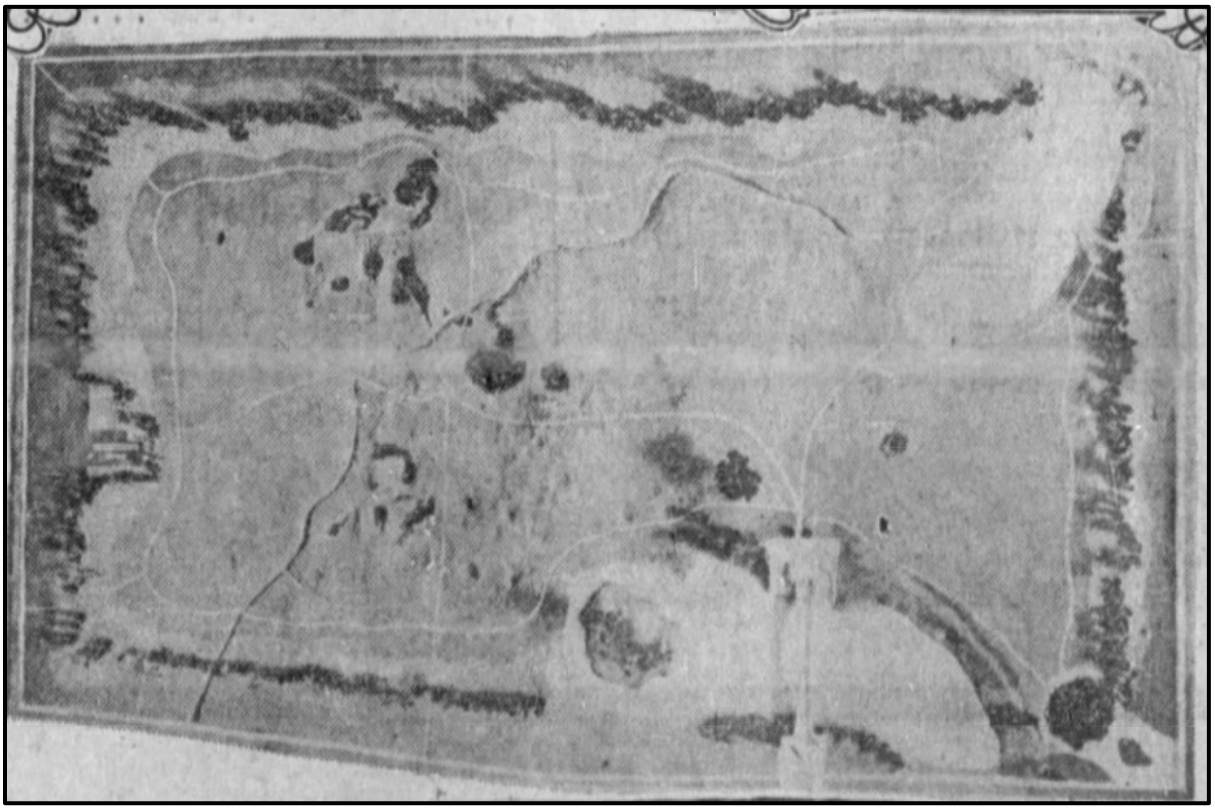
[86] GPA Consulting, 2017, p. 9.

[87] GPA Consulting, 2017, p. 9–10.

[88] Crane, C. "La Brea to Be Made Park," *Los Angeles Times*, November 7, 1926.

creatures throughout the meandering pathways.[89] The plans also called for separating the park from the surrounding, increasingly urban environment by a perimeter of trees, which would create a version of the Pleistocene environment and an immersive experience for visitors.

Figure 25. 1926 plan for Hancock Park (originally "Pleistocene Park"); note large Lake Pit in southeastern corner, with pedestrian bridge leading to museum, and open tar pits throughout



Source: Los Angeles Times, November 7, 1926

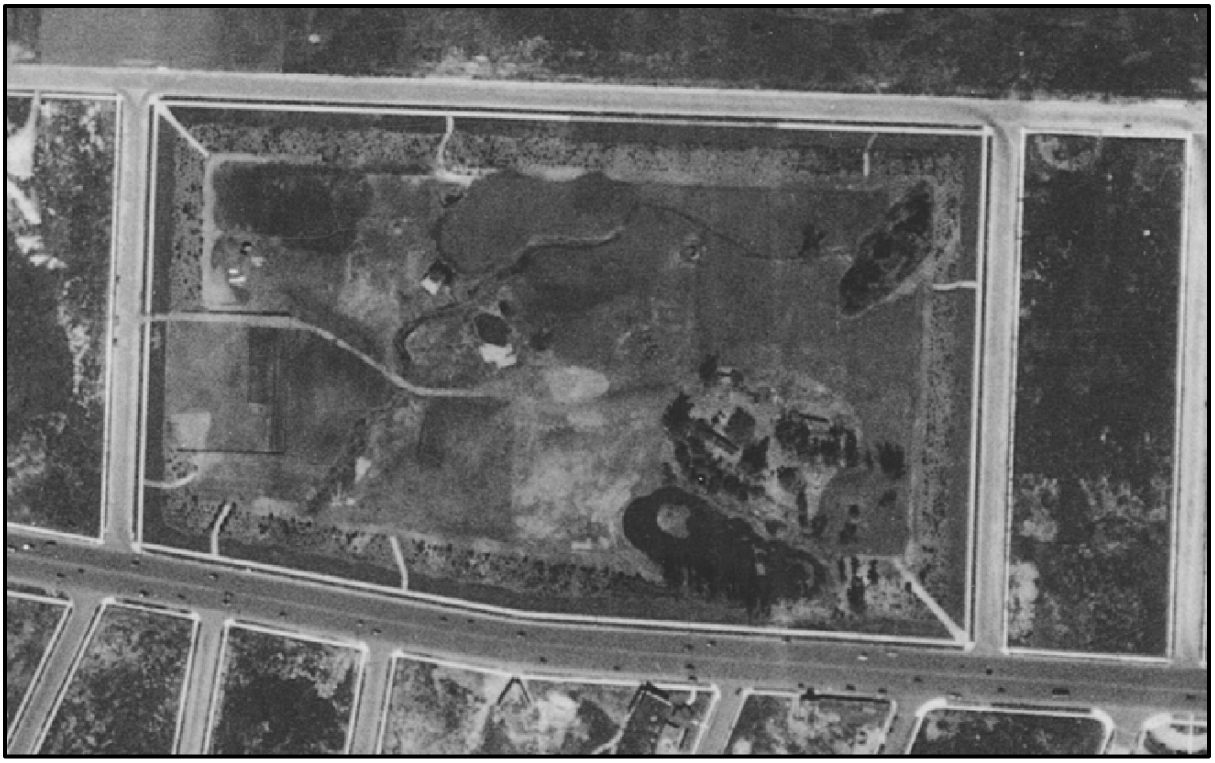
The County Board of Supervisors approved the plan in 1927. This initial scope of work involved clearing and grading a border around the perimeter of the park with some access paths that extended from the surrounding streets, primarily at the corners of the property.[90] This 75-foot-wide setback from the street remained one of the only developed aspects of the property for several years. An aerial photograph from 1928 exhibits these conditions (Figure 26), though there appears evidence of grading occurring towards the center of the property. This likely corresponds with utility upgrades to the property, which included the placement of water mains and conveyance infrastructure as part of the stream restoration.[91]

[89] Bartlett, 1927.

[90] Bartlett, 1927.

[91] "Beauty Reigns in Pit of Doom," *Los Angeles Times*. September 8, 1928. ProQuest Historical Newspapers. Available at: https://www.proquest.com/latimes/index

Figure 26. 1928 aerial photograph of Hancock Park, illustrating the limited redevelopment of the original 32-acre property donated to the County



Source: Environmental Data Resources, 2022

With the onset of the Great Depression in 1930, progress in implementing the 1926 plans for Hancock Park largely stalled. Improvements completed in the 1930s include construction of meandering pathways and a complex with a groundskeeper residence and maintenance building at the western edge of the property along Ogden Drive. One notable addition to the park during the 1930s was the installation of stone walls around many of the excavation pits in the northwest corner of the property (remnants of these stone walls appear extant as of 2022).

A bird's eye aerial photograph of the property, ca. 1935, shows these conditions (Figure 27). The stone masonry walls surrounding the excavation pits were constructed in a rustic style with rough stonework. The walls extended around the circumference of the most prominent excavation pits and were occasionally integrated into other site features, including a stone masonry bridge that was integrated into the stone walls and allowed for visitors to cross and directly observe the excavation pit (Figure 28).

Figure 27. Aerial photograph of Hancock Park, northwest perspective, ca. 1935

Source: Los Angeles Public Library

Figure 28. Visitors observing tar pits from stone masonry bridge (left) and overview of Hancock Park, with stone walls and site features around the excavation pits (right), 1936; as of 2022, some of the stone walls appear extant in the northwestern quadrant of the park

Source: UCLA Digital Collections

During the Great Depression, while development of Hancock Park had shown signs of progress through the 1930s, with some landscape improvements and addition of hardscape and site features, the

implementation of larger plans remained stalled (Figure 29). By the late 1930s, the County had developed plans for new pathways and the expansion of existing circulation paths. New Spanish Colonial Revival-style comfort stations were to be constructed as well, along with new drainage and water conveyance systems, repairs to/expansion of stone masonry walls, enclosures around statues depicting the prehistoric animals, as well as the replacement and upgrades to the stone masonry dam pedestrian bridge.[92]

Figure 29. Aerial photograph of Hancock Park, 1938

Source: Environmental Data Resources, 2022

In 1940, plans were commissioned by the County Board of Supervisors with grant support from the Works Progress Administration to reimagine and reorganize Hancock Park as a "paleontological park and museum."[93] The proposed plan for the park featured an Olmstedian layout, similar to the Thiene and Wright plan prepared in 1916, complete with meandering pathways through the site, spurring off from the primary entrances and a primary circular pathway (Figure 30). Proposed improvements included a new picnic area and shelter in the northeast corner; expansion of comfort station facilities; reconfiguration of the pit areas; a new meadow and open space at the eastern portion of the property; a historical garden and various didactic installations; shifting the primary entrance to Hancock Park at the southeast corner at Wilshire Boulevard and Curson Avenue; and a robust planting program that would extend throughout the site and frame designated areas where statues depicting prehistoric animals would be reorganized for viewing. Elements planned for retention at the time included the groundskeeper residence, maintenance building, and service yard at the western portion of the property, as well as the original Hancock ranch house (Figure 31).

[92] County of Los Angeles, Mechanical Department. 1938. Drawing Set, "Improvements to Hancock Park" (November 30, 1938), Sheets A-1 through A-4.

[93] "Museum Urged at La Brea Pits," *Los Angeles Times,* April 24, 1940.

Figure 30. Development plan for Hancock Park, 1940

Source: Los Angeles Natural History Museum

The 1940 Development Plan for Hancock Park, developed by County engineers and landscape architects, was officially adopted by the County Board of Supervisors in May of that year. Initial publications announcing the plans state that the modest museum building would be constructed first. Funded in part by the WPA, the museum and other initial improvements were slated to occur that year with the remaining landscaping and realization of the plan happening the year after.[94]

However, soon after the construction timeline was publicized, the WPA delayed the project due to concerns of cost overruns and issues surrounding the museum and the potential for gases from the excavation pits causing increased risk of fire.[95] The resulting delay extended into 1941, and with the advent of Pearl Harbor and the US entry into World War II, any additional development of the park was halted. The park would primarily remain in its existing condition until the post-World War II era.

[94] "Tar Pits Park Plan Speeded," *Los Angeles Times*, May 16, 1940.

[95] "Plan for County Building over Tar Pits to be Discussed," *Los Angeles Times*, October 14, 1940.

Figure 31. Visitors overlooking the primary Lake Pit in 1941, note the perimeter fencing and the original Hancock Ranch complex in the back-right

Source: Los Angeles Public Library

POST-WORLD WAR II PERIOD (1945–1955)

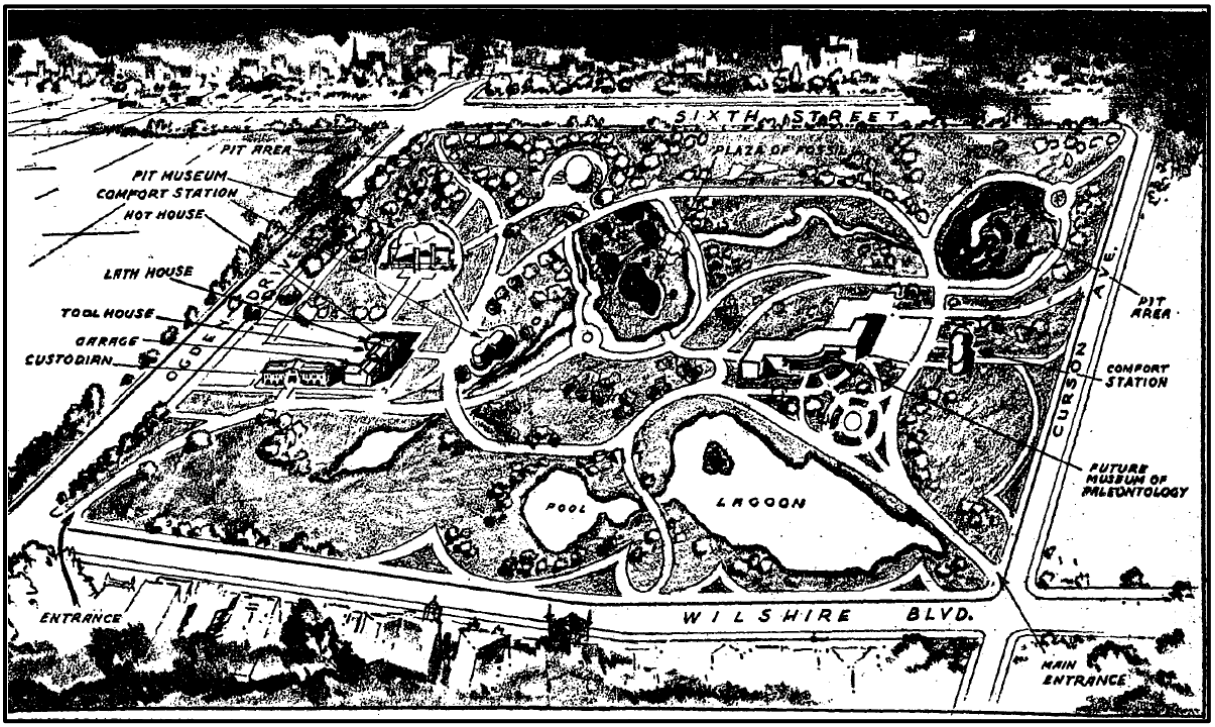
Following the end of World War II, attention returned to the conditions of Hancock Park. In 1946, the Los Angeles County Museum of History, Science, and Art (the predecessor to the Natural History Museum) began geotechnical investigations with dozens of test wells drilled throughout the site in anticipation of future development. These test bores ultimately led to the discovery of new fossil deposits, which in turn led to renewed excavation.[96] At this time, the County commissioned architect and landscape planner Harry Sims Bent to develop a new master plan for the property. Unlike previous attempts to redevelop Hancock Park, the 1948 plan would outline a four-phased approach that would gradually redevelop the park over an 8-year period (Figure 32).

The grand vision of the 1948 plan bore some similarities to previous designs, with meandering paved pathways extending throughout the property to create a picturesque environment. Other improvements included the restoration of the waterways, stream, and Lake Pit; construction of new comfort stations; a new observation pit museum over one of the excavation pits; a new museum of paleontology; and a complete redevelopment of the existing excavation pit enclosures with a new plaza around the main concentration towards the northwest corner of the park. Other initiatives included the installation of interpretive displays and educational materials. The overall landscape was intended to be redeveloped to evoke the sense of a Pleistocene environment, reflecting previous visions for the park.[97]

[96] "Animal Bones 50,000 Years Old Found in Tar," *Los Angeles Times*, June 17, 1946.

[97] "Hancock Park Tar Pits Project to Start Soon at $738,400," *Los Angeles Times*, September 19, 1948.

Figure 32. Conceptual, birds-eye illustration of the 1948 plan



Source: Los Angeles Times, 19 September 1948

Construction of the first phase of the 1948 plan was initiated the following year (Figure 33). Work included general site and utility upgrades, as well as the construction of comfort stations and an initial observation platform overlooking one of the excavation pits.[98] Subsequent work took place over the next 3 years, including the completion of the Observation Pit museum, a Mid-Century Modern style pavilion that enclosed Excavation Pit 101 and allowed visitors to descend to a viewing platform. Other projects included reorganization of the circulation paths; restoration of the streambed with new small footbridges; renewed irrigation; and landscape lighting throughout the property.[99] New plantings were also added; all plantings were picked based upon the notion that they may have existed at the site during the Pleistocene period.

Construction on the site presented numerous challenges, primarily related to the tar seepage and water drainage issues throughout the site. While regrading attempted to address many of these issues, some tar pits were filled in, occasionally requiring reopening after seepage problems persisted. However, in 1952, the first phase of the 1948 master plan prepared by Bent was largely complete and the updated Hancock Park was officially opened to the public.[100]

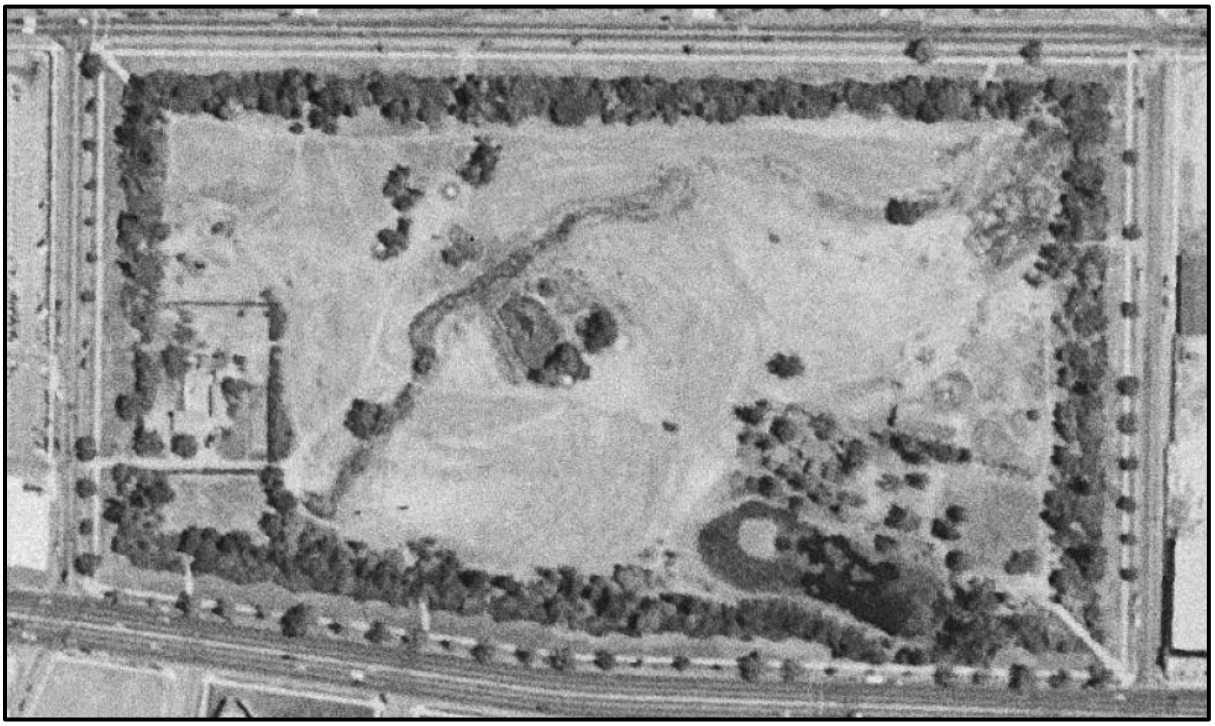
Development of subsequent phases of the 1948 plan largely stalled after Hancock Park was opened in 1952. Continuous plans were prepared for the museum throughout the course of 1950s, reflecting a mixture of Revival and Modern architectural styles. However, these too would not come to fruition, leaving the park with its 1952 configuration (Figure 34).

[98] Conover, A. 1949. "Roaming Around with Austin Conover – Hancock Park Said 16 Per Cent Finished," *Hollywood Citizen News*, October 10, 1949.

[99] "Hancock Park Opened After Landscaping Job," *Los Angeles Times*, April 24, 1952.

[100] "Hancock Park Opened After Landscaping Job," *Los Angeles Times*, April 24, 1952.

Figure 33. 1948 aerial photograph of Hancock Park. The landscape at this time is consistent with conditions exhibited in 1938, albeit with mature plantings and increased urban development in the surrounding neighborhood



Source: Environmental Data Resources, 2022

Figure 34. 1952 aerial photograph illustrating the phased execution of the 1948 plan, including the reconfigured circulation paths, the construction of the Observation Pit museum, and ongoing grading and other site improvements

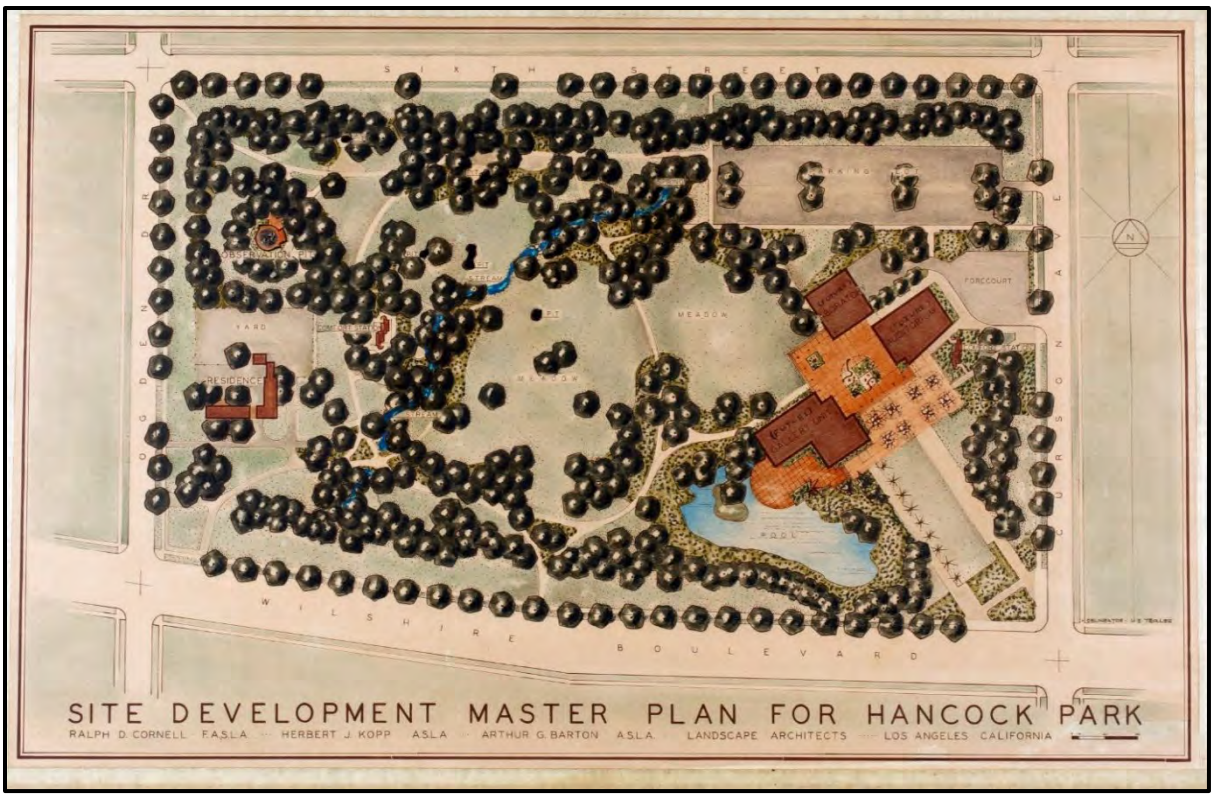
Source: Environmental Data Resources, 2022

REDEVELOPMENT ERA AND FOUNDING OF THE LOS ANGELES COUNTY MUSEUM OF ART (1956–1974)

In 1956, the County celebrated the 50-year anniversary of the initial excavations of the La Brea Tar Pits with a ceremony at Hancock Park. To mark half a century of scientific exploration, which by 1956 had yielded more than 500,000 fossil bones of prehistoric animals, the celebration included Supervisor John Anson Ford, Dr. Hildegarde Howard, chief curator of science at the Los Angeles County Museum, and Dr. Jean Delacour, Los Angeles County Museum of History, Science, and Art director. Festivities included a performance by the Los Angeles County Band and a guided tour of Hancock Park and the La Brea Tar Pits.[101]

At the same time, though the La Brea Tar Pits and park remained scientifically relevant and remarkably popular with the public, plans for a permanent museum still had not come to fruition. In 1958, the County returned to the question of Hancock Park and its next phases of development. The County commissioned landscape architect Ralph D. Cornell to prepare a plan that would build on the completed work of the 1948 plan, leaving the western portion of the park intact, while revisiting the eastern portion (Figure 35). The 1958 Cornell plan included more Modern and formal interventions, included an axial promenade entrance into the park from the southeast corner, a rambling museum complex layout with a central courtyard and cantilevered terrace extending out over the Lake Pit, and a surface parking lot located at the northeast corner.

Figure 35. 1958 Master Plan for Hancock Park, prepared by Ralph D. Cornell and Associates



Source: Los Angeles Natural History Museum

[101] "La Brea Tar Pits Marks 50 Years of Digging," 12 March 1956, *Los Angeles Times*, ProQuest Historical Newspapers.

Los Angeles County Museum of Art

During the Great Depression, in the mid-1930s, the Los Angeles County Board of Supervisors had explored the possibility of adding a fine arts center and museum to Hancock Park. Lamenting a lack of significant fine arts facilities for both music, displaying fine arts, and arts education, the County announced its plans and started to seek donations for new facilities that would rival those in major East Coast cities. The County saw Hancock Park as an ideal location, albeit with the supplemental addition of an adjacent 20 acres to accommodate concert halls and fine arts galleries.[102]

Because the addition of such facilities did not comply with the initial stipulations of the Hancock Park land gift, the County Board of Supervisors passed a resolution to establish a fine arts complex at the park and deeded the property back to G. Allen Hancock. which could then be re-gifted to the County with stipulations about use as a park removed, allowing for the estimated $15-million facility to move forward.[103] These early visions called for a collection of auditoriums, fine arts-focused schools, art galleries, concert halls, and an institution for motion pictures, radio, and television. These would supplement the ongoing plans to establish a museum on the Hancock Park property dedicated to the exhibition of the tar pit fossils.[104] However, the plans were ultimately stalled until the late-1950s when the County began to reexplore adding a fine arts complex to the property.

The 1959 feasibility study for adding a new fine arts museum to Hancock Park was prepared. Building upon the Cornell plan developed that same year, the feasibility study examined adding the new art museum to the southwest corner of Hancock Park, directly south of the Observation Pit. Initial site plans developed as part of the feasibility study show a re-envisioning of the southwest corner with a Modern style facility and expansive surface parking lot that would front Wilshire Boulevard and extend towards the center of Hancock Park. The plans also showed the reconfiguration of the 1952 pathway network and new security fencing around the remaining open excavation pits and Lake Pit. The combination of the 1958 Cornell plan and the 1959 art museum feasibility study was largely conceptual, but provided sufficient information for the County to move forward with the plan of constructing a new Los Angeles County Museum of Art at the southwest corner of Hancock Park.[105]

In 1960, the County commissioned renowned Modernist architect William L. Pereira to develop a master plan for Hancock Park, the scope of which would include the development of the new fine arts museum complex, a new paleontological museum, and associated landscape plans and improvements throughout the property.[106] The resulting 1961 Pereira plan for Hancock park envisioned the park as a purely Modern landscape, complete with the art museum complex and a new concept for the paleontological museum, which included a prominent cyclorama integrated into a complex (Figure 36).

The pathways throughout the park were reimagined as irregular and curvilinear approaches that varied in width and enclosed amoebic shaped spaces of lawn. The components maintained from the prior Cornell plan were limited but included the vehicle parking at the northwest corner of the property and the use of an observation terrace cantilevering out from the new museum complex over Lake Pit.

[102] "Art Center Plan Urged – Park Proposed as Site," *Los Angeles Times*, March 24, 1936.

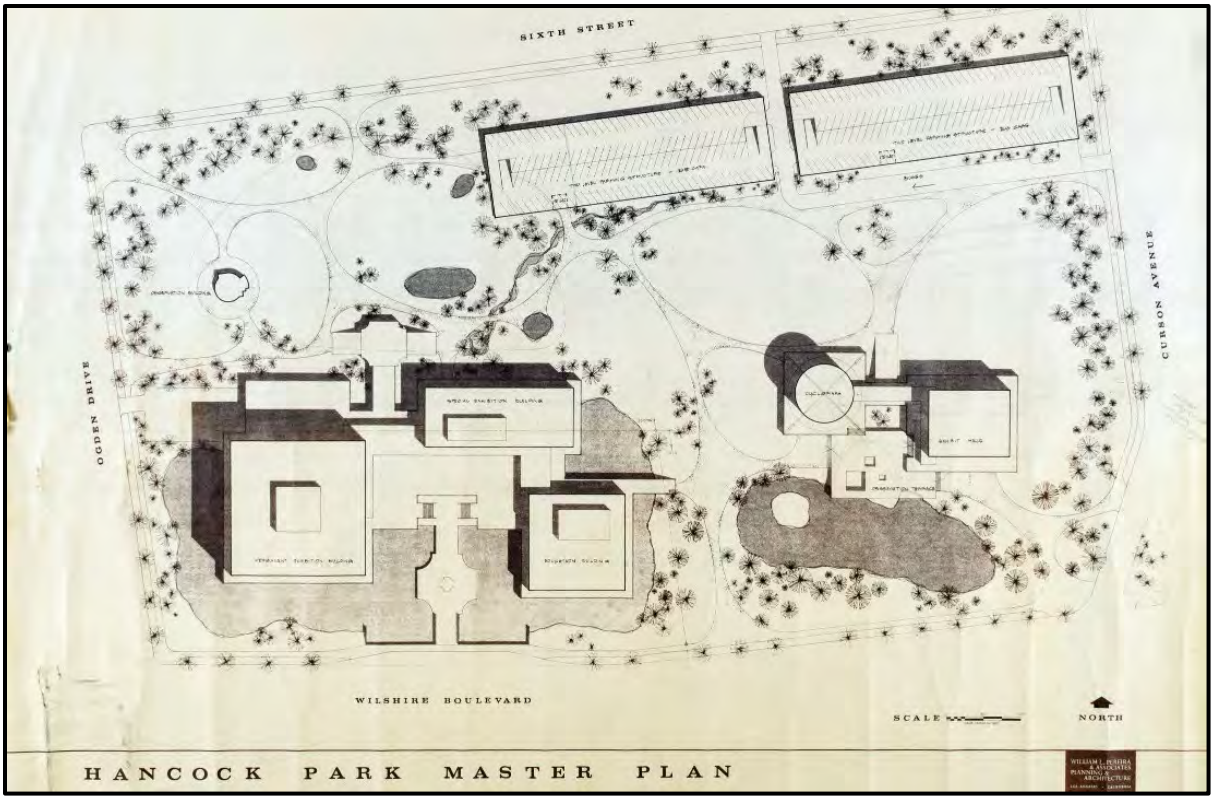
[103] "Park Plan Advanced – County Acts to Push Project," *Los Angeles Times*, April 2, 1936.

[104] "Park Plan Advanced – County Acts to Push Project," *Los Angeles Times*, April 2, 1936.

[105] "Art Museum Assured on Hancock Park Site," *Los Angeles Times*, July 1, 1960.

[106] "Art Museum Assured on Hancock Park Site," *Los Angeles Times*, July 1, 1960; "Master Plan for Hancock Park in Board Approval," *Hollywood Citizen News*, April 12, 1961.

Figure 36. 1961 Hancock Park Master Plan, showing LACMA and proposed paleontology museum, William L. Pereira & Associates



Source: Los Angeles Natural History Museum

While the 1961 Pereira plan was approved by the County, the execution was primarily focused on the construction of the new LACMA facilities, which had received millions of dollars in private donations in addition to county support. The proposed paleontological museum, however, had no funding allocated for its construction.[107] Over the following years, LACMA would be under construction as planned while alterations and improvements to Hancock Park would be greatly reduced.

Aerial photographs of Hancock Park in 1962 illustrate some of the changes that occurred during this period (Figure 37). Most notably, the construction of the surface parking lot in the parcel's northeast corner had been completed, and some of the landscape had been redeveloped, resulting in the removal of the 1948 Bent plan, with its Olmstedian circulation pattern, with a more streamlined network of pathways.

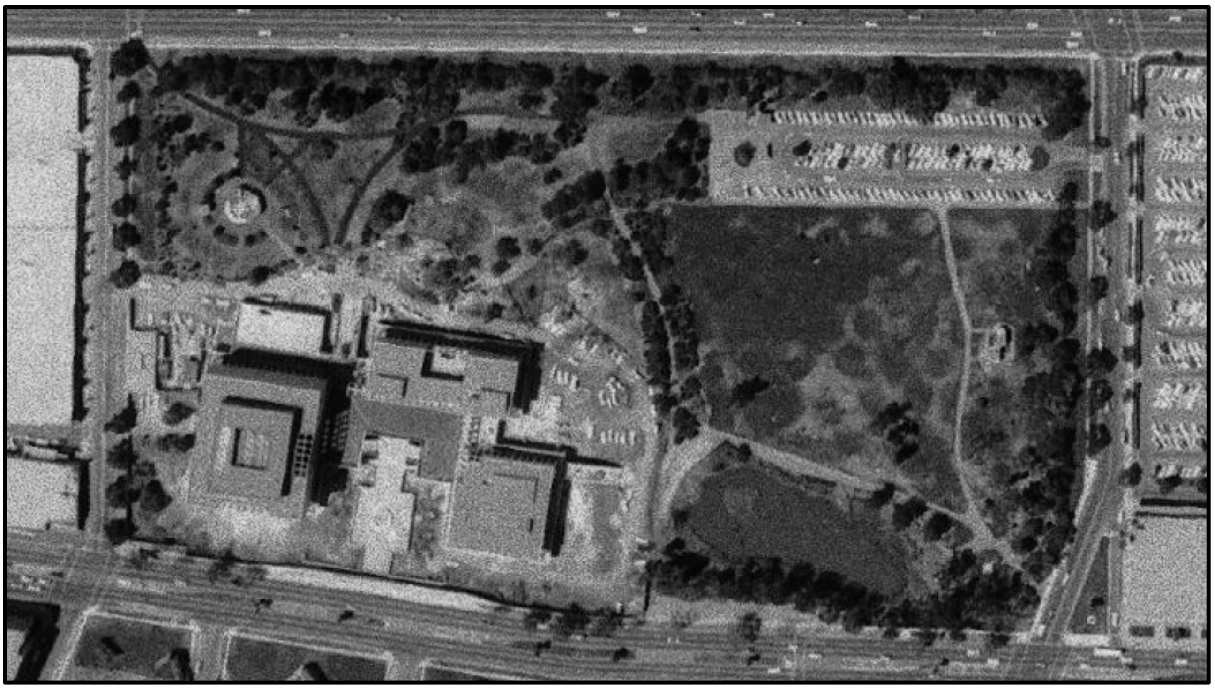
The conditions exhibited in Figure 37 illustrate a simplified, more direct network of pathways, particularly leading from the parking lot to the renewed pathways around Lake Pit. A new comfort station also appears to be present in this photograph (though, to date, source material on the origins and details of this building has not been identified). The photographs also depict the installation of chain-link perimeter fence around the Lake Pit. An aerial photograph from 1964 (Figure 38, upper photograph) depicts these conditions and the ongoing construction of LACMA in the southwest corner. Additionally, the photograph shown in appears to show the landscape around the Observation Pit, constructed in 1952.

[107] "Museum of Tar Pit Fossils Proposed," *Hollywood Citizen News*, January 11, 1961; "Fossil Museum for Tar Pits Gains Backing," *Hollywood Citizen News*, May 10, 1961.

Figure 37. 1962 aerial photograph of Hancock Park, east perspective (top) and northwest quadrant, east perspective (bottom)

Source: Los Angeles Public Library

Figure 38. LACMA under construction in 1964, view facing west across Lake Pit (top) and 1964 aerial showing LACMA in western portion of Hancock Park



Source: Los Angeles Public Library

By the late 1960s, following the completion and fanfare of LACMA, the plans for a paleontological museum at Hancock Park again went dormant. However, the Museum of Natural History began exploring other options for activating areas of the park adjacent to the new LACMA campus and increasing the interpretive component.

In 1967, a new development plan was prepared, which included revisiting the concept of the Pleistocene Garden with meandering pathways, lush plantings, and groupings of new fiberglass statues of prehistoric creatures throughout the park, including along the shores of the Lake Pit, as well as creating multiple new entrances to the park from the adjoining streets. As before, the plans were largely scaled down, but the County moved ahead with commissioning 52 new statues for the park, which included the mammoth sculptures within the Lake Pit, which have become iconic features of the La Brea Tar Pits.[108]

By 1969, rumors were circulating that LACMA was looking to expand further into Hancock Park. Reaction to any such potential expansion, however, was strong, particularly from County Supervisor Kenneth Hahn, who argued against potential infringement of the tar pits and any possible disagreement with Hancock's original agreement with the County.[109] The topic was also controversial enough that the *Los Angeles Times* published a number of articles on the possible threat to the tar pits and park site.

While LACMA officially denied the rumors, the response was strong enough that the Board of Supervisors ultimately passed a resolution in 1969 guaranteeing that Hancock Park and the tar pits would be preserved.[110] In this period, renewed interest in the tar pits during the mid-1960s led to its designation as a National Natural Landmark and to the expansion of scientific excavations on the property.[111]

Starting in 1969, these new excavations brought multiple new pits immediately to the rear of LACMA at the center of Hancock Park. The excavations included varied infrastructure, such as shaft structures to stabilize the pit walls, shelter structures, and observation platforms. While originally intended to be temporary in nature, these collections of structures associated with the La Brea project digs would remain on the property over the following decades (Figure 39).[112]

[108] "18-foot High Mammoth – First of 52 'Beasts' Put in La Brea Pits," *Los Angeles Times*, May 30, 1968.

[109] "Hancock Park – Tar Pits Must Be Preserved," *Hollywood Citizen News*, March 31, 1969.

[110] "Art Museum Won't Take Tar Pit Area," *Los Angeles Times*, May 11, 1969

[111] Holliday, K. 1972. "Bay Tar Preserved – The Bones of Contention," *Los Angeles Times*, July 30, 1972.

[112] Hunter, P. 1977. "Sizing Up Tar Pits Museum: Sticky Business," *Los Angeles Times*, April 18, 1977.

Figure 39. Working excavation at Hancock Park, with observation platform, 1976

Source: Los Angeles Public Library

RECENT MASTER PLAN CHANGES AND NEW CONSTRUCTION (1975–PRESENT)

Following the completion of LACMA in the mid-1960s, attention began to shift again to the construction an on-site museum in Hancock Park dedicated to the exhibition of the fossils found in the tar pits. Throughout the postwar period, multiple concepts for the museum were developed, ranging from Renaissance Revival style structures to more Modern creations, including the cyclorama complex concept designed by William L. Pereira & Associates. However, lack of funding continued to stymie any plans for a tar pits museum. A simplified concept was developed in the late 1960s, though these plans did not progress beyond preliminary conceptual compositions. As with LACMA a decade prior, the long-drawn-out plans for a tar pits museum in Hancock Park needed private funding.

In the early 1970s, George C. Page, a successful industrialist and benefactor of the Museum of Natural History, donated several millions of dollars to the County in support of a paleontological museum. Having visited Hancock Park when he was younger, Page was fascinated by the tar pits and its fossils. As part of the donation, Page would provide much of the required funding, while the County would provide the land, develop the utilities and landscaping, and provide staffing for the facility. Page would also be heavily involved in the design process for the museum, which was completed and open to the public in the spring of 1977 (Figure 40). (The Page Museum is described in more detail below.)

Along with the construction of the Page Museum and its distinctive pyramid-like site, the landscape around the tar pits was reconfigured. New pathways and circulation pathways were constructed around the square plan of the building, hugging the west and south berms. The entrance to the museum, which descends to the north, was serviced by a new axial promenade that extended from the southeast corner of

Hancock Park and met a paved plaza adjoining the museum entrance progression and the walkways around the Lake Pit. A new concrete observation deck structure was constructed along the northeast corner of Lake Pit, providing visitors an elevated vantage point to view throughout the park.

Following the completion of the Page Museum and the realization of the long-awaited goal of having a paleontological specific facility, changes to Hancock Park and the tar pits were slowed over the following decade. Notable plans were developed, including for underground parking structures, but these were not constructed. As illustrated in an aerial photograph from 1989 (Figure 40, lower photograph), the most significant changes to Hancock Park came from the expansion of LACMA, which saw the construction of new additions to the complex. A rear addition to LACMA resulted in the reconfiguration of the pathways related to the Observation Pit, and the Bruce Goff designed Japanese Arts Pavilion was constructed immediately northeast of LACMA and west of Lake Pit. Completed in 1989, the Japanese Arts Pavilion was one of the largest interventions in Hancock Park in the 1980s.

Through the 1980s, the La Brea Tar Pits and Page Museum were one of the principal attractions along Miracle Mile, in the emerging district known as Museum Row. While the destination remained popular with tourists, school groups, and locals alike, Hancock Park was viewed as outdated, and the County began exploring new plans for the park to create a more attractive space for contemporary audiences.[113]

In 1993, a bond to renovate Hancock Park was issued.[114] The following year, the landscape architecture firm Hanna/Olin prepared a master plan for Hancock Park to address these concerns and provide new direction. The 1994 master plan identified immediate issues and provided long-term direction for the park's future evolution. In addition to addressing the plantings, irrigation, and lighting program, the 1994 master plan addressed site circulation. Specifically, it recommended replacing the mixture of axial pathways at the eastern portion of the park around the Page Museum and utilizing curvilinear pathways, reminiscent of the various Olmstedian plans that were developed decades earlier.[115]

These paths could be integrated into the western portion of the site, which partially retained its original 1952 configuration and was noted as needing replacement, due in part to accessibility issues. The plan also noted that the 1962 chain-link security fencing around tar pits and Lake Pit were aesthetically unpleasing and needing replacement with more attractive fencing materials, in addition to various other site feature improvements, such as new benches, interpretive materials, and a new food pavilion.[116] Unlike previous plans for Hancock Park, major components of this plan would be realized.

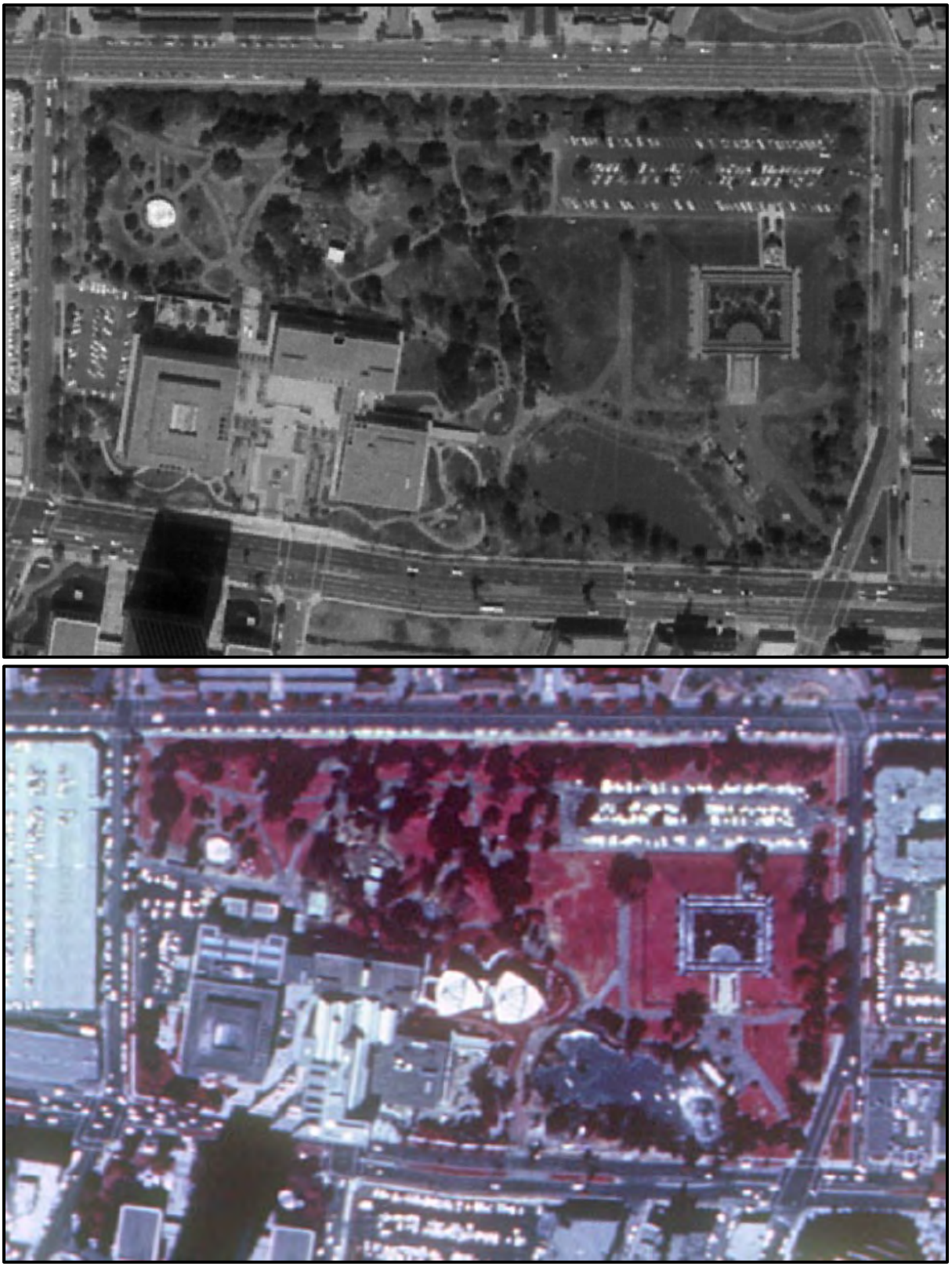
[113] Hanna/Olin, Ltd. 1994. *Hancock Park Master Plan*. Prepared for Los Angeles County Museum of Art.

[114] Muchnic, S. 1917. "Museums Rediscover Beauty, Right in Their Own Backyard," *Los Angeles Times*, July 7, 1917.

[115] Hanna/Olin, Ltd., 1994, pp. 33–39.

[116] Hanna/Olin, Ltd., 1994, 49–52.

Figure 40. Aerial photographs from 1977 (top) and 1989 (bottom) of Hancock Park, up is north



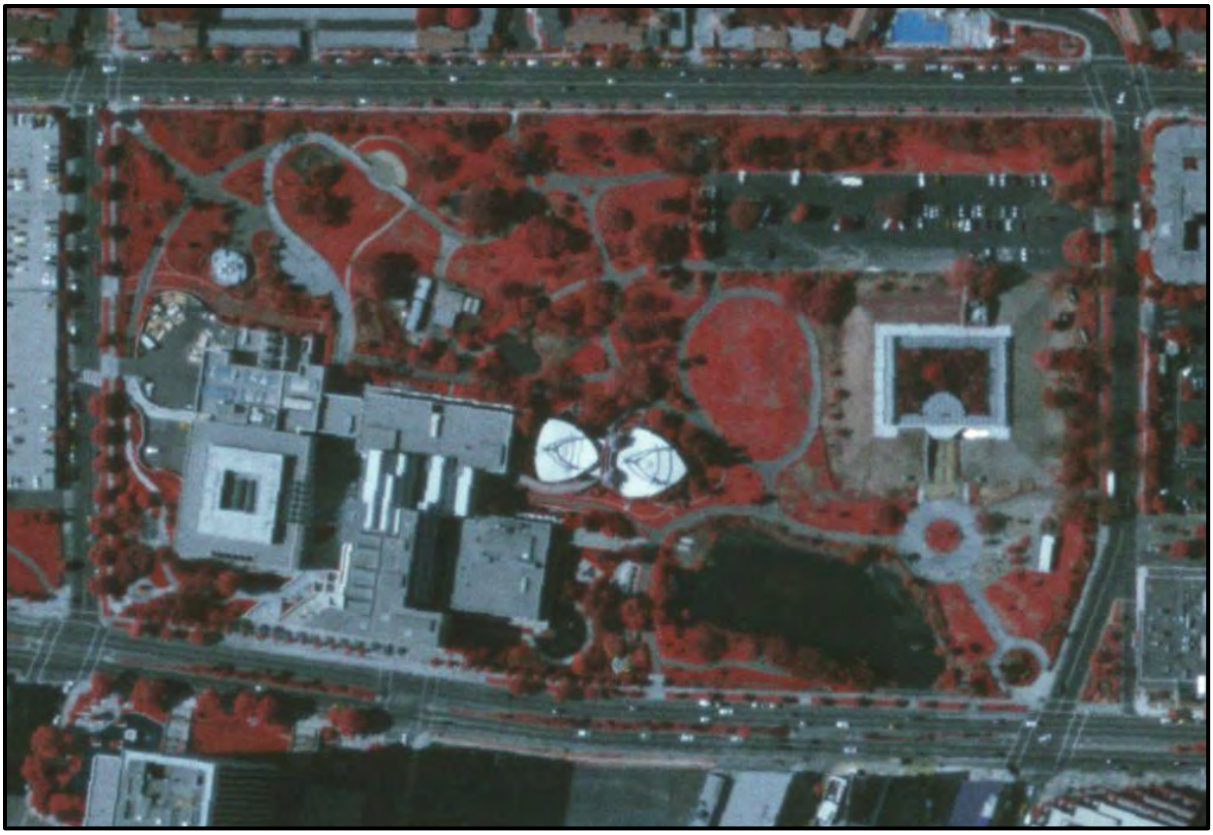
Source: Environmental Data Resources, 2022

By 1998, redevelopment of Hancock Park per the 1994 master plan was underway. This effort resulted in a reconfiguration of the pathways throughout the park, with new serpentine and curvilinear orientations, construction of new comfort stations, addition of an amphitheater and seat wall installations at the northwest corner. Other project components included a new picnic area, reconfiguration of existing statues and monuments, stream restoration, irrigation improvements, over 60,000 new plantings, and installation of a new steel picket security fence.

The plaza south of the Page Museum was also redeveloped, and the Lake Pit observation deck was removed. New foot bridges along Lake Pit and Oil Creek, along with new wayfinding and interpretive signage, helped enhance the visitor experience to the park. Finally, with a redeveloped southeast entrance to Hancock Park, with a circular entrance plaza, the rebranding of Hancock Park in general and the La Brea Tar Pits in particular was complete.[117] The goal was to create a parklike atmosphere that could cater to both nearby residences, as well as visitors to LACMA and the La Brea Tar Pits.

The renovated landscaped provided multiple amenities that could cater to both the arts and sciences, reflective of the major institutions within the park's vicinity, as well as general recreation and enjoyment. This was partially achieved through substantial grading throughout the site, in order to create 340,000 square feet of gently rolling landscape and contours. The renovation was completed in 1999 (Figure 41).

Figure 41. 2002 aerial photograph of Hancock Park, exhibiting conditions associated with the 1999 renovation of the landscape; north is up



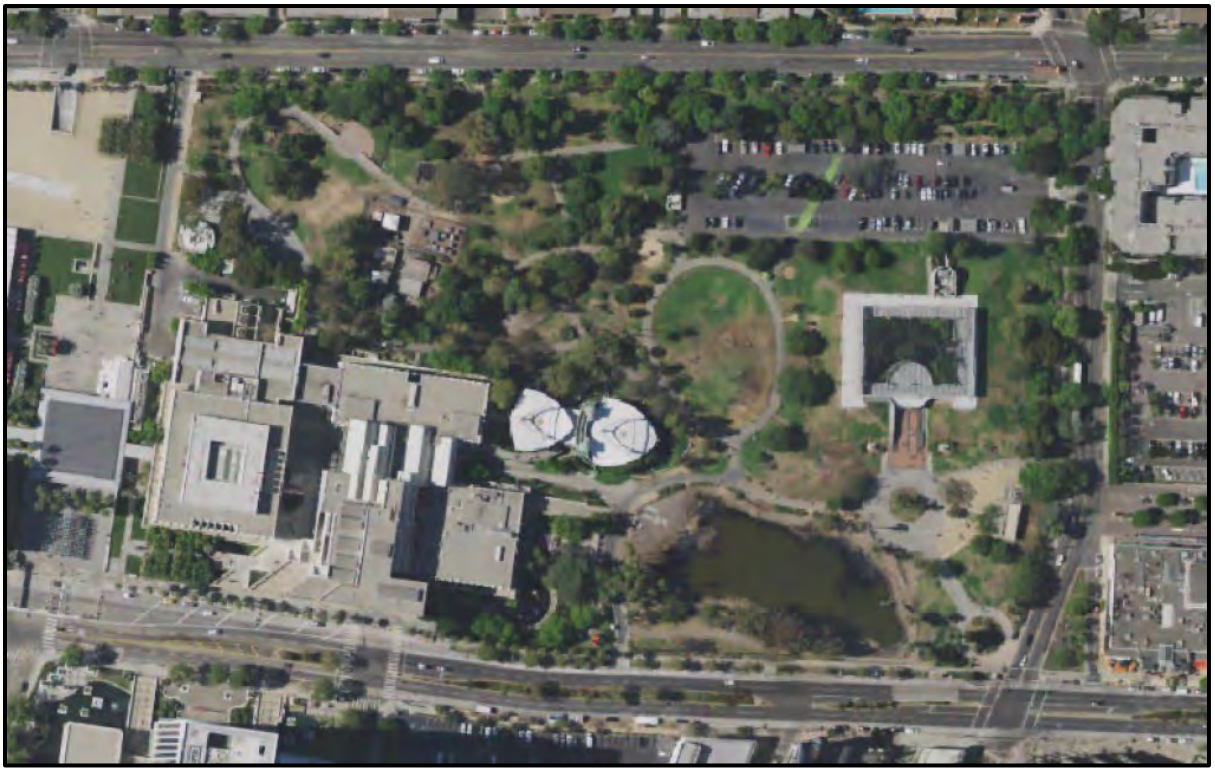
Source: Environmental Data Resources, 2022

[117] Muchnic, 1917.

In 2014, the firm Suisman Urban Design completed additional improvements to Hancock Park. The majority of the work involved included cosmetic refurbishment, including refurbishing the Observation Pit, installing new lighting, renovating the existing comfort station, replacement of interpretive signage, expanding, reconfiguring, and adding temporary structures to various excavation areas.[118]

In its current form, Hancock Park reflects master planning initiatives and campaigns from various periods in the park's history. While much of the landscape reflects more recent campaigns (as noted above), the park's character and use as an urban open space protected and reserved for scientific exploration, curation, education, and public use, have remained intact for more than a century. The sparsely developed, 23-acre parcel, still framed with mature trees and landscaping, remains intact, reflecting the original agreement between the Hancock family and the County. This agreement protected this large parcel from subdivision and development even as the surrounding neighborhood and the Mid-Wilshire corridor became densely built-up. The park retains numerous natural features and resources, including the Lake Pit and excavation pits, buildings, structures, circulation corridors, hardscaping, natural features, cultural and paleontological resources, and site plan features reflecting Hancock Park's history as "Pleistocene Park." Although the landscaping, facilities, and topography have been altered through the years, Hancock Park reflects a development history that is unique in Los Angeles: from the early years of oil exploration and fossil discovery, to the gradual establishment of cultural and curatorial/educational institutions to tell its story from the Pleistocene era, through post-World War II expansion, and recent upgrades and master planning efforts (Figure 42).

Figure 42. 2016 aerial photograph of Hancock Park; north is up



Source: Environmental Data Resources, 2022

[118] Suisman Urban Design. 2022. Reimagining the La Brea Tar Pits. Available at: https://suisman.com/portfolio/reimagining-the-la-brea-tar-pits/.

La Brea Tar Pits Museum and Grounds

The La Brea Tar Pits Museum and surrounding grounds are located within Hancock Park. As noted above, since the discovery of fossils and subsequent donation of the 23-acre parcel to the County, Hancock Park has been reserved and preserved for use as an open space and for ongoing excavations, curation, education, and open space for nearly a century.

While the previous sections detailed nearly a century of development and evolving master planning efforts at Hancock Park in general, this section focuses on the context and development of the La Brea Tar Pits Museum and Grounds, with a focus on extant facilities.

OBSERVATION PIT

The first institutional facility constructed at the property was the Observation Pit, completed in 1952 as part of a 1948 Master Plan. A larger museum had been proposed for the area north of Lake Pit as well, though lack of funding and an increased emphasis on LACMA constructions by the late 1950s and into the 1960s stalled further expansion.

Designed in the Mid-Century Modern style, the Observation Pit consists of a semi-circular, single-story building in Hancock Park's northwest corner (Figure 43 and Figure 44). The building was the park's first purpose-built facility devoted to the interpretation of the paleontology of La Brea Tar Pits. The building has an enclosed observation area, in which visitors descend to a below-grade platform overlooking the exposed excavation pit known as "Pit 101." Here, fossil remnants of prehistoric animals, trapped in tar, were (and remain) visible to both scientists and visitors; the building facilitated the critical purpose of Hancock Park going back to the 1920s, to reserve and preserve the park's resources for interpretive and educational purposes.[119]

Figure 43. Observation Pit, ca. 1952, west perspective

Source: La Brea Tar Pits & Museum, Natural History Museums of Los Angeles County

[119] Conover, 1949.

Figure 44. Interior of the Observation Pit, 1964 (left) and 1967 (right)

Source: Los Angeles Public Library, Photograph Collection

The building would serve as the primary museum building for the La Brea Tar Pits from its construction until the completion of the George C. Page Museum in 1977. It would remain open to the public until the mid-1990s, when the museum began focusing resources on excavating other portions of the property and security concerns about the priceless fossils were raised. The Observation Pit would remain closed until 2014, when it was repainted, the clerestory windows were uncovered, and the building was reopened to the public.[120]

Architect | Harry Sims Bent

Harry Sims Bent was an architect, landscape architect, and planner who operated primarily in California and Hawaii during the first half of the twentieth century. In addition to designing numerous buildings, Harry Sims Bent is known for his involvement with several master planning efforts for parks and instructional campuses. His wholistic approach and multi-faceted design experience resulted in cohesive plans and compositions where buildings were successfully integrated into broader landscapes.

Born in New Mexico in 1895, Bent moved with his family to South Pasadena via Colorado during the early 1910s. Bent graduated from South Pasadena High School in 1914, after which he would attend the University of Pennsylvania to study architecture. After completing his studies, Bent began working for Bertram Goodhue Associates, ultimately moving back to the Pasadena area where he would work on many of Goodhue's Southern California commissions, including the Los Angeles Public Library (1924), the California Institute of Technology's (Cal Tech) Campus Master Plan, and many of the individual Cal Tech buildings.[121]

[120] "Observation Pit," La Brea Tar Pits & Museum. Available at: https://tarpits.org/experience-tar-pits/observation-pit. Accessed May 3, 2022; Stallworth, L., "La Brea Tar Pits Observation Pit Reopens After 2 Decades," *ABC 7 Los Angeles*, June 19, 2014. Available at: https://abc7.com/la-brea-tar-pits-page-museum/125358/. Accessed May 3, 2022.

[121] Blanchard, G. 2013. *National Register of Historic Places Registration Form – Mother Waldron Playground, Honolulu, Hawaii*, p. 16. Prepared for Honolulu Authority for Rapid Transportation.

In the late 1920s, Bent relocated to Honolulu, Hawaii on behalf of Bertram Goodhue Associates, where he would oversee the construction of the Academy of Arts building, followed by other commissions. However, by the 1930s, Bent was primarily operating as an independent architect and earned a reputation as one of the most talented architects practicing in Hawaii during the 1930s. Bent was responsible for the design of over 150 residences and other structures throughout Hawaii, which ranged in architectural style from more traditional revivals to increasingly more Moderne compositions, albeit with regionally inspired details and elements. Particularly notable commissions from this period include the C. Brewer Building, Hanahauoulis School, and the Pineapple Research Institute at the University of Hawaii.[122] However, his most celebrated work in Hawaii was through his involvement with the Honolulu Park Board, which hired him as the supervising architect for the design and construction of Ala Moana Park. Funded through the Civil Works Administration, an early New Deal program of the Roosevelt Administration, the park included entrance portals, sports facilities and pavilions, a banyan court, lawn bowling green, a canal bridge, and other features, all composed in a regionally inspired iteration of Art Moderne and Art Deco style. Bent would go on to design numerous parks in Honolulu, including the Mother Waldron Playground, Kawananakoa Playground, and Haleiwa Beach Park.[123]

During World War II, Bent left Honolulu and returned to Pasadena, where he worked independently through the remainder of his career. Bent would continue to design numerous buildings, including single-family residences, but is most well regarded for his master planning and landscape design work. Two of his major commissions in Southern California during this period include the master landscape plan for Hancock Park (1948) and the master plan for the Los Angeles County Arboretum (1950).[124]

Architecture | Mid-Century Modernism

Mid-Century Modernism, or Regional Modernism, represents a middle ground between the formal, machine-age aesthetic of the International Style and a regional idiom reflecting local precedent, materials, topography, and identity. More of an architectural approach than a style, the various strains of Mid-Century Modernism became common throughout the United States in the postwar period, in particular in residential design, with Southern California becoming a world-famous center for modernist design and culture.

In the postwar period through the 1960s, as practiced in Southern California, Mid-Century Modernism took its cues from the region's first-generation modernist architects such as Richard Neutra, Rudolph Schindler, Gregory Ain, Frank Lloyd Wright, and Harwell Hamilton Harris. In the postwar period, second-generation practitioners included Raphael Soriano, Whitney Smith, A. Quincy Jones, and the architect of LACMA, William L. Pereira & Associates, among many others.

Mid-Century Modernism is characterized by an honest expression of structure and function, with little applied ornament. Aesthetic effect is achieved through an asymmetrical but balanced, rhythmic design composition, often expressed in modular post-and-beam construction. Whether wood or steel, post-and-beam construction allowed for open floor plans, ease of expansion, and generous expanses of glazing to heighten indoor-outdoor integration. Regional identity and character are reflected in the use of local materials and the view that extant topography (including sloped sites, landscaping, viewsheds) should be incorporated into the design. Infill panels of wood or glass are common, with glazing often extending to the gable. Buildings are generally one to two-stories, with an emphasis on simple, geometric forms. Capped with low-pitched gabled or flat roofs, a Mid-Century Modern building often displays wide eaves and cantilevered canopies, supported on spider-leg or post supports. Sheathing materials vary, with wood, stucco, brick and stone, or steel-framing and glass. Entrances are typically set flush with the ground, to

[122] Fung Associates, Inc. 2011. *Hawaii Modernism Context Study*, pp. 105–106. Prepared for the Historic Hawaii Foundation. Honolulu, Hawaii.

[123] Blanchard, 2013, p. 16.

[124] Blanchard, 2013, p. 16.

enhance indoor-outdoor integration and to create an informal, domestic-scaled space. Windows are generally flush-mounted, with metal or wood frames.

In terms of materials, Mid-Century Modernism also included a mixture of industrial and natural materials, the latter of which often include locally sourced materials reflective of regional character. While primarily used in residential design, the Mid-Century Modern approach to design was utilized for a wide variety of property types throughout the United States in the postwar period.

GEORGE C. PAGE MUSEUM, 1975–1977

By 1975, the La Brea Tar Pits was attracting upwards of 400,000 visitors each year, and since the original dig, more than half a million specimens had been recovered.[125] Up until this point, however, the Museum of Natural History in Exposition Park still served as the principal location for viewing fossils (and for storage of the larger collection).

By this time, the County had held Hancock Park for over 50 years, but the original vision of constructing a museum for the paleontological finds of the La Brea Tar Pits had not come to fruition. While many plans for the park's museum facilities had come and gone, the only dedicated facility constructed for interpretive purposes remained the 1952 Observation Pit. In the mid-1970s, after more than half a century of active excavations, curation, and education, plans for a museum dedicated to the La Brea Tar Pits and its Pleistocene-era treasures finally moved forward in earnest.

The catalyst arrived in the form of a multi-million dollar donation from Los Angeles entrepreneur George C. Page. A self-made businessman and native of Nebraska, Page had moved to Los Angeles in ca. 1918, at the age of 16, with little in the way of resources or contacts.[126] Through the years, he eventually built a successful business; during his lean years, Page recalled that he frequented the many free tourist attractions that Los Angeles had to offer, including the La Brea Tar Pits. Reflecting on this time in 1990, Page recounted that he had been "fascinated by the puddles that had trapped saber-toothed cats, mastodons and other ancient animals," but at the same time "dismayed to learn that the only way he could see the fossilized bones was the travel seven miles to the Museum of Natural History in Exposition Park": "'What a pity they haven't been exhibited on the site where they were found,'" he later said.[127]

As with Hancock's gift in the 1920s, Page's gift to the County came with a key condition: that he hold an active (decisive) role in the selection process for an architect as well as for the museum design. Toward this end, Page is said to have rejected the proposals of five well-known architects and instead turned to two young, Pasadena-based architects, Willis E. Fagan and Franklin W. Thornton.[128] Consequently, using their own funds, the architects

> spent a month touring the museums of America, asking professionals what they would do differently if they could re-create their institutions. Finally, they came to Page with a proposal. 'You've taken [the fossils] out of the ground here,' the young architects said of the La Brea discoveries. 'Why don't we put them back in?'[129]

Their 1974 plans devised a method for doing this, with the concept of a burial mound-like form, partially below grade and integrated into the surrounding site through sloped berms, visually and physically preserving green space within Hancock Park. Atop the mound was a large platform with a Brutalist-style

[125] "County Will Get Tar Pits View Station," 21 December 1975, *Los Angeles Times*, ProQuest Historical Newspapers; "La Brea Museum Will Be Built Near Tar Pit Area," 20 April 1975, *Los Angeles Times*, ProQuest Historical Newspapers.

[126] Biederman, 1990.

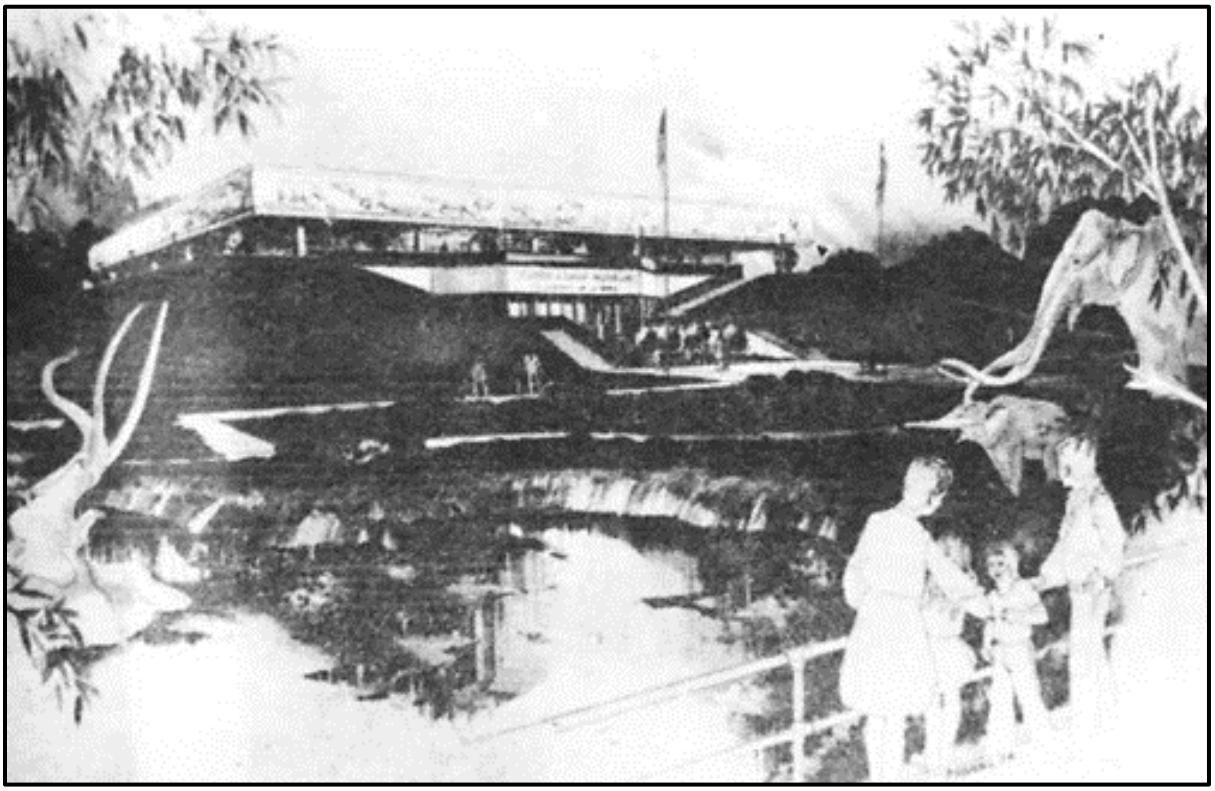
[127] Biederman, 1990.

[128] Biederman, 1990.

[129] Biederman, 1990.

pavilion structure defined by an expansive projecting frieze (Figure 45). The fiberglass frieze is intended to appear as carved stone with a continuous bas relief sculpture depicting scenes from the Pleistocene period, prepared by sculptor Manuel La Paz and supported by an exposed space frame roof structure.[130] Throughout the construction process, Page is said to have provided design guidance and overseen construction by operating out of a recreational vehicle-turned makeshift construction trailer on the site.[131]

Figure 45. Artistic rendering of the George C. Page Museum, La Brea Tar Pits, ca. 1975



Source: Park La Brea News, April 24, 1975

The metaphor of the burial mound was powerful in its symbolism of returning the fossils soon to be exhibited at the facility to a state of being underground, while also transporting the visitor to a different time period, ultimately creating an immersive experience. This was framed in the entrance progression into the building, which followed a formal and symmetrically composed descent into the museum, flanked by the surrounding berms and monumentality of the exposed building elements of the second floor. The interior atrium space and its collection of lush plantings also was intended to evoke the sense of a Pleistocene garden, transporting the visitor back in time.

The site selected for the new museum was located towards the northeast corner of Hancock Park, set between the existing surface parking lot to the north, the Lake Pit to the south, and Curson Avenue to the east. The area was largely defined by the large open field that dominated this portion of Hancock Park; a small comfort station building and walkway were also present at the location.[132] These features were demolished to allow for the construction of the museum (Figure 46).

[130] Dreyfuss, J. 1977. "George C. Page Museum: Trip Back in Time," *Los Angeles Times*, August 7, 1977.

[131] Oliver, M. 2000. "George C. Page; Philanthropist Founded La Brea Museum," *Los Angeles Times*, November 30, 2000, ProQuest Historical Newspapers.

[132] Willis, Fagan & Associates. 1975. "Survey and Demolition Plan" Sheet No. A-1 in the Original Drawing set for the George C. Page Discoveries of La Brea Museum, 5801 Wilshire Boulevard (February 18, 1975). On file with the Museums of Natural History of Los Angeles.

Ultimately, the museum's location in Hancock Park presented numerous challenges during construction. Located in the vicinity of the tar pits, both existing to the south and previously infilled to the north, the museum location rested on tar seeps with a shallow water table that created a difficult environment for below-grade construction. To account for this, project engineers developed a system wherein the museum would sit on a gas-proof rubber and nylon membrane, which would be sandwiched between a bed of sand and a working slab cap. A reinforced concrete slab was then constructed above these elements with the intention of creating a hull-like structure that would allow the building to "float" on the pressure related to the gases and liquids of the site.[133]

Figure 46. George C. Page Museum façade, 1978, southwest perspective

Source: Los Angeles Public Library

In the interior, the principal exhibit designer for the Page Museum was James H. Carmel, a faculty member at the Cranbrook Institute of Science. From 1939 to the 1970s (with an absence during his service in World War II), Carmel served as Preparator, Trustee, and Head of Exhibit Section at Cranbrook until accepting a position with the Page Museum, to help design the museum's exhibits.[134] In addition, exhibits were developed by consultants from universities, museums, and even Disneyland. The goal was developing new ways to present fossils and exhibits that would engage the visitor beyond the traditional interpretive programming.[135] Page was also cognizant of the size of the museum and extent of the exhibits, aiming to create an accessible and inviting environment. Along these lines, for example, more typically domestic materials, such as carpeted flooring, were selected for increased comfort.

Focal points of the museum—and features that continue to set the museum apart—are the exposed structure of the atrium ceiling, the open atrium with landscaping, and the working laboratory, framed with windows, through which visitors can view museum staff working (Figure 47). Among similar museums,

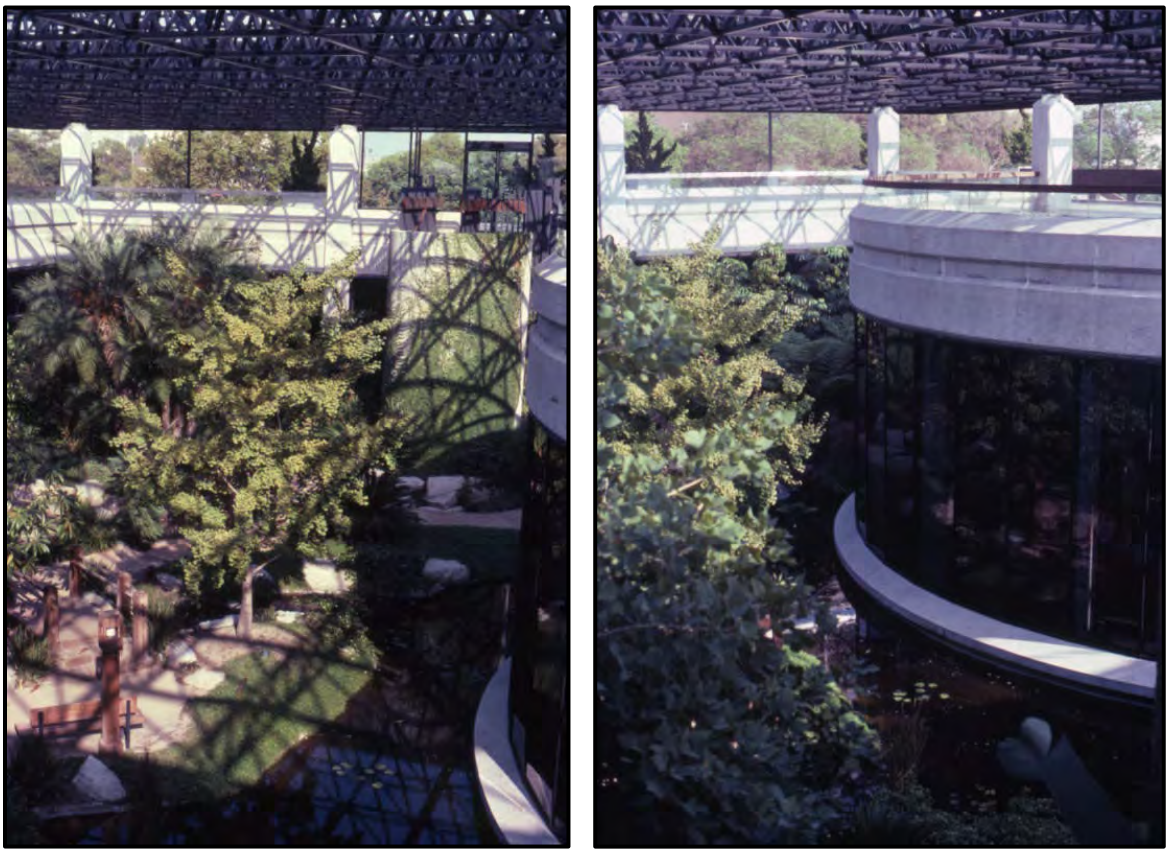
[133] Dreyfuss, 1977.

[134] "James H. Carmel, Curiosity and Wonder: Life at Cranbrook and Beyond," 11 May 2022, Cranbrook Kitchen Sink, Cranbrook Center for Collections and Research. Available at: http:// https://cranbrookkitchensink.com/tag/james-h-carmel/. Accessed 15 June 2022.

[135] Oliver, 2000.

the fishbowl feature is often cited as the first and only of its kind, with a working laboratory that is the site of scientific research and that serves the educational objective of the museum.[136]

Figure 47. Open atrium at center of Page Museum, ca. 1980



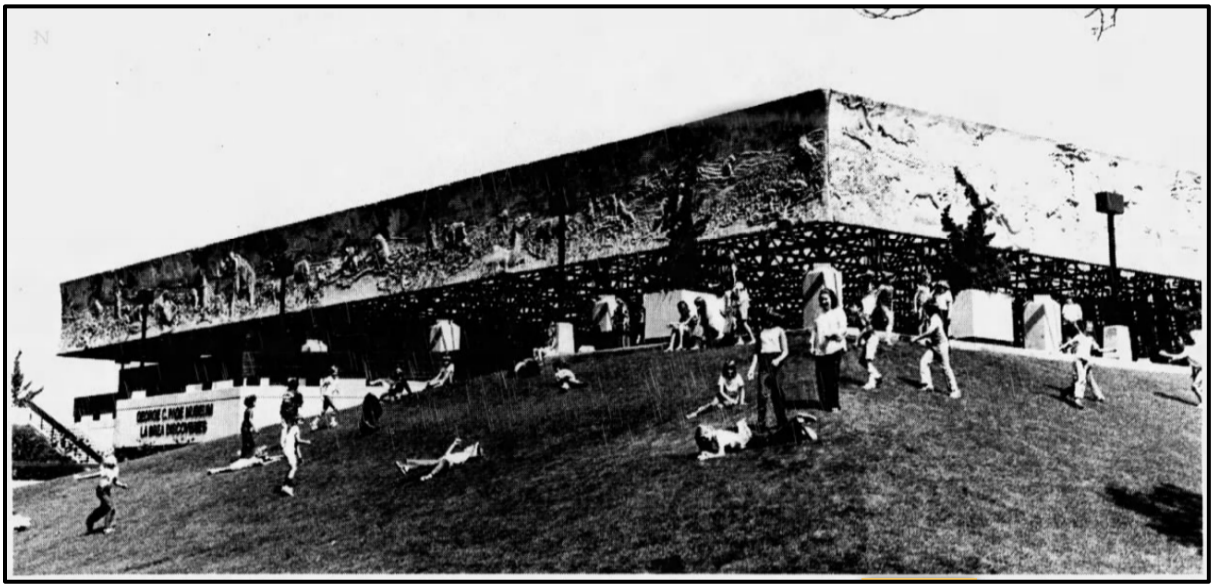
Source: Los Angeles Public Library

The museum was completed to great acclaim in 1977. It immediately became a celebrated, sought-after institution along Wilshire Boulevard's emerging Museum Row. The experiential qualities of the design—including its form and mass, the circular interior layout that created a natural progression through the exhibition spaces, and carefully curated and even interactive exhibits—all created a highly engaging space that did not overwhelm visitors.[137] The domestic scale and materials of the museum's interior made it informal and accessible to children and adults alike; the sharply raised berms circling the building also became a highlight as a feature that integrated the building into the broader landscape. The berms provided new spaces to congregate and vantage points for experiencing the park. The berms were adopted by many young visitors (across generations) as a quasi-play structure, where they could run and roll down the hill (Figure 48).

[136] Oliver, 2000; Biederman, 1990.

[137] Dreyfuss, 1977.

Figure 48. Hancock Park's Page Museum, with schoolchildren playing on berms



Source: Los Angeles Times, August 7, 1977

Since the Page Museum opened in 1977, changes have been relatively minimal. Aside from ongoing maintenance work and various improvements to interior spaces, fixtures, and finished, the building has largely retained its original design, particularly along the exterior and surrounding site, setting, and landscapes. The most notable changes include the installation of the two monumental statues flanking the primary entrance progression, replacement of the original wood guard rail along the second floor, and the installation of new handrails to the primary entrance ramps and flanking exterior stairways.

Architects | Thornton & Fagan Associates

The Page Museum was designed by the Pasadena-based architecture firm of Thornton & Fagan Associates. Founded by architects Franklin W. Thornton and Willis E. Fagan, Thornton & Fagan operated in the region from 1970 until 1980, completing a range of residential, commercial, and institutional commissions predominantly in Pasadena and the surrounding San Gabriel Valley.[138] Their most well-known building appears to have been the Page Museum, a commission awarded to them in 1975 through the efforts of George C. Page (as described above). Additional known and publicized works, all in Pasadena, include the Late Modern-style Pasadena Medical Arts Building (50 Bellefontaine Street), constructed in 1974; "Tara West," a 1978 Georgian Revival-style residence at 640 Oak Knoll Circle inspired by the plantation home in the film *Gone with the Wind*; and the Late Modern-style Bridge House at 819 Las Palmas Road, constructed in 1979.[139]

In 1980, Thornton & Fagan merged with the firm Urban Design Disciplines. The resulting firm was reorganized as Thornton, Fagan, Brant, and Rancourt, Inc. (TFBR), with the addition of principals Daniel L. Rancourt and Marilyn Brant, an architect and planner, respectively.[140] Thornton and Fagan also maintained a development company, founded in 1975 and known as Thornton & Fagan, Inc. Available records suggest that the development company focused on a mixture of residential and commercial developments in the Pasadena area and San Gabriel Valley communities. Projects included the Neo-Mediterranean Revival-style La Canada Crest Condominiums (2145 La Cañada Crest, La Cañada-

[138] "TFBR, New Architectural Firm, Opens in Pasadena," *Los Angeles Times*, May 4, 1980.

[139] "Four-Story Building Going Up in Pasadena," *Los Angeles Times*, March 24, 1974; Ryon, R., "Pasadena Home Copies Mansion of Famous Film," *Los Angeles Times*, July 2, 1978; Advertisement "Hot Property - 819 Las Palmas Road, Pasadena," *Los Angeles Times*, April 1, 2017.

[140] "TFBR, New Architectural Firm, Opens in Pasadena," *Los Angeles Times*, May 4, 1980.

Flintridge), constructed in 1980, and the Neo-Queen-Anne-style multi-family residential development of Page's Victorian Court (444 S. Los Robles Avenue, Pasadena).[141]

Franklin W. Thornton, AIA

Franklin Wilberforce Thornton was born in Los Angeles in 1934.[142] His father, Hugh Thornton, worked as a sales representative for Palos Verdes Estates in the 1920s, but by the 1940s had shifted to a career in landscape architecture.[143] Thornton grew up in the Los Angeles area and ultimately attended Pasadena City College, where he studied architecture and graduated in 1958.[144] Sources illuminating his early years of professional practice were not available; by 1970, he had formed a partnership with his colleague Willis E. Fagan, which would define his career over subsequent decades. Thornton eventually started his own architecture practice, in addition to his shared projects with Fagan. The extent of his solo work is largely undocumented, though some single-family residences in the late 1980s have been attributed to him.[145] Available sources suggest he continued to practice architecture into subsequent decades, primarily throughout the San Gabriel Valley.

Willis E. Fagan

Willis Endford Fagan was born in October 1938 in the city of Daloa in then-French West Africa (now Ivory Coast). His parents, Anne and Thomas Fagan, were missionaries from Northern Ireland and Canada, respectively, who had been living and working in Africa during the late 1930s and early 1940s. In 1942, the Fagans migrated to Canada and lived in the Toronto, Ontario, region before emigrating to the United States in 1948, where they settled in the San Gabriel Valley.[146] Fagan lived in the San Gabriel Valley throughout high school, ultimately graduating from Rosemead High School in 1956.[147]

By the early 1960s, Fagan was working as an architectural draftsman in the San Gabriel area.[148] In 1970, Fagan partnered with Frank Thornton to form Thornton & Fagan Associates, which they continued to operate over the following decade, in addition to their development company Thornton & Fagan, Inc. While scant available information has been identified on Fagan's career starting in the 1980s, sources suggest that he continued to practice architecture, working in the Pasadena-San Gabriel area. He remains most widely known for his work designing the Page Museum.

Architecture | Brutalism

Constructed in 1977, the Page Museum exhibits elements of the Modernist variation known as "Brutalism." This style was developed in Europe during the mid-twentieth century and popularized through the works of renowned Swiss architect Le Corbusier and British architects Alison and Peter Smithson. The term "Brutalism" is thought to have derived from the French phrase *beton brut*, meaning raw concrete, in reference to the use of unfinished concrete as the primary design feature, both in terms of articulation of forms and materiality. The reliance on unfinished concrete and the projection of structure

[141] "La Canada Crest Plans Month-Long Open House," *Monrovia-News Post*, October 5, 1980; Advertisement "Preview Opening – Page's Victorian Court," *Los Angeles Times*, August 2, 1980.

[142] Franklin Wilberforce Thornton in "California Birth Index, 1905-1995." Available at: https://www.ancestry.com/search/collections/5247/. Accessed April 27, 2022.

[143] "Palos Verdes Estates," *Los Angeles Evening Express*, February 27, 1926; Frank Thornton in "1940 U.S. Federal Census." Available at: https://www.ancestry.com. Accessed April 27, 2022.

[144] Franklin W. Thornton in "U.S., School Yearbooks, 1900-1999." Available at: https://www.ancestry.com. Accessed April 27, 2022.

[145] "Arcadia Manor Listed for $1.39 Million," *Los Angeles Times* February 24, 1990.

[146] Willis Endford Fagan in "U.S. Border Crossings from Canada to U.S., 1895-1960." Available at: https://www.ancestry.com. Accessed April 27, 2022.

[147] Willis Endford Fagan in "U.S., School Yearbooks, 1900-1999." Available at: https://www.ancestry.com. Accessed April 27, 2022.

[148] Records show that Fagan entered Canada in September 1956 and returned to the United States in May 1957, which corresponds with the school year calendar. While this suggests that Fagan may have enrolled in a drafting program in Canada during this period, no supporting evidence has been found at this time.

as ornamentation through strong geometric elements was intended to create a universal and honest architectural style.[149]

Developed as an architectural philosophy in the 1950s, the concept of Brutalism evolved into a more codified style during the 1960s as is it gained popularity in the United States. It represented a reaction to the minimalist and glazing-centric treatments of other Modernist architectural styles and was often combined with elements and architectural details of other emerging styles from the period, namely New Formalism, Expressionism, and Structuralism. This transitional nature of Brutalism as part of the broader Modern architectural movement, particularly in the 1960s, results in a variety of compositions that can range from more traditional/classical and symmetrical forms to more futuristic and irregular designs. The unifying aspects found in Brutalism include strong tectonic, angular, and sculptural forms expressed through exposed concrete throughout, which in turn lends to a monumentality and heaviness that was seen as a direct reaction to the light and airy qualities of other Modern styles. These bulky and proportionally exaggerated compositional qualities translated into a perceived permanence, which was appealing in the design for several civic, institutional, and commercial buildings during this period.[150]

Significant examples of Brutalist civic and institutional buildings in the Los Angeles area include:

- **Glendale Municipal Services Building** (633 E. Broadway, Glendale), A.C. Martin & Associates and Merril W. Baird, 1966
- **St. Basil Catholic Church** (3611 Wilshire Boulevard, Los Angeles), A.C. Martin & Associates, 1969
- **Glendale Central Library** (222 E. Harvard Street, Glendale), Welton Becket & Associates, 1973
- **Inglewood Civic Center** (1 Manchester Boulevard, Inglewood), Charles Luckman Associates and Robert Herrick Carter, 1973
- **Braille Institute of America** (741 N. Vermont Avenue, Los Angeles), William L. Pereira & Associates, 1975
- **Japanese American Community and Cultural Center** (244 S. San Pedro Street, Los Angeles), Kazumi Adachi, Kiyoski Swano, and Hideo Matsunaga, 1978 to 1983

Overview of Construction Chronology

This section provides a general construction chronology for Hancock Park and the La Brea Tar Pits complex and facilities, focusing on significant construction activities and master planning efforts directly preceding and ever since the property's donation to the County of Los Angeles. This section provides a concise summary of the construction history provided in Section 5 (Historic Setting and Context).

Table 3 below describes the highlights in the construction chronology of Hancock Park and the La Brea Tar Pits. Following the timeline, a visual overview of the site's history is provided in a series of historic aerial photographs, in Figure 49 through Figure 55.

[149] Paul, D. *SurveyLA Los Angeles Historic Resources Survey - Citywide Historic Context Statement, Architecture and Engineering 1850-1980, LA. Modernism 1919-1980, Late Modern 1966-1990*, pp. 26-27. Prepared for the City of Los Angeles, Department of City Planning, Office of Historic Resources.

[150] Paul, pp. 27-28.

Table 3. Timeline of Construction at Hancock Park and La Brea Tar Pits

DATE	EVENT
1828:	Provisional land grant Rancho La Brea given to Antonio Jose Rocha
1850s:	Rancho La Brea purchased by brothers John and Major Henry Hancock. Henry and wife Ida later construct a ranch home on the banks of the Lake Pit at an unknown date
1860s-1880s:	Hancock excavates "brea" tar material from the property, marking the beginning of the various tar pits throughout the property
1883:	Major Hancock passes away, and Rancho La Brea is transferred to his wife and children
1900s:	Ida Hancock leases a portion of Rancho La Brea to the Salt Lake Oil Company for oil exploration; the company in turn develops the Salt Lake Oil Fields The Hancocks establish their own oil venture, the Rancho La Brea Oil Company, and begin producing oil, amassing a vast fortune in the process
1901:	Oil exploration and geological studies result in some of the earliest discoveries of prehistoric fossils on the site, prompting multiple excavations in subsequent years
1913-1915:	Hancock family grants exclusive rights to excavate fossils at Rancho La Brea to the Los Angeles County Museum of History, Science, and Art, which creates over 100 pits over a two-year time frame G. Allan Hancock begins coordinating with the County to donate the land around the tar pits following the completion of the excavations
1916:	Hancock announces first official donation of 32-acres of land to the County Paul G. Thiene and Lloyd Wright plan for Hancock Park released, which includes an Olmstedian-like design with areas of Beaux-Arts formalism; plans are not implemented, though negotiations continue
1923:	Negotiations for Hancock's donated land, now comprising 25 acres, are finalized
1924:	Donation of Hancock Park to the County is made official County announces initial site improvements
1926:	Revised plan for "Pleistocene Park" released Plan similar to 1916 Thiene and Wright design, with meandering pathways, central lawns, preservation of oil lakes, expanded excavation pits, and prominent entrances at Wilshire Boulevard "Pleistocene Park" also includes plans for a museum on the banks of the Lake Pit, with an ornamental footbridge connecting the museum to Wilshire Boulevard
1928:	Perimeter plantings and footpaths for entry to the park are installed
Ca.1930:	Stone walls installed around open excavation pits, and stone foot bridge added Spanish Colonial Revival-style groundskeeper residence, operations building, and service yard constructed at the easter perimeter of the park
1938:	New comfort stations, drainage and water conveyance systems, and repairs to the stone masonry walls and footbridge constructed
1940:	New plans for Hancock Park issued, which includes a prominent, circular pathway and radiating, meandering networks throughout the park The 1940 plan was not ultimately implemented
1948:	Harry Sims Bent hired as architect and planner for a new, multi-year Hancock Park Master Plan

DATE	EVENT
1947-1952:	Master Plan Phase 1 commences, with site upgrades, new comfort stations, improved water conveyance, restored streambed, new circulation pathways
1952:	Master Plan Phase 1 concludes, culminating in addition of Observation Pit
1958:	Celebrated landscape architect Ralph Cornell hired to develop plan for Hancock Park, which would include museum north of Lake Pit. While plans are not implemented, they inform future studies and design development
1959:	Potential plans for a new fine arts complex in Hancock Park (which will become LACMA) considered in feasibility study
1961:	William L. Pereira & Associates hired to develop a campus plan and design for LACMA, Hancock Park, and a La Brea Tar Pits museum
1962:	The eastern portion of Hancock Park is redeveloped Alterations include construction the surface parking lot in the northeast corner of the site, chain-link security fencing around excavation pits and Lake Pit, new comfort station and pathways around Lake Pit
1964:	LACMA completed and opened to the public
1967:	New plan developed for Hancock Park and La Brea Tar Pits complex, focused on re-envisioning the eastern portion of the park Plans include addition of statuary of Pleistocene animals at select locations throughout the park, including along the banks of the Lake Pit
1969:	New excavations begin in the center of the park (which continue to the present day) Support facilities added include shafts, buildings, and sheds for excavation operations, security fencing, and temporary and permanent shade structures
1974:	Plans announced for a new La Brea Tar Pits Museum Donor George C. Page selects Thornton, Fagan & Associates as project architect
1975:	Construction on the George C. Page Museum commences
1977:	George C. Page Museum is completed and opens to the public Related site-design changes include new network of pathways fanning out from new axial entrance at park's southeast corner, as well as a new plaza northeast of Lake Pit
1980s:	Additions and reconfigurations at the rear of LACMA results in reconfiguration of the concentric pathways surrounding Observation Pit
1989:	LACMA's Pavilion for Japanese Art opens northwest of Lake Pit
1994:	Hancock Park Master Plan prepared by Hann/Olin completed, outlining proposed changes to Hancock Park and the La Brea Tar Pits Museum and Grounds
1999:	Redevelopment of Hancock Park landscape concludes, with upgrades including reconfiguration of pathways, addition of comfort stations, amphitheater and seat wall installation in park's northwest quadrant, picnic area, reconfiguration of statues, stream restoration, 60,000 plantings, reconfiguration of Page Museum entry plaza, removal of the Lake Pit observation deck, and redevelopment of southwest entrance to Hancock Park, with circular entrance plaza
2014:	Observation Pit refurbished and reopened to the public Site improvements completed during this time include new wayfinding and interpretive signage, upgrades to 1999 comfort station, new security fencing, and reconfiguration of excavation site at Project 23 to create a more pleasant and cohesive aesthetic for Hancock Park

DATE	EVENT
2019:	Plans to redevelop the La Brea Tar Pits Museum and Grounds announced to the public
2020:	Demolition of the original LACMA complex commences for construction of a new LACMA building

Figure 49. Project site, 1928; showing Lake Pit, perimeter trees, and diagonal entry path in northwest corner, which led to Hancock ranch house northeast of Lake Pit (and extant as of 1928)

Source: Environmental Data Research, 2022

Figure 50. Project site, 1938; shows perimeter trees and diagonal entry path in northeast corner leading to Hancock ranch house

Source: Environmental Data Resources, 2022

Figure 51. Project site, 1956; as of 1956, Hancock residence had been removed, perimeter trees were mature, diagonal entry path intact and extended along northern expanse of the Lake Pit, and northeast parking lot and adjacent pathways (which are extant) had been added

Source: Environmental Data Resources, 2022

Figure 52. Project site, 1971; LACMA now occupies southwestern quadrant of Hancock Park

Source: Environmental Data Resources, 2022

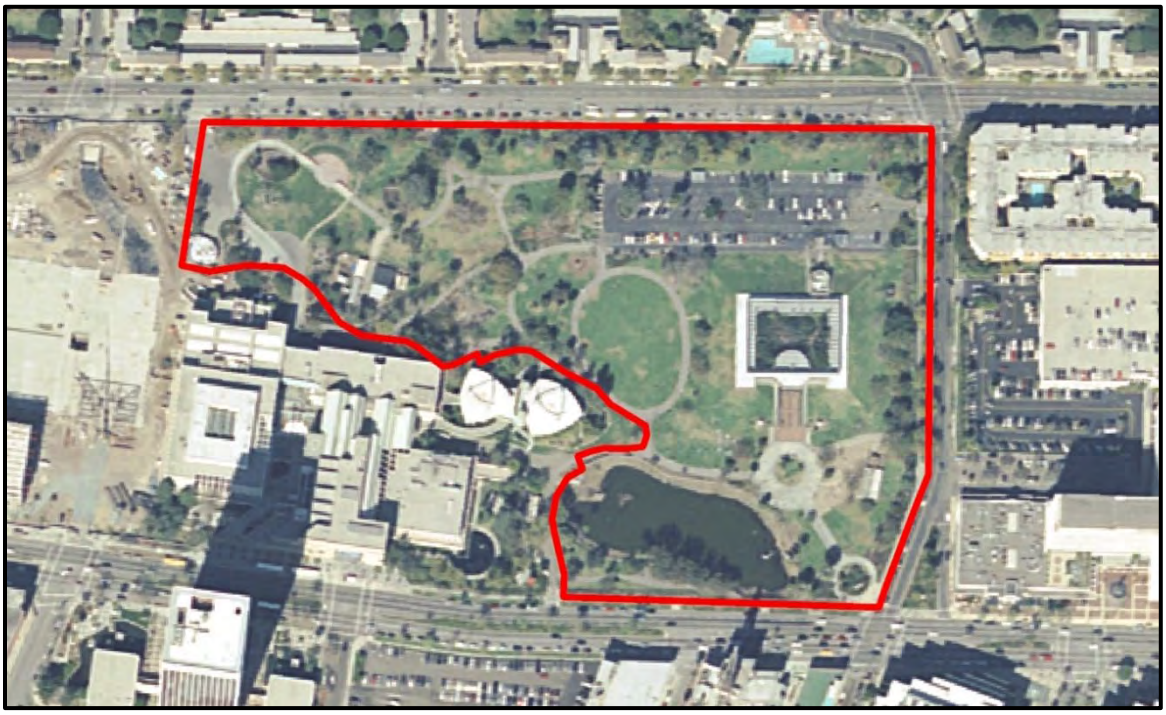
Figure 53. Project site, 1977; the Page Museum opens in 1977, realizing a 50+-year-old goal for the La Brea Tar Pits complex; the Page's orthogonal, pyramidal site reads clearly in this aerial photo

Source: Environmental Data Resources, 2022

Figure 54. Project site, 1994; the Pavilion for Japanese Art is now adjacent, to the west, to Lake Pit

Source: Environmental Data Resources, 2022

Figure 55. Project site, 2007; shows master plan enhancements from late 1990s, most notably in northwestern quadrant, as well as the truncation of Hancock Park at northwest border with LACMA; Observation Pit now marks the western boundary of La Brea Tar Pits complex



Source: Environmental Data Resources, 2022

6. HISTORIC RESOURCES SURVEY AND RESULTS

This section provides an overview of previously identified historic resources and of the results of a field survey of properties within the CEQA Area of Potential Effects (APE). For purposes of this study, the CEQA APE encompasses the project site and all directly adjacent or facing parcels.

Previously Identified Historic Resources

Within the CEQA APE, 11 properties have been previously identified as historical resources pursuant to CEQA (Table 4). All 11 resources were identified through the City of Los Angeles citywide survey undertaking, SurveyLA; corresponding SurveyLA reports are cited throughout this section. None of these properties are included on the County of Los Angeles's Historical Landmark Registry.

Table 4. Previously Identified Historic Resources within CEQA APE

Address(es) / Assessor's Parcel Number	Property/Building Name | Inside or Outside Project Footprint	Built Date	CHR Status Code (Eval Source)
5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	La Brea Tar Pits Historic District (inside project footprint)	Various	3S (SurveyLA)
5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	George C. Page Museum (inside project footprint)	1977	3S (SurveyLA)
5801 Wilshire Boulevard (5508-016-902) (5905 Wilshire Boulevard in parcel data)	Hancock Park, Observation Pit (inside project footprint)	1952	3S (SurveyLA)
5905 Wilshire Boulevard (5508-016-902)	Pavilion for Japanese Art (outside project footprint)	1982–1988	3S (SurveyLA)
3rd Street (north), Hauser Boulevard (east), 6th Street (south), Fairfax Avenue (west)	Park La Brea Garden Apartments Historic District (outside project footprint)	1943 and 1951	3S (SurveyLA)
5757 W. Wilshire Boulevard (5508-015-009)	Prudential Square (outside project footprint)	1948	3S (SurveyLA)
5814 W. Wilshire Boulevard (5089-008-031) (5816 & 5818 W. Wilshire Boulevard)	Craft and Folk Art Museum (outside project footprint)	1930	3CS (SurveyLA)
5820 W. Wilshire Boulevard (5089-010-002)	Hancock Park Building (outside project footprint)	1958	3CS (SurveyLA)
5828 W. Wilshire Boulevard (5089-010-001) (710 S. Stanley Avenue, 5826 W. Wilshire Boulevard)	CMAY Gallery (formerly Arthur Murray Dance Studio) (outside project footprint)	1941	3S (SurveyLA)
5850 W. Wilshire Boulevard (5089-011-002) (5856 & 5858 W. Wilshire Boulevard)	Office Building (outside project footprint)	1951	3CS (SurveyLA)

KEY
3S—Appears eligible for National Register as an individual property through survey evaluation
3CS—Appears eligible for California Register as an individual property through survey evaluation

In addition, the records search of the California Historical Resources Information System (CHRIS) identified three previously recorded cultural resources: LAN-159 (P-19-000159; an archaeological site containing Native American-affiliated artifacts, in the northwest portion of the project site), LAN-1261H (P-19-001261; a historic-period refuse component associated with 1860s asphalt mining, located north of the lake pit); and P-19-171007 (Hancock Park-La Brea District, California Historical Landmark No. 170, determined NRHP-eligible under Criterion A; scientific contribution of fossils and the study of paleontology).

Evaluation of Properties in CEQA APE

Field surveys and research were conducted to field check previous findings and to identify and research of-age, previously unevaluated properties within the CEQA APE. Table 5 summarizes the results of these efforts and Figure 56 present a visual overview of historical resources within the CEQA APE.

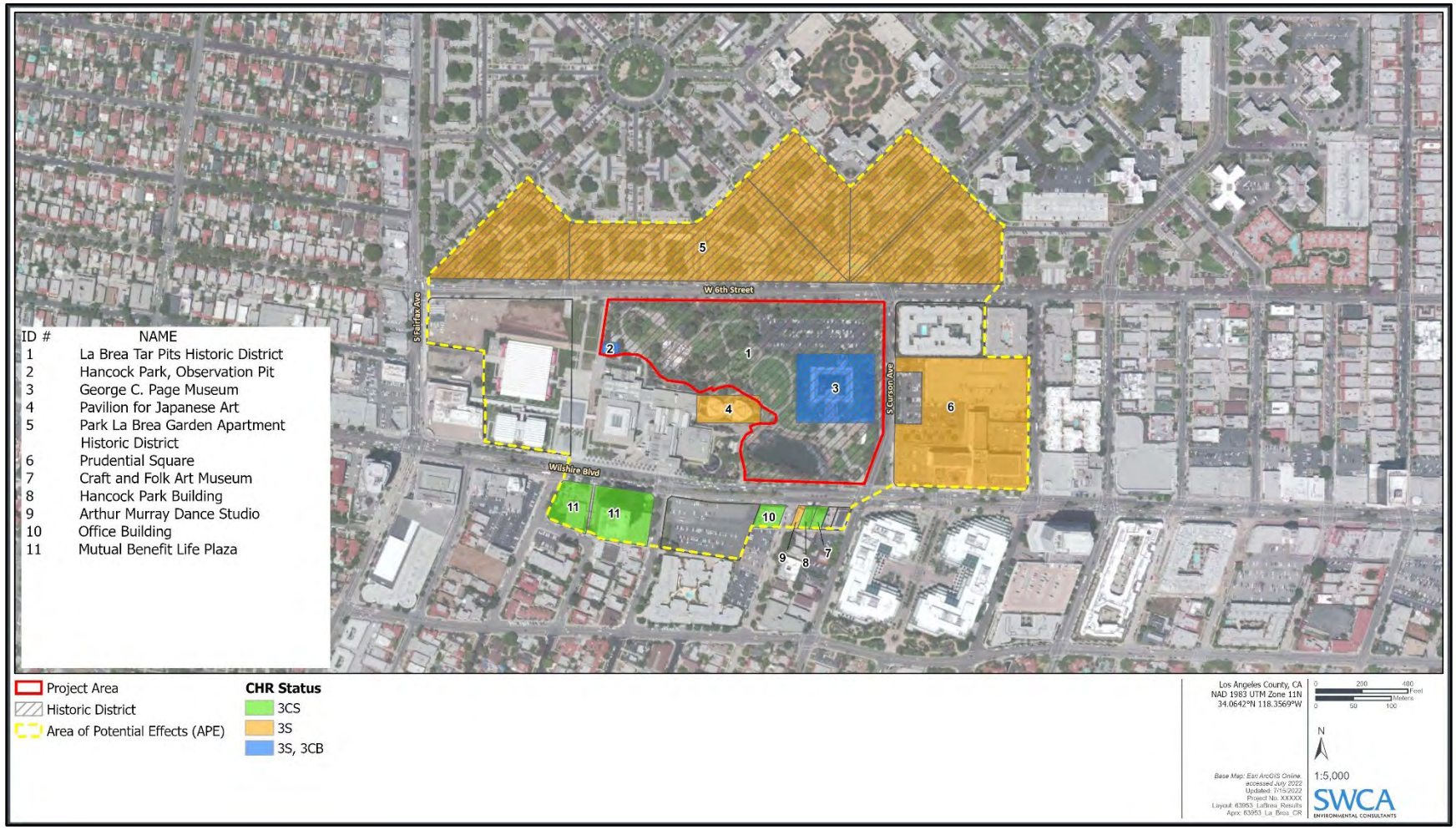
Table 5. Field Survey Results

#	Address(es) / Assessor's Parcel Number	Property/Building Name | Inside or Outside Project Footprint	Built Date	Historical Resource? (CHR Status)
1	5801 Wilshire Boulevard (5508-016-902) Recorded in County parcel data as 5905 Wilshire Boulevard	La Brea Tar Pits Historic District (inside project footprint); previously recorded as P-19-171007 (Hancock Park-La Brea District, California Historical Landmark No. 170, determined NRHP-eligible Criterion A; scientific contribution of fossils and the study of paleontology)	Various	Yes | 3CS
2	5801 Wilshire Boulevard (5508-016-902) Recorded in County parcel data as 5905 Wilshire Boulevard	George C. Page Museum (inside project footprint)	1977	Yes | 3S; 3CB
3	5801 Wilshire Boulevard (5508-016-902) Recorded in County parcel data as 5905 Wilshire Boulevard	Observation Pit (inside project footprint)	1952	Yes | 3S; 3CB
4	5905 Wilshire Boulevard (5508-016-902) Eastern segment of LACMA, same address but separate parcel	Pavilion for Japanese Art (outside project footprint)	1982–1988	Yes | 3S
5	555 S. Ogden Drive/5509-004-013 (1943) 5900 Lindenhurst Avenue/5509-004-010 (1943) 530 Alandele Avenue/5509-004-007 (1943) 501 S. Fuller Avenue/5509-004-006 (1943) 5721 W. 6th Street/5509-004-004 (1943)	Park La Brea Garden Apartment Historic District (outside project footprint) District bounded by 3rd Street (north), Hauser Boulevard (east), 6th Street (south), Fairfax Avenue (west).	1943 and 1951	Yes | 3S
6	600 S. Curson Avenue (5508-015-006)	"Museum Terrace" Apartments (outside project footprint)	1986	No | 6Z (1)
7	640 S. Curson Avenue (5508-015-008)	"One Museum Square" Apartments (outside project footprint)	2021	No | 6Z (1)
8	5757 W. Wilshire Boulevard (5508-015-009)	Prudential Square (outside project footprint)	1948	Yes | 3S
9	5800 W. Wilshire Boulevard (5089-010-005)	Office building (outside project footprint)	1958	No | 6Z (2)
10	5814 W. Wilshire Boulevard (5089-010-003)	Craft and Folk Art Museum (outside project footprint)	1930	Yes | 3CS
11	5820 W. Wilshire Boulevard (5089-010-002)	Hancock Park Building (outside project footprint)	1958	Yes | 3CS
12	5828 W. Wilshire Boulevard (5089-010-001) (710 S. Stanley Avenue, 5826 W. Wilshire Boulevard)	CMAY Gallery (formerly Arthur Murray Dance Studio (outside project footprint)	1947 (LA Co Tax Assessor)	Yes | 3S
13	5850 W. Wilshire Boulevard (5089-011-002) (5856 and 5858 W. Wilshire Boulevard)	Office Building (outside project footprint)	1951	Yes | 3CS
14	APN 5089-011-154	Vacant land	N/A	N/A
15	5900 Wilshire Boulevard (5086-021-038) Oversized parcel extends to S. Ogden Drive; includes the following addresses: 5950 W. Wilshire Boulevard; 714–716 and 717–719 S. Genesee Avenue; and 5904–5950 W. Wilshire Boulevard	Mutual Benefit Life Plaza (outside project footprint)	1969–1971	Yes | 3CS

#	Address(es) / Assessor's Parcel Number	Property/Building Name | Inside or Outside Project Footprint	Built Date	Historical Resource? (CHR Status)
16	5905 Wilshire Boulevard (5508-017-009); western segment of LACMA, same address as eastern segment, different APN	Los Angeles County Museum of Art (outside project footprint)	Various	No (new museum under construction)

KEY
3B— Appears eligible for NR both individually and as a contributor to an NR eligible district through survey evaluation
3S—Appears eligible for NR as an individual property through survey evaluation
3CB— Appears eligible for CR both individually and as a contributor to a CR eligible district through survey evaluation
3CS—Appears eligible for California Register as an individual property through survey evaluation
6Z (1)—Less than 50 years old and not of exceptional significance
6Z (2)—More than 50 years old but lacks historical integrity

Figure 56. Field survey results



Properties within Project Footprint

The following sections provide information on each of the properties within the CEQA APE, beginning with the project site, then progressing from north, east, south, and west through the area of potential indirect effects (i.e., the adjacent and facing parcels). Character-defining features for the historical resources within the project footprint are included.

1. LA BREA TAR PITS HISTORIC DISTRICT | 5801 WILSHIRE BOULEVARD CHR STATUS CODE: 3CS

Based on research and site visits completed for this study, the La Brea Tar Pits Historic District **appears eligible for landmark designation at the state, county, and city levels.** The district was previously recorded as P-19-171007 (Hancock Park-La Brea District, California Historical Landmark No. 170, determined NRHP-eligible Criterion A; scientific contribution of fossils and the study of paleontology). The district meets Criteria 1/1/1 as a unique, significant collection of resources and related cultural institutions and facilities specifically designed to recover, curate, and display those resources to the public, in an example of cultural/institutional development in Los Angeles extending back nearly a century.

Due to its eligibility for the CRHR and for local county and city listing, the La Brea Tar Pits Historic District is **a historical resource for purposes of CEQA**.

The La Brea Tar Pits Historic District consists of related cultural/paleontological resources, site/landscape features, and institutional facilities reflecting the story of over 100 years of scientific excavation, study, public education, and exhibition of one of the world's most significant concentrations of Pleistocene-age fossils.

Located on Wilshire Boulevard's Miracle Mile, the historic district is bounded by Wilshire, Curson Avenue, 6th Street, and the adjacent Los Angeles County Museum of Art complex and Japanese Pavilion. Excluding these two museums, the historic district boundaries correspond to those of Hancock Park. While Hancock Park itself, in terms of its topography, circulation corridors, and landscaping, has changed over time (with significant changes completed in the 1990s, as noted in Section 5), the extant contributing elements of this cultural landscape are intact and convey the historic district's significance.

In 2014/2015, the La Brea Tar Pits complex was found eligible as a historic district for the NRHP, CRHR, and for local listing through SurveyLA. The property was found to be eligible for listing in the NRHP and CRHR, as well as designation as a Los Angeles HCM under Criteria A, 1, and A, respectively with significance under two contexts. The reasons for significance for each were described in the following manner: the district was found to be a historical resource as an "excellent and extremely rare example of an intact archaeological and paleontological district in a densely developed urban area," and for its "association with the development of county-owned cultural institutions along Miracle Mile in Los Angeles."[151]

Due to recent changes to the site's topography, pathways, and landscaping, in particular through the northwestern quadrant of the park, however, the district does not appear eligible for the NRHP.
The period of significance begins in the Pleistocene era and ends in 1977; this end date marks the culmination of over 50 years of effort to build a dedicated museum within the La Brea Tar Pits complex. In 1977, the Page Museum opened to display the paleontological resources on the site of their discovery.

[151] Architectural Resources Group. 2015. Appendix C: Historic Districts and Planning Districts. In *Survey LA Historic Resources Survey Report – Wilshire Community Plan Area*, p. 958. Prepared for City of Los Angeles Office of Historic Resources.

Fossils and interpretive exhibits had previously, primarily, been exhibited at the Natural History Museum in Exposition Park.

(Character-defining features of the Page Museum and Observation Pit, which are individually eligible, are described below.)

In spite of alterations to the park overall, the rarity and significance of the site's paleontological resources and the buildings constructed to facilitate their active study and exhibition reflect a history of institutional and cultural development in Los Angeles (if not the entire United States) that is unique.

Table 6 provides a visual overview of each character-defining feature, along with its era/date of construction. The historic district's character-defining features include but may not be limited to these components.

Table 6. Character-Defining Features and Components, La Brea Tar Pits Historic District

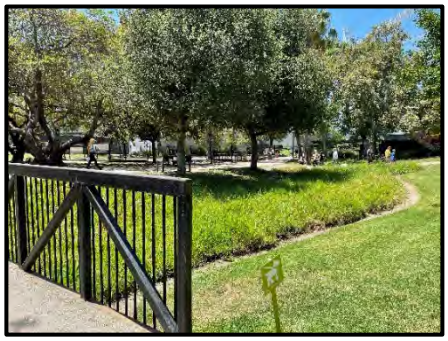
Photo	Character-Defining / Contributing Feature	Era / Date of Construction
	Lake Pit	Lake pit excavated in 19th century
	Excavation pits	Resources dating to Pleistocene era; facilities through present day
	Oil Creek	Topographic feature

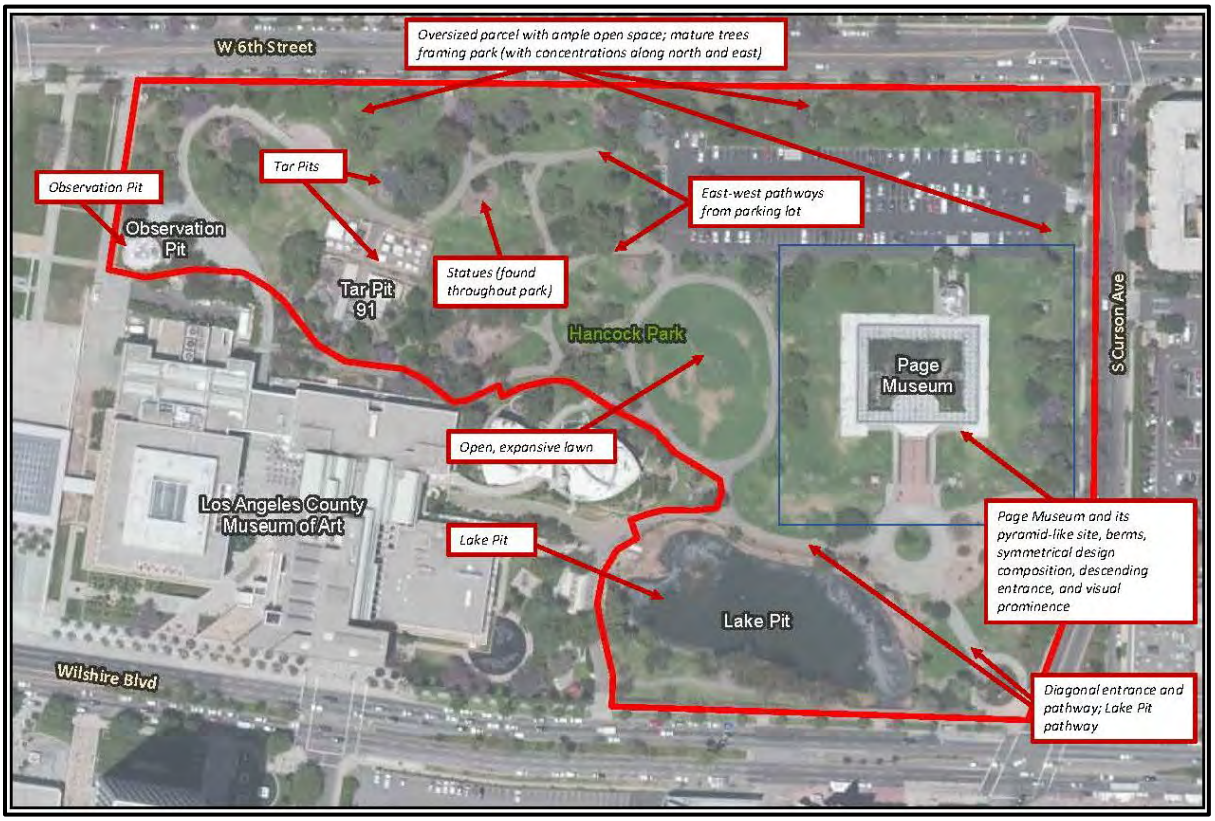
Photo	Character-Defining / Contributing Feature	Era / Date of Construction
	Oversized parcel with significant amount of open space	Circa 1910s through present day; by the 1920s, the site's contrast with surrounding areas, which were being subdivided and developed, had become obvious. This contrast intensified with commercial development on Wilshire spearheaded by Ross and became pronounced with the completion of Metropolitan Life's Park La Brea complex.
	Perimeter trees and other mature trees within the park	Circa 1920s through 1977
	Southeast corner entrance from Wilshire Boulevard	Circa 1920s
	Remnant stone walls (Pit 9 and 13); these walls are assumed to date to the 1930s addition of stone walls encircling pit sites throughout the northwestern quadrant of the park	1930s

Photo	Character-Defining / Contributing Feature	Era / Date of Construction
	Observation Pit	1952
	Statuary depicting prehistoric animals	Various
	G. Allan Hancock memorial, placed in 1963 (east of Japanese Pavilion, north of Lake Pit)	1963
	Page Museum	1977

Photo	Character-Defining / Contributing Feature	Era / Date of Construction
	Page Museum topography, including berm	1977
	Circulation corridors and pathways (i.e., diagonal entry path, path adjacent to the Lake Pit, and pathways in north-central portion of the park flanked with mature trees	1920s through 1970s
	Overall spatial relationships between buildings, structures, open space, park/recreational areas, resources, and natural features	Various

Figure 57 presents an overview of the district's primary contributing features, followed by a series of photographs illustrating some of these features (Figure 57 through Figure 59).

Figure 57. Overview of La Brea Tar Pits Historic District, contributing features



Source: SWCA, 2022

Figure 58. Overview of La Brea Tar Pits Historic District, Page Museum, with pyramid-like site, berms, and adjacent lawn (top) and Lake Pit (bottom)

Source: SWCA, 2022

Figure 59. Overview of La Brea Tar Pits Historic District, active dig sites (Pits 3, 4, 61/67) (top) and mature trees framing park, concentrated along northern and eastern borders of park (bottom)

Source: SWCA, 2022

2. PAGE MUSEUM, LA BREA TAR PITS | 5801 WILSHIRE BOULEVARD CHR STATUS CODE: 3S

In 2015, the 1977 Page Museum was identified as eligible for inclusion in the NRHP and CRHR and for designation as a local HCM as part of SurveyLA. The building was documented as an "excellent example of Late Modern institutional architecture, designed by local architecture firm Thornton and Fagan."[152] The building is noted for having exceptional architectural significance and was determined eligible for the NRHP under Criterion C and using Criteria Consideration G ("Properties that Have Achieved Significance within the Past 50 Years"). The survey also found the Page Museum eligible for the CRHR and as a local HCM under Criteria 3/3, respectively.

The building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for the Page Museum. In addition, the property appears eligible under County Criterion 3. Therefore, the property qualifies as **a historical resource for purposes of CEQA**.

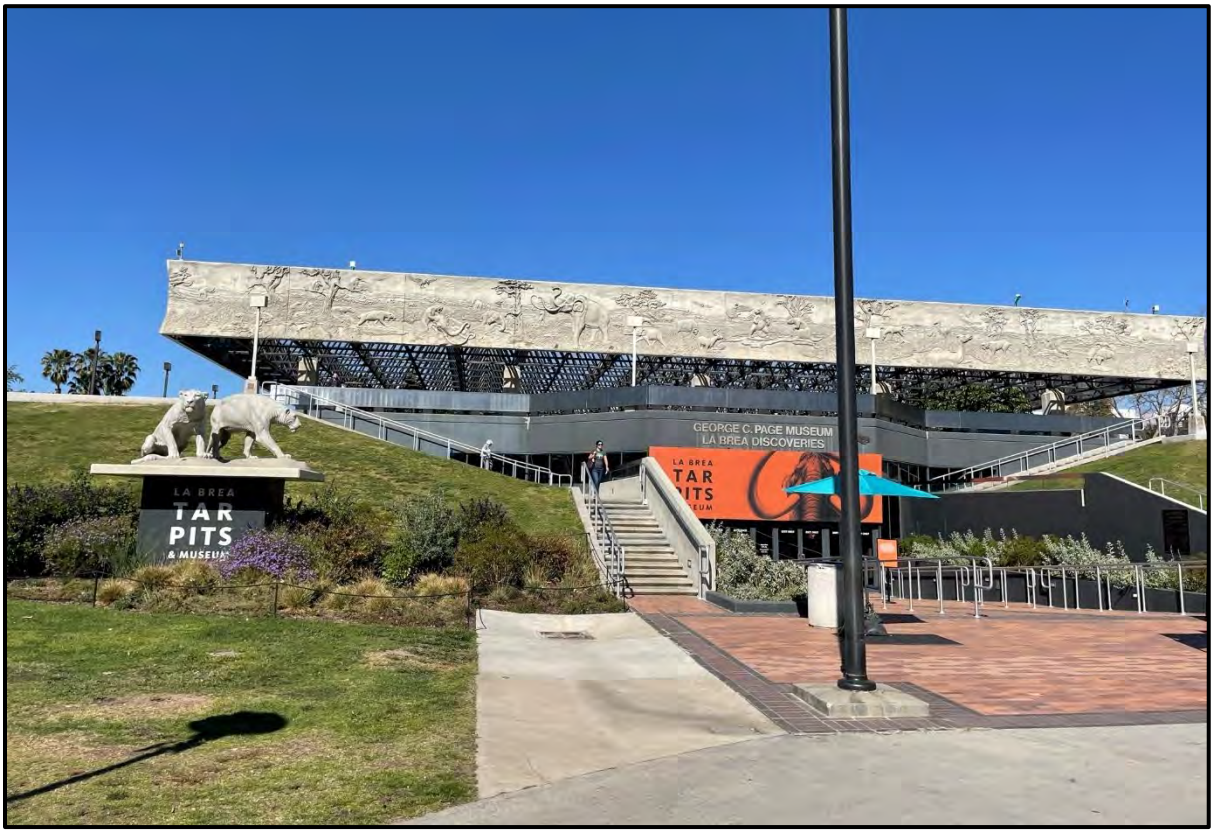
The primary character-defining features of the Page Museum include (but are not necessarily limited to):

- "Burial mound" berm/ pyramidal massing of the building and site
- Expansive adjacent lawn on the west
- Prominent fiberglass frieze with bas relief Pleistocene scenes and pronounced overhangs
- Structural space frame that supports the frieze and seems to float above podium level
- High degree of indoor-outdoor integration
- Open-air configuration at the podium level, with fiberglass frieze opening onto the central atrium
- Open, central atrium space with landscaping
- Symmetrical design composition, of the building and its site
- Sloped berms with turf plantings integrated into the exterior wall of the museum's ground floor
- Descending entrance on south, flanked by stairways leading to upper podium at the second-floor
- Laboratory space open to public view (interior)

Figure 60 through Figure 64 present current (2022) views of the Page Museum.

[152] Architectural Resources Group. 2015. Appendix A: Individual Resources. In *Survey LA Historic Resources Survey Report – Wilshire Community Plan Area*, p. 164. Prepared for the City of Los Angeles Office of Historic Resources.

Figure 60. Principal (south-facing) entrance to Page Museum, southeast perspective (top) and south perspective (bottom)



Source: SWCA, 2022

Figure 61. Page Museum, elevated berm and lawn (top) and frieze, open roof/podium, and interior atrium (bottom)

Source: SWCA, 2022

Figure 62. Page Museum and berm, northeast elevation

Source: SWCA, 2022

Figure 63. Page Museum podium and berm, west elevation

Source: SWCA, 2022

Figure 64. Open-air atrium, with landscaping, in center of Page Museum

Source: SWCA, 2022

3. OBSERVATION PIT, LA BREA TAR PITS | 5801 WILSHIRE BOULEVARD CHR STATUS CODE: 3S

In 2015, the Observation Pit was documented in SurveyLA as an "excellent example of Mid-Century Modern institutional architecture, designed by notable local architect Harry Sims Bent."[153] The 1952 building was determined eligible for listing in the NRHP and CRHR, and for local HCM designation under Criteria C/3/3, respectively.

The building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for the Observation Pit (Figure 65). In addition, the property appears eligible under County Criterion 3. Therefore, the Observation Pit **qualifies as a historical resource for purposes of CEQA**.

The primary character-defining features of the Observation Pit include (but are not necessarily limited to):

- Circular layout;
- One-story, horizontal and cylindrical massing;
- Flat roof profile with circular skylight openings and irregular parapet;
- Brick masonry as the primary material, both at the exterior and interior;
- Deeply recessed open-air entrance with low-profile canopy integrated into the roof profile;
- Band of window openings along the southern portion of the cylindrical façade;
- Pronounced cylindrical support columns with brick masonry veneer;
- Below-grade organization of the interior space;
- Full-height, cylindrical open interior volume at the center of the building framing the exposed excavation pit and fossils;
- Pedestrian stairs and observation platforms along the perimeter of the interior with metal guard rails; and
- Park setting and surrounding landscape.

[153] Architectural Resources Group, 2015, Appendix A, p. 163.

Figure 65. Observation Pit, main entrance (top) and interior (bottom); proposed project does not include changes to this building

Source: SWCA, 2022

Properties outside Project Footprint, within CEQA APE

This section provides information on properties outside the project footprint but within the CEQA APE.

1. PAVILION FOR JAPANESE ART, LACMA | 5905 WILSHIRE BOULEVARD | CHR STATUS CODE: 3S

In 2015, the Pavilion for Japanese Art, built in 1988, was identified as a historical resource eligible for listing in the NRHP and CRHR and for designation as a local HCM as part of SurveyLA. The building was found eligible as an "[e]xcellent example of an Organic style institutional building, designed by notable architect Bruce Goff and completed by notable architect Bart Prince."[154] Goff's arresting and expressionistic design incorporates folded panel walls suggestive of tatami mats and a roof superstructure reminiscent of Japanese basketry. The building is noted for having exceptional architectural significance and was determined eligible for NRHP listing under Criterion C and using Criteria Consideration G "Properties that Have Achieved Significance within the Past 50 Years"). The survey also found the Late Modern-style Pavilion for Japanese Art eligible for the CRHR and as a local HCM under Criteria 3/3, respectively. The building has not changed significantly since it was evaluated in 2015; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for the Pavilion for Japanese Art (Figure 66). In addition, the property appears eligible under County Criterion 3. The building is therefore **considered to be a historical resource for purposes of CEQA**.

Figure 66. Pavilion for Japanese Art, rear elevation (front elevation currently not accessible due to LACMA construction)

Source: SWCA, 2022

[154] Architectural Resources Group, 2015, Appendix A, p. 164.

2. PARK LA BREA GARDEN APARTMENT HISTORIC DISTRICT | CHR STATUS CODE: 3S

In 2015, as part of SurveyLA, Park La Brea Garden Apartment Historic District was identified as a historical resource eligible for the NRHP, CRHR, and as a local HPOZ under criteria C/3/3 as "an excellent example of a 1940s–1950s garden apartment complex in the area, unique in Los Angeles for its inclusion of high-rise as well as low-rise multi-family residential buildings."[155]

The district was found eligible under the context of Residential Development and Suburbanization, 1850–1980, subcontext of Multi-Family Residential Development 1910–1980, theme of Multi-Family Residential, 1910–1980, and the property type residential multi-family/garden apartment complex.

The district was designed by Leonard Schultze & Associates with Earl T. Heitschmidt. Park La Brea's buildings are "arranged in an innovative radial plan, with intersecting interior streets converging on circular landscaped areas. The two-story buildings are largely U-shaped, surrounding landscaped courtyards, and are in a Modern interpretation of the American Colonial Revival style. …There are no apparent alterations."[156]

The Park La Brea Garden Apartment Historic District is bounded by 3rd Street (north), Hauser Boulevard (east), 6th Street (south), and Fairfax Avenue (west). The parcels directly facing the project site across W. 6th Street, and therefore within the APE, are: 1) 555 S. Ogden Drive/5509-004-013 (1943); 2) 5900 Lindenhurst Avenue/5509-004-010 (1943); 3) 530 Alandele Avenue/5509-004-007 (1943); 4) 501 S. Fuller Avenue/5509-004-006 (1943); and 5) 5721 W. 6th Street/5509-004-004 (1943).

The buildings within the CEQA APE have not changed significantly since they were documented as part of the 2015 survey (Figure 67 and Figure 68); this study carries forward the finding of NRHP, CRHR, and local HPOZ eligibility for the Park La Brea Garden Apartment Historic District. Both the district as a whole and each contributing building within the CEQA APE is **considered to be a historical resource for purposes of CEQA**.

Figure 67. Overview of Park La Brea Garden Apartment Historic District

Source: SWCA, 2022

[155] Architectural Resources Group. 2015. Appendix B: Historic Districts, Planning Districts and Multi-Property Resources. In *Survey LA Historic Resources Survey Report – Wilshire Community Plan Area*, p. 986. Prepared for the City of Los Angeles Office of Historic Resources.

[156] Architectural Resources Group, 2015, Appendix B, p. 986.

Figure 68. Overview of Park La Brea Garden Apartment Historic District, adjacent to the north, across 6th Street, from proposed project site

Source: SWCA, 2022

3. 600 S. CURSON AVENUE (5508-015-006) | CHR STATUS CODE: 6Z

This property was constructed in 1986 and remodeled extensively between approximately 2018 and 2021, according to building records on file with the City of Los Angeles Department of Building and Safety (Figure 69). The property was not evaluated as part of SurveyLA, due to its date of construction. Available sources do not indicate that the property was designed by a master architect, and the property does not appear to possess exceptional significance. Therefore, this property **is not a historical resource pursuant to CEQA**.

Figure 69. 600 S. Curson Avenue, "Museum Terrace" Apartments

Source: SWCA, 2022

4. 640 S. CURSON AVENUE (5508-015-008) | CHR STATUS CODE: 6Z

This property was constructed in 2021 (Figure 70). Available sources do not indicate that the property was designed by a master architect, and the property does not appear to possess exceptional significance. Therefore, this property **is not a historical resource pursuant to CEQA**.

Figure 70. 640 S. Curson Avenue, "One Museum Square" apartments

Source: SWCA, 2022

5. PRUDENTIAL SQUARE | 5757 W. WILSHIRE BOULEVARD | CHR STATUS CODE: 3S

In 2015 SurveyLA identified this historical resource as eligible for listing in the NRHP and CRHR and for designation as a local HCM. The 1948 office complex known as Prudential Square was designed by Wurdeman and Becket. Listed in Los Angeles County Tax Assessor data as 5757 W. Wilshire Boulevard, the Prudential Square complex spans the addresses of 5711–5779 W. Wilshire Boulevard

The property was found eligible under the context of Architecture and Engineering, 1850–1980, subcontext of L.A. Modernism, 1919–1980, theme of Post-War Modernism, 1946–1976, Corporate International, 1946–1976, under the commercial property type. The property meets NRHP Criterion C, CRHR Criterion 3, and local HCM criteria 3 as an "[e]xcellent example of a Corporate International style office and retail building on Wilshire's Miracle Mile, designed by notable local firm Wurdeman and Becket. This property was the first Corporate International building on Wilshire Boulevard and at the time of its construction was the largest of its type in the city."[157]

This building complex has not changed significantly since it was evaluated as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for Prudential Square (Figure 71). The building is therefore **considered to be a historical resource for purposes of CEQA**.

Figure 71. 5757 W. Wilshire Boulevard, Prudential Square

Source: SWCA, 2022

[157] Architectural Resources Group, 2015, Appendix A, p. 227.

6. 5800 W. WILSHIRE BOULEVARD | CHR STATUS CODE: 6Z

This 1958 office building was surveyed but not found eligible through the citywide survey, SurveyLA.

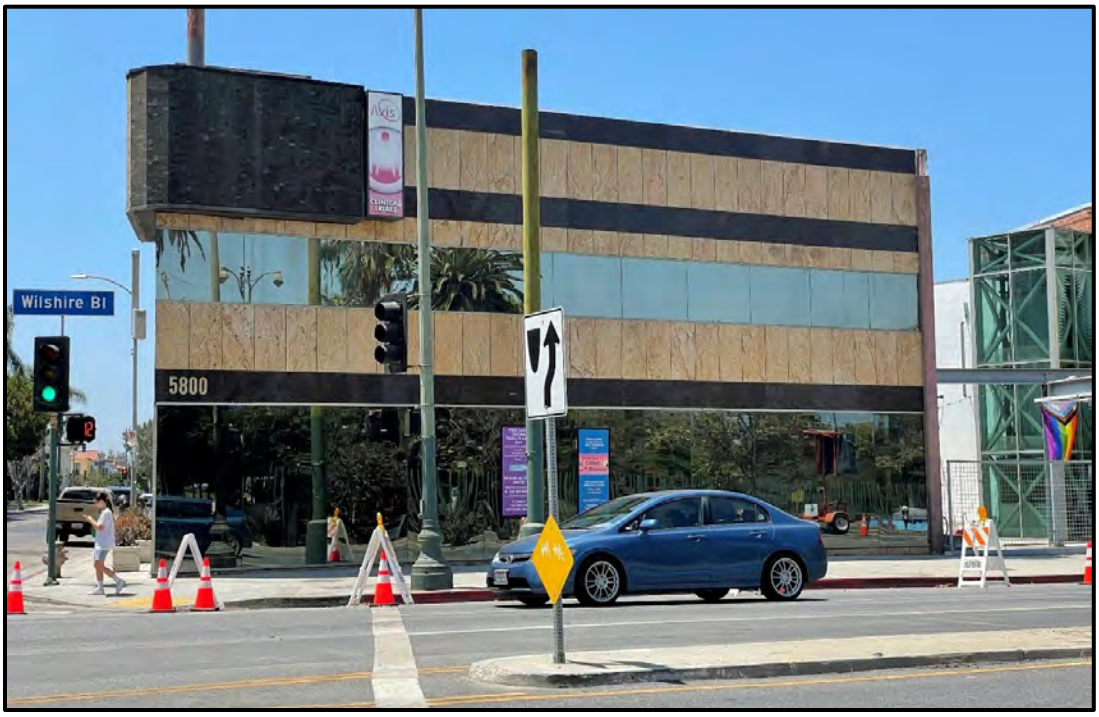
According to building records on file with the City of Los Angeles Department of Building and Safety, the most significant changes to the exterior of the property occurred in 2002. In 2002, permits were pulled for the following changes: 1) remove 40 feet of concrete shear wall at the ground floor at façade and replace with steel moment frames; 2) cut four openings measuring 5 feet by 5.3 feet at the ground floor of east wall; 3) extend lobby stairway from second floor to roof; 4) add 4 feet masonry parapet walls at roof; 5) in-fill all (seven) openings along west property line, along adjacent property at 5806 Wilshire; 6) revision to stairway, roof enclosure; 7) exterior façade alterations, new stairs and structural alterations, new window openings in east and west walls.

Due to these and other alterations, the current appearance of the property does not reflect its construction era; the building does not display the typical character-defining features of a postwar office building (Figure 72).

Available research did not indicate that the property has a significant association with events, patterns of development, or individuals significant in the history of the city, region, state, or nation.

The property **is therefore not a historical resource pursuant to CEQA**.

Figure 72. 5800 W. Wilshire Boulevard, south elevation



Source: SWCA, 2022

7. CRAFT AND FOLK ART MUSEUM | 5814 W. WILSHIRE BOULEVARD | CHR STATUS CODE: 3CS

In 2015 Survey LA identified the Craft and Folk Art Museum, built in 1930, as a historical resource eligible for listing in the CRHR and as an HCM. Listed in Los Angeles County Tax Assessor data as 5814 W. Wilshire Boulevard, the Craft and Folk Art Museum spans the addresses of 5814–5818 W. Wilshire Boulevard. Displaying an American Colonial Revival/French Revival style, the property was found eligible under the context of Neighborhood Commercial Development, 1875–1960, and the theme/subtheme of Neighborhood Commercial Development, 1875–1960/Early Neighborhood Commercial Development, 1880–1930, as a commercial property. The property meets CRHR Criterion 1/local HCM Criterion 1 under this context and theme as a "[r]are example of early neighborhood commercial development on Wilshire's Miracle Mile and an unusual two-story example of the property type. …Due to alterations including window and door replacements, the property does not retain sufficient integrity for listing in the National Register."[158]

The property was also found eligible under the context/subcontext of Public/Private Institutional Development, 1850–1980/Cultural Development and Institutions, 1850–1980 and the theme/subtheme of Visual Arts, 1888–1980/Producing, Displaying and Supporting Visual Arts, 1888–1980. The property meets CRHR Criterion 1/HCM Criterion 1 under this context/theme "as the long-time location of the Craft and Folk Art Museum, an important institution on Wilshire's Miracle Mile. The museum has been in continuous operation here since 1973."[159]

This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for the Craft and Folk Art Museum (Figure 73). The property is therefore **considered to be a historical resource for purposes of CEQA**.

Figure 73. 5814 W. Wilshire Boulevard, Craft and Folk Art Museum, detail (top) and context (bottom)

Source: SWCA, 2022

[158] Architectural Resources Group, 2015, Appendix A, p. 228.

[159] Architectural Resources Group, 2015, Appendix A, p. 228.

8. HANCOCK PARK BUILDING | 5820 W. WILSHIRE BOULEVARD | CHR STATUS CODE: 3CS

In 2015, SurveyLA identified the Hancock Park office building as a historical resource eligible for listing in the CRHR and for designation as a local HCM. This 1958 International Style/Mid-Century Modern-style office building was designed by architects Jack H. MacDonald and Cejay Parsons. The property was found eligible under the context of Architecture and Engineering, 1850–1980, subcontext of L.A. Modernism, 1919–1980, theme of Post-War Modernism, 1946–1976, Corporate International, 1946–1976. The property was found to meet CRHR Criterion 3/HCM Criterion 3 as an "Excellent example of a Corporate International style commercial building on Wilshire's Miracle Mile."[160]

This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for the Hancock Park Building (Figure 74). The property is therefore **considered to be a historical resource for purposes of CEQA**.

Figure 74. 5820 W. Wilshire Boulevard, Hancock Park Building

Source: SWCA, 2022

[160] Architectural Resources Group, 2015, Appendix A, p. 228.

9. CMAY GALLERY (FORMERLY ARTHUR MURRAY DANCE STUDIO) | 5828 W. WILSHIRE BOULEVARD | CHR STATUS CODE: 3S

In 2015, SurveyLA identified 5828 W. Wilshire Boulevard as a historical resource eligible for listing in the NRHP and CRHR and as an HCM. The property also occupies the addresses of 710 S. Stanley Avenue and 5826 W. Wilshire Boulevard. The property was found eligible under the context of Architecture and Engineering, 1850–1980, subcontext of L.A. Modernism, 1919–1980, theme of Post-War Modernism, 1946–1976, Mid-Century Modernism, 1945–1970. The property meets NRHP Criterion C, CRHR Criterion 3, and local HCM Criterion 3 as an "Excellent example of a Late Moderne…dance studio on Wilshire's Miracle Mile, designed by notable local architect Stiles O. Clements."[161]

This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of NRHP, CRHR, and local HCM eligibility for 5828 W. Wilshire Boulevard (Figure 75). The property is therefore **considered to be a historical resource for purposes of CEQA**.

Figure 75. 5828 W. Wilshire Boulevard

Source: SWCA, 2022

[161] Architectural Resources Group, 2015, Appendix A, p. 229.

10. 5850 W. WILSHIRE BOULEVARD | CHR STATUS CODE: 3CS

In 2015 SurveyLA identified the building at 5850 W. Wilshire Boulevard as an historical resource eligible for listing in the CRHR and as an HCM. This International Style office building was designed in 1951 by notable local architect Stiles O. Clements. The property was found eligible under the context of Architecture and Engineering, 1850–1980, subcontext of L.A. Modernism, 1919–1980, theme of Post-War Modernism, 1946–1976, Corporate International, 1946–1976, under the commercial property type. The property was found to meet CRHR Criterion 3 and local HCM Criterion 3 as an "[e]xcellent example of a Corporate International-style commercial building on Wilshire's Miracle Mile, designed by notable local architect Stiles O. Clements. Due to alterations including window and door replacements, the property does not retain sufficient integrity for listing in the National Register."[162]

This building has not changed significantly since it was documented and evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for 5850 W. Wilshire Boulevard (Figure 76). The property is therefore **considered to be a historical resource for purposes of CEQA**.

Figure 76. 5850 W. Wilshire Boulevard

Source: SWCA, 2022

[162] Architectural Resources Group, 2015, Appendix A, p. 229.

11. VACANT LAND (5089-011-154)

This empty parcel was not evaluated or documented as it does not include a built-environment resource.

12. MUTUAL BENEFIT LIFE PLAZA | 5900 WILSHIRE BOULEVARD | CHR STATUS CODE: 3CS

Designed in 1969–1971 by master architects William Pereira and Gin D. Wong, the Mutual Benefit Life Plaza was found eligible for listing in the CRHR and as an HCM in 2015 by SurveyLA under the context of Architecture and Engineering, 1850–1980, subcontext of L.A. Modernism, 1919–1980, theme of Post-War Modernism, 1946–1976, Corporate International, 1946–1976. The property was found to meet CRHR Criterion 3 and local Criterion 3 as an "[e]xcellent example of a Corporate International-style commercial building on Wilshire's Miracle Mile, designed by notable local architects William Pereira and Gin D. Wong."[163] The property was found ineligible for the NRHP due to alterations.

This building has not changed significantly since it was evaluated as part of the 2015 survey; this study carries forward the finding of CRHR and local HCM eligibility for 5900 W. Wilshire Boulevard (Figure 77). The property is therefore **considered to be a historical resource for purposes of CEQA**.

Figure 77. Mutual Life Benefit Plaza, 5900 W. Wilshire Boulevard

Source: SWCA, 2022

[163] Architectural Resources Group, 2015, Appendix A, p. 230.

13. LACMA | 5905 WILSHIRE BOULEVARD | CHR STATUS CODE: N/A

As of July 2022, the New Formalist-style campus of the Los Angeles County Museum of Art, designed by William L. Pereira in 1965, has been demolished. Construction of a new museum is underway, and the site does not presently contain built environment elements.

7. IMPACTS ANALYSIS

Thresholds of Significance

Under CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Substantial adverse change in the significance of a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. The significance of a historical resource is materially impaired when a project demolishes or materially alters those physical characteristics that convey the significance of the resource and justify its inclusion (or eligibility for inclusion) in the NRHP, CRHR, or local register. In general, a project that follows the *Secretary's Standards*[164] and associated guidelines shall be considered as mitigated to below the level of significance.[165]

Resources located within the project footprint may be subject to direct impacts. Those resources located in the CEQA APE but not within the project footprint may be subject to indirect impacts.

Identification of Impacts

This report identified three historical resources within the project footprint: La Brea Tar Pits Historic District, George C. Page Museum, and Hancock Park Observation Pit.

In terms of properties within the project footprint, full build-out of the proposed project as described in this report **would result in significant adverse direct impacts** to historical resources. Specifically, project implementation would result in significant physical changes, partial demolition, and new construction affecting the following two of the three historical resources such that they would no longer convey the reasons for their significance:

- La Brea Tar Pits Historic District (5801 Wilshire Boulevard)
- George C. Page Museum (5801 Wilshire Boulevard)

For the third historical resource within the project footprint—the Observation Pit—**no significant adverse impacts** are anticipated; the property would not be altered as a result of project implementation as currently conceived and described in this report. (If the project changes, potential impacts to the Observation Pit would need to be considered, bearing in mind that use of the *Secretary's Standards* would mitigate potential adverse effects to less than significant.)

[164] Weeks, K.D., and A.E. Grimmer. 1995. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstruction Historic Buildings*. Washington, D.C.: U.S. Department of the Interior, National Park Service.

[165] California Code of Regulations, Title 14, Chapter 3. CEQA Guidelines. Section 15064.5(b).

In terms of properties outside the project footprint but within the CEQA APE, project implementation **would not be expected to result in significant adverse indirect impacts** resulting in material impairment to adjacent historical resources. Full build-out of the proposed project would not be expected to alter the setting and feeling of adjacent historical resources such that they would no longer convey the reasons for their significance. Although the project site's design configuration will change, new elements to be added are compatible in terms of land use and the relatively low profile of new construction when viewed from adjacent historical resources.

The following impacts analysis addresses each historical resource within the CEQA APE. At present, the La Brea Tar Pits Master Plan consists of a wide range of preliminary plans. Although changes are proposed to the Page Museum, which is a historical resource, schematic-level detail is not yet available to characterize and assess each proposed alteration for compliance with the *Secretary's Standards*. Given the level of design available and the extended construction window, this impacts analysis therefore addresses the proposed project with a focus on the nine principal project components included in the master plan:

- Page Museum Renovations (#1)
- Wilshire Gateway Entry Plaza and Lake Pit (#2)
- Enhanced Central Green (#3)
- Revamped Pit 91 (#4)
- New Museum Building (#5)
- New Public Promenade (#6)
- New Pedestrian Path (#7)
- 6th Street Entry Gateway (#8)
- Support Building (#9)

For ease of review, the proposed site plan map for the La Brea Tar Pits Master Plan is presented below, with the nine major project components labeled and numbered. The following impacts analysis cross-references the project components and numbers shown in Figure 78.

Figure 78. Elements of the Proposed Site Plan, La Brea Tar Pits Master Plan

Discussion of Direct Impacts

This section addresses the potential **direct significant adverse impacts** to identified historical resources within the project footprint. Impacts are discussed in terms of changes to character-defining and contributing features of historic resources.

1. LA BREA TAR PITS HISTORIC DISTRICT (INSIDE PROJECT FOOTPRINT)

As noted in Section 6 (Historic Resources Survey and Results), the La Brea Tar Pits Historic District consists of numerous related contributors and character-defining features embodying the district's significance. This includes archaeological and paleontological resources (considered in separate reports); related buildings and structures; landscaping and hardscaping features; and site-plan configuration and spatial relationships characterizing the property. Taken together, these elements reflect a shared story of nearly 100 years of purposeful preservation of the Hancock Park land and its resources, scientific excavation and curation, and design and construction of facilities for public education and exhibits.

In addition, as described in Section 5 (Historic Setting and Context), master planning efforts for Hancock Park, which included a long-term plan for an on-site museum, stopped and started over the years. As a result, the district and its components display an eclectic character, developed in phases.

The proposed project envisions a comprehensive, unified master plan/design for the La Brea Tar Pits, which has been a long-term goal for Hancock Park. The proposed master plan is intended to expand scientific research and enhance the visitor's experience through a continuous, thematic circulation route, the addition of more shade structures and expanded, enhanced facilities, and an aesthetic upgrade for facilities, landscaping and hardscaping, and the park. Overall, the master plan would more explicitly integrate and brand Hancock Park and the La Brea Tar Pits for pedestrians approaching or passing on Wilshire Boulevard and on 6th Street, with proposed new gateways, signage, and fencing.

As a reimagining of the La Brea Tar Pits complex, the proposed project introduces a series of new features, buildings, structures, circulation corridors, and other elements that would fill-in and divide the components of the historic district, shifting the setting and feeling of the historic district and removing some of its character-defining features. The proposed project design is preliminary; however, as presently envisioned, the project elements that would impact contributing components and character-defining features of the historic district are described below. (Map labels for each project component, as shown in Figure 78, are noted in this section for ease of review.)

Page Museum Renovations (#1), New Public Promenade (#6), and New Museum Building (#5)

These project elements have the most immediate, direct impact to the historic district (as well as the Page Museum and its character-defining features and site, discussed specifically below). These changes focus on the principal built-environment resource and a focal point of the historic district, the Page Museum.

As noted previously, among the primary character-defining features of the Page Museum are its orthogonal site, which includes not just the museum but the raised berm surrounding and defining it on each side; the expansive lawn adjacent to the west, which contributes to the visual primacy and prominence of the Page Museum; and the relative absence of numerous other built-environment features around it.

The proposed project would eliminate the berms on the west and north elevations. Furthermore, a sizable portion of the northwest corner of the museum would be demolished and replaced to accommodate a

connection point to the new museum building and the covered, curved arcade and promenade. As shown in Figure 79, berms along the west and north would be built-up to create a curved public promenade; the new museum building would also be constructed behind the Page Museum. The new site design and construction would envelop and extend the Page Museum and its site along the west and north elevations.

In this way, the primacy of the Page Museum within the existing site design would be diminished; at present, the museum is a stand-alone focal point of the La Brea Tar Pits complex. As envisioned, the proposed project would incorporate the Page Museum into a connected three-part complex, with a pathway replacing the character-defining berms on the west and north. The new museum building would also compete with the Page Museum to the point of making it appear to be a supplemental annex to the larger new facility.

Wilshire Gateway Entry Plaza & Lake Pit (#2)

This project element would replace the diagonal pathway leading into the park in the southeast corner (a character-defining feature) with a curved pathway and entry plaza. A pedestrian bridge and pathway would lead over the Lake Pit, which would replace the main entrance/walkway to the park and visually divide the Lake Pit. The visibility of the lake and statues from Wilshire Boulevard, in particular westbound, would potentially be diminished, thus affecting the visual role the La Brea Tar Pits play in the surrounding environment.

In addition, without additional project detail, it is not possible at the present time to eliminate from consideration possible physical impacts to the lake itself from the bridge's structural elements.

When considered in tandem with other master plan elements affecting character-defining features, this project component would impact the aspects of "setting" and "feeling" of the historic district (as described in Section 3, Regulatory Setting) and would contribute to the overall loss of integrity.

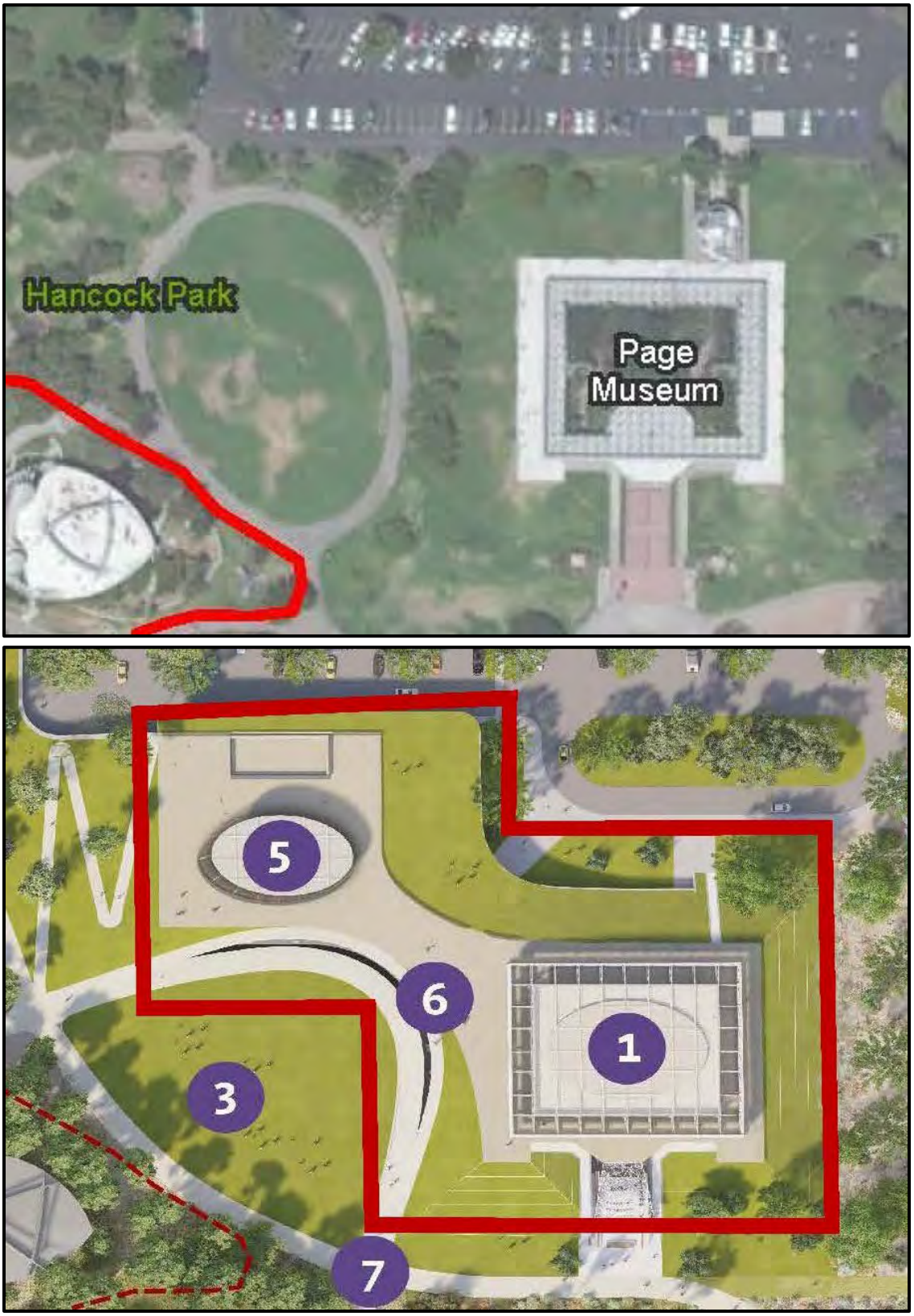
Enhanced Central Green (#3)

This project element would affect the lawn west of the Page Museum, which is considered a character-defining feature of the historic district. The lawn would be retained, but the size would be reduced. At present, the lawn provides an open space and unimpeded view to the Page Museum. In the proposed project, the lawn would be enveloped in the new, curved pedestrian path. When considered in tandem with other master plan elements affecting character-defining features, this project component would impact the aspects of "setting" and "feeling" of the historic district (as described in Section 3, Regulatory Setting) and would contribute to the overall loss of integrity.

Revamped Pit 91 (#4)

This project element would not affect identified character-defining features or contributing elements of the La Brea Tar Pits Historic District such that, on its own, it would cause or contribute to a significant adverse impact to the La Brea Tar Pits Historic District. This project element would retain the contributing feature (tar pits) and replace temporary construction and buildings with a permanent exhibition area. The extended chain fencing would be removed. The project would construct viewing areas around each of the tar pits, with improved pit protection zones and fencing, seating, and interpretive signage. The project would remove and replace noncontributing temporary storage and research buildings adjacent to Project 23.

Figure 79. Current site configuration (top) and project elements #1 (Page Museum Renovations), #5 (New Museum Building), and #6 (New Public Promenade) (bottom)



New Pedestrian Path (#7)

The New Pedestrian Path would create a unified circulation corridor throughout the park and would shift the main entrance/approach. Affected character-defining features include the diagonal entrance/walkway at the corner of Wilshire Boulevard and Curson Ave (as noted above)., historic trees along the north; and the overall configuration of park features connected by meandering paths. Contributing pathways include the southeast entry diagonal path, the path along the northside of the Lake Pit, and the tree-shaded paths west of the parking area.

When considered in tandem with other master plan elements affecting character-defining features, this project component would impact the aspects of "setting" and "feeling" of the historic district (as described in Section 3, Regulatory Setting) and would contribute to the overall loss of integrity.

6th Street Entry Gateway (#8) and Support Building (#9)

These project elements would not affect identified character-defining features or contributing elements of the La Brea Tar Pits Historic District such that a distinct, direct or indirect impact to the La Brea Tar Pits Historic District would be expected.

Table 7 summarizes the primary character-defining features of the district, along with those project components most relevant in terms of potential impacts, and the aspects of integrity most likely to be impacted by project implementation.

In summary, for the eligible La Brea Tar Pits Historic District, full build-out of the proposed project, with the variety of design updates, upgrades, and new construction planned for the site would result in a **significant adverse direct impact** to the district (direct impacts to the Page Museum are addressed separately below). Implementation of the master plan, which represents a comprehensive redesign of Hancock Park, would erode and interrupt the eclectic but cohesive character-defining features of this historic district such that it would no longer convey the reasons for its significance as a CRHR and locally eligible historic district. Each one of the project elements on its own would not affect the district's eligibility to the extent that it would be materially impaired (except for alterations to the Page Museum, addressed below).

Cumulatively, however, the implementation of all these changes would result in a significant adverse impact to the La Brea Tar Pits Historic District. The loss of eligibility of the resource represents material impairment and an impact to the environment.

Table 7. Potential Impacts on Character-Defining Features, La Brea Tar Pits Historic District

Primary Character-Defining Feature	Is feature retained?	Relevant and/or Adjacent Project Component/s	Aspects of integrity potentially impacted by project element implementation	*Secretary's Standards for Rehabilitation* in potential noncompliance with project element
Oversized, sparsely developed parcel, with large swaths of open park space	Yes	▪ **New Museum Building (#5)** and **New Public Promenade (#6)** would reduce open park space with additional construction ▪ The site's oversized parcel and some open space/recreational areas would be retained though diminished	Setting; Feeling	Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Lake Pit	Yes	▪ **Wilshire Gateway Entry Plaza & Lake Pit (#2)** and **New Pedestrian Path (#7)** would change the configuration of the corner entrance to the park ▪ The Lake Pit, which is one of the key contributing resources to the historic district; would be preserved ▪ A pathway and bridge would lead over the Lake Pit	Setting	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 4: Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
Mature trees framing Hancock Park, with concentrations along the north and east	Partially	▪ **Landscaping plan** would remove a number of the historic trees appearing to date to the 1920s establishment of Hancock Park	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 4: Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
Page Museum and its site, with pyramidal massing, square plan, and sharply raised berms; visual prominence of Page Museum (see Table 8 for potential impacts to individually eligible Page Museum)	Partially	▪ **Page Museum Renovations (#1), New Museum Building (#5), and New Public Promenade (#6)** would change these character-defining features ▪ West and north berms would be removed/built up to accommodate promenade ▪ Pyramidal massing would be mostly replaced ▪ Open-air roof, podium, and central atrium, would be covered ▪ Visual primacy of the Page Museum would be diminished	Design; Materials; Workmanship; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 3: Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired
Observation Pit	Yes	▪ Circulation corridors and landscaping adjacent to the Observation Pit have been altered over time ▪ The closest project element, a portion of the **New Pedestrian Path (#7),** would resemble the land use patterns, hardscaping, and circulation corridors already adjacent to this historic resource	Some changes to adjacent Setting (but minimal given level of recent alteration in landscaping in the northwest quadrant of Hancock Park)	Complies with *Secretary's Standards*
Corner entrance with diagonal entry path at Wilshire Boulevard	Partially	▪ **Wilshire Gateway Entry Plaza and Lake Pit (#2)** would shift the corner entrance to a new entry point further west on Wilshire Boulevard ▪ This project element would remove the character-defining diagonal entry and pathway	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 3: Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired

Primary Character-Defining Feature	Is feature retained?	Relevant and/or Adjacent Project Component/s	Aspects of integrity potentially impacted by project element implementation	*Secretary's Standards for Rehabilitation* in potential noncompliance with project element
Circulation corridors/pathways, including east-west pathways leading from parking lot and north-south pathway northwest from central lawn	Partially	▪ **Enhanced Central Green (#3), New Museum Building (#5), New Pedestrian Path (#7)** would alter/replace some of the character of character-defining circulation corridors and pathways of the historic district ▪ Pathways and circulation corridors dating to the period of significance, which reflect the district's development over time, would be replaced with a unified system and series of designed pathways and landscaping; new construction would interrupt or remove these extant features	Setting; Feeling	Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Remnants of 1930s stone walls in northwestern portion of site	Unknown; it is possible that implementation of the Master Plan could remove this feature	▪ Landscaping plan and/or facilities upgrades to tar pits and seep sites could impact this feature and other extant remnants of stone walls	Design; Materials; Setting; Feeling	Unknown at this time because the project is conceptual in nature and the Master Plan does not provide specific information on whether the remnants of 1930s stone walls would be retained or removed. The potential exists for impacts to adjacent historical resources through construction staging, construction activities, and implementation of project landscaping. Construction staging activities should be carefully designed to plan for and avoid any adjacent historical resources (including but not limited to details regarding off-site staging, parking, equipment and material storage, movement, and use).
Significant paleontological resources on the site, including various dig and studies sites	Yes	▪ **Revamped Pit 91 (#4)** would remove temporary facilities that are not considered character-defining ▪ The significant resources would be preserved ▪ Temporary facilities would be replaced and upgraded	None; the improved facilities would enhance visibility of these significant cultural resources	While the project complies with the Secretary's Standards at this stage of the design process, the potential exists for impacts to adjacent historical resources through construction staging and construction activities. Construction staging activities should be carefully designed to plan for and avoid any adjacent historical resources (including but not limited to details regarding off-site staging, parking, equipment and material storage, movement, and use).

2. PAGE MUSEUM, LA BREA TAR PITS (INSIDE PROJECT FOOTPRINT)

Full build-out of the proposed project would result in a **direct, significant adverse impact** to the Page Museum, which is an historical resource pursuant to CEQA (eligible for the NRHP, CRHR, and as a local HCM). Therefore, the project would cause an impact to the environment through material impairment of a historical resource.

While the project plans remain preliminary at this stage, they include elements that do not comply with the *Secretary's Standards*. Not all projects that depart from the *Secretary's Standards* cause significant adverse impacts; however, the remodel of the Page Museum, in addition to including seismic and systems upgrades necessary for the building's long-term viability, also includes major alterations to key character-defining features. These alterations include:

- Elimination of the sharply raised berms on the west and north elevations of the museum site
- Eliminating the indoor-outdoor integration provided by the open roof, podium, and central atrium, by adding a roof structure and photovoltaic panels and enclosing the open space at the podium with fenestration
- Adding windows beneath the Pleistocene-era frieze, which will diminish the museum's high degree of indoor-outdoor integration and the visual prominence of the frieze as one of the key character-defining features of the museum
- Shifting the principal entrance to the new museum building; the principal, descending entrance ramp to the Page Museum would retained physically but converted in use to serve as an outdoor classroom space; the main entrance to the museum would shift to the annex to the west
- Demolition of a portion of the museum's northwest corner
- A site redesign in which the Page Museum, which is presently a prominent, stand-alone feature, would be incorporated as one component of an integrated, connected three-part complex, including built-up berms on the west and north, a public promenade, and new museum building; new construction does not include visual, physical distinctions and separations between the old and the new
- Construction of the new museum building, which, though on par with or slightly higher than the Page Museum, would visually compete with the Page Museum

Taken together, these planned alterations to the Page Museum would compromise its historic integrity to the point that the historical resource would no longer convey the reasons for its significance.

Table 8 below provides an overview of the affected character-defining features for each project component, as applicable and to the extent that project-level detail is available.

Project plans for the Page Museum are preliminary at this stage of the design process. However, as currently envisioned, though the Page Museum would be retained, implementation of the proposed project would be expected to result in a **significant adverse direct impact** to the historic resource, which is currently eligible for the NRHP, CRHR, and as a local HCM. The loss of eligibility of the Page Museum represents material impairment to the historical resource and an impact to the environment.

Table 8. Potential Impacts to Character-Defining Features, Page Museum Renovations

Primary Character-Defining Feature	Is feature retained?	Conceptual Project Plans	Aspects of integrity potentially impacted by project element	*Secretary's Standards for Rehabilitation* in potential noncompliance with conceptual project element
Oversized one-story mass/height	Yes	▪ The height of the building would be retained ▪ Seismic upgrades would be achieved through addition of shear-wall supports that would be concealed from view	N/A	Could comply with *Secretary's Standards* (if seismic upgrades are, as described, hidden and any significant historic fabric that is disturbed by the construction is repaired and re-installed or replaced in-kind).
Prominent fiberglass frieze with bas relief Pleistocene scenes and pronounced roof overhangs	Partially	▪ The roof frieze would be retained ▪ Windows would be installed beneath the frieze, sealing the open space presently characterizing the podium	Design; Workmanship, Materials; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Fishbowl-like laboratory space in museum interior	Yes	▪ The fishbowl-like laboratory would be retained	While at a preliminary design stage, this project element would not be expected to result in significant adverse impacts if all project components are designed to comply with the *Secretary's Standards*	Could comply with *Secretary's Standards* (if character-defining features of the laboratory space are retained and/or replaced in-kind).
Burial mound-like site with sharply raised berms with turf plantings on each side, pyramidal massing, and a square plan	Partially	▪ Berms on the west and north would be removed and built up to accommodate New Public Promenade (#6) ▪ Site's pyramidal massing would be replaced ▪ Topography and character of west and north berms would be changed to accommodate promenade connecting Page Museum with new building, via curved arcade	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Symmetrical design composition, building and site	Partially	▪ Symmetrical design composition of the Page Museum itself would be largely retained ▪ Symmetrical design composition of the site would not be retained ▪ Page Museum site would be changed and incorporated into/extended by the curved New Public Promenade (#6) and new museum building (#5)	Design; Setting; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Descending entrance progression on south elevation into the center of the building, flanked by mirror stairways leading to the upper podium at the second-floor	Partially	▪ The Page Museum's primary entrance would shift to serve as an outdoor classroom ▪ The entrance would remain operational ▪ New ADA-accessible ramps would flank the outdoor classroom space ▪ A cantilevered shade structure is proposed for the Page Museum entrance, which is presently open-air	Design; Materials; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Primary Character-Defining Feature	Is feature retained?	Conceptual Project Plans	Aspects of integrity potentially impacted by project element	*Secretary's Standards for Rehabilitation* in potential noncompliance with conceptual project element
Indoor-outdoor integration; open-air roof; open configuration at the podium level overlooking atrium	No	▪ Indoor-outdoor integration of the Page Museum itself would be severely diminished ▪ Open-air configuration of the roof and podium would be covered/sealed ▪ Open-air roof would be covered, with proposed materials to include photovoltaic panels ▪ Windows would be installed at the podium level, closing the open-air design	Design; Materials; Workmanship; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Open central atrium with landscaping	No	▪ The open, central atrium with landscaping would be removed and replaced	Design; Materials; Workmanship; Feeling	Rehabilitation Standard No. 2: The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided. Rehabilitation Standard No. 5: Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved. Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
Visual primacy as principal built-environment feature of historic district	No	▪ New construction on site, including the New Museum Building (#5) and New Public Promenade (#6) along with changes to the Enhanced Central Green (#3) would diminish the Page Museum's visual primacy at the La Brea Tar Pits Historic District	Design; Setting; Feeling	Rehabilitation Standard No. 9: New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment. Rehabilitation Standard No. 10: New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

3. OBSERVATION PIT (INSIDE PROJECT FOOTPRINT)

The proposed project does not include changes to the Observation Pit. In addition, the site and surroundings have already been updated and altered over time, and the closest project element, a portion of the New Pedestrian Path (see Figure 78, Project Element #7) would resemble the land use patterns, hardscaping, and circulation corridors already adjacent to this historical resource. Therefore, **no significant adverse direct impacts** to the Observation Pit are expected to result from project implementation.

Discussion of Indirect Impacts

In summary, **no significant adverse indirect impacts** of adjacent historical resources would occur with implementation of the proposed master plan. This finding, described in more detail below, is based on the overall compatibility of master plan elements in terms of land use, general character, mass/scale, and design and that indirect effect would not result in material impairment of adjacent historical resources. This finding is also based on the assumption that protective precautions related to construction activities and staging locations will be taken as the conceptual plans evolve.

The following section addresses each of the proposed project's eight adjacent historic resources.

1. PAVILION FOR JAPANESE ART

Implementation of the proposed master plan would not be expected to result in significant, adverse indirect impacts to the point of material impairment of the Pavilion for Japanese Art.

The surrounding land uses, which currently consist of landscaping, pathways, and the elements of the tar pits complex, would be retained, albeit with a new design configuration. In terms of new construction, the new museum building (see Figure 78, Project Element #5) planned for the park's northwestern quadrant would be located at a significant distance from the Pavilion for Japanese Art; the scale/mass and design of the new museum building as it is characterized at this stage of the design process would not be expected to overwhelm or otherwise significantly impact the setting and feeling of the Pavilion for Japanese Art to the point that it would no longer convey the reasons for its significance. The closest project element to the Pavilion for Japanese Art would be the New Pedestrian Path (see Figure 78, Project Element #7); at present, this area of the park already includes various walkways and landscaping.

In addition, the Pavilion for Japanese Art is closest to/oriented towards the new LACMA facility, which represents a more significantly altered change in setting than the master plan for the La Brea Tar Pits.

In summary, the master plan elements adjacent to the resource would be compatible in terms of use, character, mass/scale, and design and **no significant adverse indirect impacts** are expected to the Pavilion for Japanese Art from project implementation.

This finding is based on the assumption that protective precautions related to construction activities and staging locations will be taken as the project plans evolve.

2. PARK LA BREA GARDEN APARTMENT HISTORIC DISTRICT

Implementation of the proposed project would not be expected to result in significant, adverse indirect impacts to the point of material impairment of the Park La Brea Garden Apartment Historic District.

This large historic district forms the northern border of the CEQA APE for this project analysis. The contributors to the district are located across a wide expanse of West 6th Street and screened by the mature trees and landscaping of Hancock Park. Master plan elements facing the Park La Brea Garden Apartment Historic District would be compatible in terms of land use, character, mass/scale, and design. In addition, the new museum building (see Figure 78, Project Element #5), which would be across 6th Street, is sited at enough of a distance and exhibiting a modest mass/scale that it would not be expected to result in material impairment to the historic resource such that it would no longer convey the reasons for its significance.

In summary, **no significant adverse indirect impacts** are expected to result from project implementation to the Park La Brea Garden Apartment Historic District.

3. PRUDENTIAL SQUARE (5757 W. WILSHIRE BOULEVARD)

Implementation of the proposed master plan would not be expected to result in significant, adverse indirect impacts to the point of material impairment of Prudential Square (5757 W. Wilshire Boulevard).

This 1948 office complex, designed by Wurdeman and Becket, occupies the CEQA APE's southeast corner. Surrounding land uses would be retained, as the La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to Prudential Square would be the Wilshire Gateway Entry Plaza & Lake Pit (see Figure 78, Project Element #2). This element would renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. These changes to the corner entrance to the park retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this facing historic resource.

In summary, **no significant adverse indirect impacts** would be expected to result to Prudential Square from project implementation.

4. CRAFT AND FOLK ART MUSEUM (5814 W. WILSHIRE BOULEVARD)

Implementation of the proposed master plan would not be expected to result in significant, adverse indirect impacts to the point of material impairment of the Craft and Folk Art Museum (5814 W. Wilshire Boulevard).

Constructed in 1930, the Craft and Folk Art Museum is an American Colonial Revival/French Revival style building located south of the proposed project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as the La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to the Craft and Folk Art Museum would be the Wilshire Gateway Entry Plaza & Lake Pit (see Figure 78, Project Element #2). This project element would renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the New Pedestrian Path (see Figure 78, Project Element #7) would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource.

In summary, **no significant adverse indirect impacts** would be expected to result to the Craft and Folk Art Museum from project implementation.

5. HANCOCK PARK BUILDING (5820 W. WILSHIRE BOULEVARD)

Implementation of the proposed master plan would not be expected to result in significant, adverse indirect impacts to the point of material impairment of the Hancock Park Building (5820 W. Wilshire Boulevard).

Located south of the project site across Wilshire Boulevard, the Hancock Park Building was designed in 1958 in the International/Mid-Century Modern style by architects Jack H. MacDonald and Cejay Parsons. The building is located south of the proposed project site, across Wilshire Boulevard The facing, extant land uses would be retained, as the La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to the Hancock Park Building would be the Wilshire Gateway Entry Plaza & Lake Pit (see Figure 78, Project Element #2). This project element would renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the New Pedestrian Path (see Figure 78, Project Element #7) would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource.

In summary, **no significant adverse indirect impacts** would be expected to result to the Hancock Park Building from project implementation.

6. CMAY GALLERY (FORMERLY ARTHUR MURRAY DANCE STUDIO, (5828 W. WILSHIRE BOULEVARD)

Implementation of the proposed master plan would not be expected to result in significant, adverse indirect impacts to the point of material impairment of the CMAY Gallery (5828 W. Wilshire Boulevard).

Located south of the project site across Wilshire Boulevard, CMAY Gallery (formerly the Arthur Murray Dance Studio) was designed in 1947 by notable local architect Stiles O. Clements in the Late Moderne style. The building is located south of the proposed project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as the La Brea Tar Pits would remain a public park with hardscaping and pathways, landscaping and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to the CMAY Gallery would be the Wilshire Gateway Entry Plaza & Lake Pit (see Figure 78, Project Element #2). This project element would renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the New Pedestrian Path (see Figure 78, Project Element #7) would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource.

In summary, **no significant adverse indirect impacts** would be expected to result to the CMAY Gallery from project implementation.

7. OFFICE BUILDING (5850 W. WILSHIRE BOULEVARD)

Implementation of the proposed master plan would not be expected to result in significant, adverse indirect impacts to the point of material impairment of the office building at 5850 W. Wilshire Boulevard.

Located south of the project site across Wilshire Boulevard, 5850 W. Wilshire Boulevard was designed in 1951 in the International Style by well-known local architect Stiles O. Clements. The building is located south of the proposed project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as the La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. The closest project element to 5850 W. Wilshire Boulevard would be the Wilshire Gateway Entry Plaza & Lake Pit (see Figure 78, Project Element #2). This project element would renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza. In addition, from this vantage point of Wilshire Boulevard, the New Pedestrian Path (see Figure 78, Project Element #7) would add a curved walkway over the Lake Pit that would be visible from across Wilshire Boulevard. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource.

In summary, **no significant adverse indirect impacts** would be expected to result to 5850 W. Wilshire Boulevard from project implementation.

8. MUTUAL BENEFIT LIFE PLAZA (5900 WILSHIRE BOULEVARD)

Implementation of the proposed master plan would not be expected to result in significant, adverse indirect impacts to the point of material impairment of the Mutual Benefit Life Plaza (5900 W. Wilshire Boulevard).

Located southwest from the project site across Wilshire Boulevard, the Mutual Benefit Life Plaza was designed in 1969–1971 by notable local architects William Pereira and Gin D. Wong. The building complex is located southwest of the proposed project site, across Wilshire Boulevard. The facing, extant land uses would be retained, as the La Brea Tar Pits would remain a public park with hardscaping/pathways, landscaping and open space, interspersed with institutional facilities and tar pits/excavation sites, albeit with a new design configuration and additions. Although not directly adjacent, the closest project element to 5850 W. Wilshire Boulevard would be the Wilshire Gateway Entry Plaza & Lake Pit (see Figure 78, Project Element #2). In addition, from this vantage point southwest of the project site, the New Pedestrian Path (see Figure 78, Project Element #7) would add a curved walkway over the Lake Pit that would be partially visible from across Wilshire Boulevard to the southwest. However, these changes retain the existing land uses and are compatible in terms of character, mass/scale, and design when seen from the perspective of this adjacent historic resource.

In summary, **no significant adverse indirect impacts** would be expected to result to 5900 W. Wilshire Boulevard from project implementation.

8. CONCLUSION AND RECOMMENDATIONS

As a result of this study, SWCA identified **two separate, significant and unavoidable direct adverse impacts to historical resources**: one to the La Brea Tar Pits Historic District, and the other to the Page Museum.

Based on available project information, following full build-out of the La Brea Tar Pits Master Plan, neither the La Brea Tar Pits Historic District nor the Page Museum would be expected to remain historical resources pursuant to CEQA. The project would retain the Page Museum and numerous contributing features of the historic district. However, the character-defining and contributing features of both historical resources could be significantly altered to the point that they would no longer be anticipated to retain eligibility.

At present, the Page Museum is individually eligible for the NRHP, CRHR, as a County landmark, and as City HCM. The La Brea Tar Pits Historic District is eligible as a historic district for the CRHR and at the County and City level.

This loss of eligibility translates into material impairment, as neither property would qualify as a historical resource pursuant to CEQA following project implementation.

In terms of indirect impacts, this study concluded that, based on available project information, **no significant indirect adverse impacts** would result from project implementation. The proposed project does not yet include detailed information on construction staging locations or activities, which may impact adjacent historical resources. Based on this, it is recommended that the EIR include enforceable mitigation measures for historical resources construction monitoring to ensure that any construction staging activities are designed to avoid potential indirect impacts to adjacent historical resources.

Due to the likelihood of direct, significant adverse impacts to historic resources, the Draft EIR must include a range of feasible alternatives and mitigation measures. Alternatives may include but not necessarily be limited to options exploring reduced project alternatives that would achieve most project objectives while reducing impacts to historical resources to less than significant. Enforceable mitigation measures and/or project design features to address in the EIR will include options that are feasible, have a proportional nexus with the project impacts, and are capable of reducing, avoiding, or mitigating impacts, at the project- and program-level.

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APPENDIX E

Geology and Soil Discipline Report

SUBMITTED TO:

Natural History Museums of
Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

BY:

Shannon & Wilson
100 North First Street, Suite 200
Burbank, CA 91502

(818) 543-4560
www.shannonwilson.com

GEOLOGY AND SOIL DISCIPLINE REPORT

La Brea Tar Pits Museum Master Plan Project

5801 WILSHIRE BOULEVARD, LOS ANGELES, CALIFORNIA

SHANNON & WILSON

January 27, 2023

Shannon & Wilson No: 109748-001

Submitted To: Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007
Attn: Mr. Jesse Rocha

Subject: GEOLOGY AND SOIL DISCIPLINE REPORT, LA BREA TAR PITS MUSEUM MASTER PLAN PROJECT, 5801 WILSHIRE BOULEVARD, LOS ANGELES, CALIFORNIA

Shannon & Wilson prepared this report and participated in this project as a consultant to the Los Angeles County Museum of Natural History Foundation. Our scope of services was specified in Contract Service Agreement Ledger No. 1-1-2-102-470-4250, dated August 16, 2022. This report presents our geology and soils discipline report and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON

PROFESSIONAL GEOLOGIST No. 5789
DEAN G. FRANCUCH
No. 1842
CERTIFIED ENGINEERING GEOLOGIST
Exp: 3-31-24
STATE OF CALIFORNIA

Dean G. Francuch
Digitally signed by Dean G. Francuch
Date: 2023.01.27 14:37:29 -08'00'

REGISTERED PROFESSIONAL ENGINEER
R. TRAVIS DEANE
GE 2544
EXP. 12/31/24
GEOTECHNICAL
STATE OF CALIFORNIA

Dean G. Francuch, PG, CEG
Senior Associate
Role: Engineering Geologist

R. Travis Deane, PE, GE
Vice President
Role: Geotechnical Engineer

BPT:CLZ:DGF:RTD/bpt

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Appendices

Appendix A: Past S&W and VB&B Field Explorations
Appendix B: Previous Explorations by Others
Important Information

ACRONYMS

AMMP	Academy Museum of Motion Pictures
BCAM	Broad Contemporary Art Museum
bgs	below ground surface
BPC	LACMA Building for Permanent Collection
CalGEM	State of California Department of Conservation, Geologic Energy Management Division
CBC	California Building Code
CDMG	California Division of Mines and Geology
CGS	California Geological Survey
City	City of Los Angeles
CLABC	County of Los Angeles Building Code
County	County of Los Angeles
DOGGR	State of California Department of Conservation, Division of Oil, Gas and Geothermal Resources
DWR	California Department of Water Resources
EI	Expansion Index
GMED	County of Los Angeles Department of Public Works Geotechnical and Materials Engineering Division
IBC	International Building Code
LACMA	Los Angeles County Museum of Art
LA Metro	Los Angeles County Metropolitan Transportation Authority
LCA	LeRoy Crandall and Associates
MCE	Maximum Considered Earthquake
MKA	Magnusson Klemencic Associates
mm	millimeter
M_w	Earthquake Moment Magnitude
NHMLAC	Natural History Museums of Los Angeles County
Page Museum	George C. Page Museum of La Brea Discoveries
PGA	peak ground acceleration
Project	La Brea Tar Pits Museum Transformation Master Plan Project
SF	square feet
S&W	Shannon & Wilson
SPT	Standard Penetration Test
USGS	U.S. Geological Survey
VB&B	Van Beveren & Butelo

1 INTRODUCTION

This report presents our geology and soil discipline study for the proposed La Brea Tar Pits Museum Transformation Master Plan Project (Project). The conclusions and recommendations in this report will be used to support the geology and soil discipline section of the Environmental Impact Report for the Project. A summary of our site reconnaissance, records review, hazards analyses, groundwater review, and recommended measures to mitigate the potential geologic hazards is presented in the following sections. We based our conclusions and recommendations on existing subsurface explorations and laboratory testing performed by us and others in the Project vicinity. We will perform additional subsurface explorations as the Project schedule advances to final design.

The Project is located at 5801 Wilshire Boulevard within the City of Los Angeles (City), as shown in the Vicinity Map, Figure 1, and the Site Plan, Figure 2. The Project consists of proposed improvements in an approximately 13-acre area within the eastern and northwestern portions of Hancock Park. This area includes the exhibits for the La Brea Tar Pits. The site is bounded by the Los Angeles County Museum of Art (LACMA) Campus to the west, Wilshire Boulevard to the south, Sixth Street to the north, and South Curson Avenue to the east.

Based on our review of the existing subsurface explorations performed on or adjacent to the Project site, the subsurface conditions consist of a relatively thin layer of artificial fill overlying alluvial deposits. The alluvial deposits consist of stiff clay and dense tar-bearing sands. The tar-bearing sands are saturated with hydrocarbons, while the upper clay soils contain less hydrocarbons. The presence of the hydrocarbons in the sediments is a result of the Project site being over an oil field.

Hydrogen sulfide and methane gasses generated within the oil field are present in the subsurface. Within the existing subsurface explorations, groundwater was encountered as shallow as 2 feet below ground surface (bgs) at the Project site (Law/Crandall, Inc., 1995), and 1-foot bgs within the LACMA Campus (AECOM, 2019).

Other geologic hazards present on the Project site with potential impacts to the proposed improvements include expansive soils and strong seismic ground shaking. Each of these hazards can be mitigated through the appropriate level of planning and design.

2 PROJECT DESCRIPTION

At the time of this report, we have not been provided with proposed Project design plan sheets. Our understanding of the proposed "Transformation" development is based on:

- Review of the Request for Qualifications/Proposal for the Project dated July 8, 2022;
- Our meeting with you at the Project site on July 19, 2022;
- Review of the provided Master Plan and Concept Design, Volume 1 and 2, prepared by the Project architect Weiss/Manfredi and dated 2021, which includes:
  - "La Brea Tar Pits Master Plan, Preliminary Civil Engineering Narrative," prepared by KPFF dated March 4, 2021, Project No. 1900236
  - "Structural Engineering," prepared by Magnusson Klemencic Associates (MKA) dated 2021; and
- Our previous experience at the Project site and vicinity.

2.1 Site History

Our understanding of the site's history comes from information provided on the Natural History Museums of Los Angeles County's (NHMLAC's) website, from an article published within Environmental & Engineering GeoScience journal titled "Geology of Los Angeles" (Bilodeau and others, 2007), and from our past experience working within the LACMA Campus.

The abundance of tar (or "pitch") at the site was recorded as early as the late 1700s, as noted within diary entries (Bilodeau and others, 2007). The inhabitants of the area would use the available tar as an adhesive and waterproofing material.

In 1828, the Project site was a part of a Mexican land grant called Rancho La Brea. Over time and with the overall growth of Los Angeles, Rancho La Brea was subdivided and developed. In 1902, the Salt Lake Oil Company constructed oil rigs in the general vicinity to extract crude oil from the oil field, and these operations continued through the early 1900s. By the 1920s, the oil field was mostly abandoned in favor of housing and commercial development (Deane and others, 2018).

The first published information with regard to fossils within Rancho La Brea occurred in 1875, and excavation operations to exhume the specimens began in the early 1900s (NHMLAC). Hancock Park was created in 1924 after George A. Hancock, the last owner of Rancho La Brea, donated 23 acres of land to the County of Los Angeles to promote the scientific discoveries exhumed from the tar pits. As part of the land donation, George Hancock stipulated that the fossils exhumed from the park be exhibited (NHMLAC).

The Rancho La Brea Project began in 1969 to gather additional fossil specimens, which were ignored by the earlier excavations, utilizing improved excavation and data gathering techniques (NHMLAC). In 1975, construction began for the George C. Page Museum of La Brea Discoveries (Page Museum), an onsite museum to study and house the fossils. During construction of the Page Museum, fossils were encountered within the building foundation area that were catalogued during the removal process. The Page Museum was opened to the public in 1977 (NHMLAC).

2.2 Existing Site Conditions

We performed a site reconnaissance on August 22, 2022, to review the existing site conditions in the areas of the proposed improvements. We observed the existing conditions of Hancock Park, the exhibits at the La Brea Tar Pits, and the interior of the Page Museum.

Multiple tar pit excavations are located within the park, and natural tar seeps occur randomly throughout the park and the parking lot. The park contains pedestrian pathways, recreational areas, and landscape features. The Page Museum is located within the central-eastern portion of the site. Other features include Lake Pit at the southern portion of the site, an existing at-surface parking lot at the northeastern portion of the site, and a public restroom and comfort station at the southeastern portion of the site. Exhibit 2-1 below shows a tar pit exhibit located within the northwestern portion of Hancock Park.

Exhibit 2-1: A Tar Pit Exhibit Within Hancock Park (View Towards North)

The existing Page Museum is a one-story structure with an accessible roof terrace. Per the "Structural Engineering" sheets prepared by MKA, we understand the structure measures 260 feet in the east-west direction and 230 feet in the north-south direction. On all sides of the structure, the outer 40 feet slopes downward from the upper roof terrace and extends to approximately 6 feet above the first-floor slab at the building perimeter. The sloped section is covered with approximately 12 inches of landscape.

The base of the ground floor is below the surrounding natural grade, embedding the building beneath the surrounding ground surface. The ground floor consists of an atrium within the center, which contains tropical plants and water features, and interior exhibit space housing the La Brea Tar Pit fossils surrounding the atrium. The roof terrace allows visitors to look down into the atrium and provides a view of the surrounding park. Based on the "Structural Engineering" sheets prepared by MKA, we understand the museum's existing foundation consists of a 30-inch-thick reinforced concrete mat slab that covers the entire footprint of the building. The mat slab steps down 4.5 feet withing the interior atrium area. Exhibits 2-2 and 2-3, presented below, show the existing outside and inside condition of the Page Museum.

Exhibit 2-2: Existing Side Slopes Surrounding the Museum (View Towards Northeast)

Exhibit 2-3: Eastern Exhibit Within the Museum (View Towards North)

The Project site is relatively level. The low point is at Lake Pit, where the surrounding grade slopes down towards the lake. The high point is at the Page Museum, in which the structure's slopes extend the grade up to the roof terrace of the building, approximately 15 feet above park grade.

2.3 Proposed Development

We understand the proposed Project involves full renovation and expansion of the existing Page Museum, and construction of new amenities within the surrounding portions of Hancock Park. The new amenities include a looping pedestrian pathway, a pedestrian bridge over Oil Creek, new lookout platforms overlooking excavation pits and tar pit exhibits, and overall transformation of the park experience. The Project will consist of:

- Expanding the Page Museum's gross area from 63,200 square feet (SF) to 104,300 SF. The Project includes seismic strengthening and renovating the existing Page Museum and construction of a one-story expansion towards the northwest.
  - The renovation of the existing structure will include structural demolition and structure modification. The renovation will allow for enlarged exhibition space,

research space, additional storage, retail space, and a ground floor café. The roof terrace will contain new classrooms, multipurpose space, and an outdoor café and bar. As part of the renovation, the existing central atrium will be removed.

- The proposed expansion will include a new lobby and exhibit spaces, two theaters, a mechanical equipment room, administration spaces, research and collections rooms, and loading dock. The expansion is anticipated to be supported on a mat slab foundation with a methane protection layer below the slab. The new and existing mat slab foundations will be connected so the slab deformations and stresses are uniform across the new-to-existing interface.

- A new simple-span bridge crossing over Oil Creek as part of the pedestrian pathway. Oil Creek is a natural spring flowing through the northwestern portion of the site. The abutments of the proposed bridge will be supported on deep foundations.
- Three new biofiltration systems to manage stormwater for the Project:
  - A 10,100 SF in-ground biofiltration planter within the southeastern portion of the site, east of Lake Pit.
  - A 6,400 SF biofiltration planter within the northeastern portion of the site, north of the Page Museum. The planter would be excavated approximately 4 to 5 feet and lined with an impermeable liner. The planter will then be filled with gravel subdrainage and a perforated pipe, amended soil, and plants. Supporting wall structures will likely be required underground to separate the compacted soil supporting traffic loading and the uncompacted biofiltration media.
  - Refurbishing Oil Creek as a bioswale within the northwestern portion of the site. The existing creek drainage will be cleared, lined with an impermeable liner, and then partially filled with gravel subdrainage and a perforated pipe, amended soil, and plants.
- New entry pavilions and canopies, located at:
  - Wilshire Gateway Entrance, at the corner of Wilshire Boulevard and South Curson Avenue.
  - Sixth Street Entrance, at the northwestern corner of the site.
  - Pit 91 Outdoor Classroom and Canopy. The proposed improvements include demolishing the existing viewing station and constructing a shaded outdoor classroom with canopy.

  Currently, the columns and walls for the pavilions and canopies are anticipated to be supported on a mat slab foundation. A methane protection layer will be installed below the mat slab.
- A new school bus drop-off zone on South Curson Avenue. The drop-off one will be approximately 215 to 230 feet long to accommodate school buses.
- Reconfiguration of the existing parking lot. The existing parking lot will be moved from its current position towards the north by approximately 50 to 70 feet, along the

boundary of West 6th Street. The parking lot will be expanded from 63,000 SF to 65,000 SF.

- Landscaped paths to provide connection between the Tar Pits and LACMA. The proposed improvements will reconfigure the existing pedestrian pathways into a continuous paved pedestrian pathway, linking the disparate existing elements of the site.

3 PREVIOUS STUDIES

We reviewed the geotechnical reports previously prepared for improvements in the Project area, the LACMA Campus, and the Purple Line Subway Extension by the Los Angeles County Metropolitan Transportation Authority (LA Metro). These include reports prepared by Shannon & Wilson (S&W) and our predecessor company, Van Beveren & Butelo (VB&B). Below is a list of projects reviewed, organized by geotechnical companies (including predecessor companies) and LA Metro.

The geologic hazards and recommendations are based on the results of our prior subsurface explorations and explorations by others listed below. Relevant boring logs prepared by S&W and VB&B are presented in Appendix A. Relevant boring logs prepared by others are presented in Appendix B.

3.1 Shannon & Wilson/Van Beveren & Butelo

- The Academy Museum of Motion Pictures (AMMP):
  - Geology and Soil Discipline Report (S&W, 2014a)
  - Geotechnical Design Reports (S&W, 2014b and 2015)
  - Construction Summary Report (S&W, 2018)
- Broad Contemporary Art Museum (BCAM) and Subterranean Garage:
  - Geotechnical Design Memo, Preliminary Findings (VB&B, 2004a)
  - Geotechnical Design Memo No. 2, Preliminary Recommendations for Temporary Dewatering System and Uplift Load Resistance (VB&B, 2004b)
  - Geotechnical Investigation Report (VB&B, 2005b) and follow up City Response Letters based on City of LA review comments and questions (VB&B, 2005d and 2005e)
  - Depth to Groundwater Memo (VB&B, 2005c)
  - Disposal of Site Runoff into Soils Letter (VB&B, 2006b)
  - Grading Over Tar Seep Letter (VB&B, 2007)
  - Interim and Final Construction Observation Reports (VB&B, 2006a and 2008a)

  - Geotechnical Investigation Report for Phase 2 of Project (VB&B, 2008b)
  - Final Construction Observation Report (S&W, 2010)
- Preliminary Findings and Conclusions, Sidewalk Heaving, 5801 West 6th Street (VB&B, 2005a)

3.2 AECOM/URS

- AECOM, Final Report for Geotechnical Investigation, LACMA Building for Permanent Collection (BPC) (AECOM, 2019)
- URS, Preliminary Geotechnical Recommendations for Proposed Broad Contemporary Art Museum (URS, 2003)
- URS, Preliminary Report, Geotechnical Evaluations for Proposed Museum Replacement Project (URS, 2002)

3.3 Los Angeles County Metropolitan Transportation Authority

- Los Angeles County Metropolitan Transportation Authority (LA Metro), Geotechnical Data Report - Tunnel Reach 2, Westside Subway Extension Project, Section 1 (LA Metro, 2014)
- Converse Consultants, Inc., Interim Geotechnical Report for Metro Project, Design Unit A250 (Converse, 1984)

3.4 Law/Crandall, Inc./LeRoy Crandall and Associates

- Law/Crandall, Inc., Geotechnical Investigation Reports for Proposed Additions to Hancock Park (Law/Crandall, 1995 and 1998)
- LeRoy Crandall and Associates (LCA):
  - Foundation Investigation for Proposed Additions at 5905 Wilshire Boulevard (LCA, 1982)
  - Completion of Exploration Program for Proposed Additions (LCA, 1984)

4 REGULATORY FRAMEWORK

This section provides an introduction to applicable federal, state, and local regulations and codes that will govern the Project development.

4.1 Federal Level

There are no specific federal regulations addressing geology and soils issues that are not addressed by the state or local requirements.

4.2 State Level

4.2.1 California Building Code

The State of California adopted the 2019 California Building Code (CBC), Volumes 1 and 2, which went into effect on January 1, 2020. Based in part on the 2018 International Building Code (IBC), the 2019 CBC makes up Part 2 of Title 24 of the California Code of Regulations. In Chapter 16 of Volume 2, the code contains provisions for structural design, including soil lateral loads (Section 1610) and earthquake loads (Section 1613). Provisions for soils and foundations include:

- Geotechnical explorations (Section 1803),
- Excavation, grading and fill (Section 1804), and
- Foundations (Sections 1808-1810).

Appendix J of the CBC applies to grading.

4.2.2 Seismic Hazard Regulations

The Alquist-Priolo Geologic Hazard Zones Act was passed by the State of California in 1972 to address the hazard and damage caused by surface fault rupture during an earthquake. The Act was renamed the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act), effective January 1, 1994. The Alquist-Priolo Act has since been revised 12 times; most recently a version became available in 2018 (California Geological Survey [CGS], 2018a). The Alquist-Priolo Act requires the State Geologist to establish "earthquake fault zones" along known active faults (faults that have moved in the last ~11,000 years) in the state. Cities and counties with earthquake fault zones are required to regulate development projects within these zones.

The State Seismic Safety Commission was established by the Seismic Safety Act in 1975 with the intent of providing oversight, review, and recommendations to the Governor and State Legislature, as well as state and local governments regarding seismic issues. The commission was renamed the Alfred E. Alquist Seismic Safety Commission in 2006.

The Seismic Hazard Mapping Act of 1990 was enacted, in part, to address seismic hazards not included in the Alquist-Priolo Act, including strong ground shaking, liquefaction, landslides, and/or other seismic related ground failures. Under this Act, the State Geologist is assigned the responsibility of identifying and mapping seismic hazard zones. The recommended guidelines and criteria for the preparation of seismic hazard zones are presented in Special Publication 118, “Recommended Criteria for Delineating Seismic Hazard Zones in California” (CGS, 2004). The CGS, formerly the State of California,

Division of Mines and Geology (CDMG), adopted seismic design provisions in Special Publication 117A, "Guidelines for Evaluating and Mitigating Seismic Hazards in California" (revised and readopted on September 11, 2008) (CGS, 2008) and Special Publication 118.

Additional guidelines published by the CGS/CDMG for evaluating geologic and seismic hazards with respect to a project development include the following:

- CGS Special Publication 42, "Earthquake Fault Zones, A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California" (CGS, 2018a)
- CGS Note 49, "Guidelines for Evaluating the Hazard of Surface Fault Rupture" (CGS, 2002)

4.3 Local Level

4.3.1 City of Los Angeles

The Project site is located within the City. However, the site is owned by the County of Los Angeles (County). As such, we understand the proposed Project is subject to the regulatory controls of the County. The recommendations provided below and future design recommendations which will be developed as the Project progresses follow the County requirements.

4.3.2 County of Los Angeles

4.3.2.1 Los Angeles County Building Code

The County adopted portions of the 2019 CBC and 2018 IBC together with a series of County amendments as the 2020 County of Los Angeles Building Code (CLABC), Volumes 1 and 2. The 2020 CLABC amendments were published on January 1, 2020. Together, the provisions in Volumes 1 and 2 of the CLABC address issues related to:

- Site grading,
- Cut and fill slope design,
- Soil expansion,
- Geotechnical studies before and during construction,
- Slope stability,
- Allowable bearing pressures and settlement below footings,
- Effects of adjacent slopes on foundations,
- Retaining and basement walls, and

- Shoring of adjacent properties.

Appendix J of the CLABC addresses grading and excavation requirements.

The County of Los Angeles Department of Public Works Building and Safety (Building and Safety) is responsible for implementing the provisions of the CLABC and grading standards. Building and Safety has jurisdiction over projects to be approved by the County where grading is required, to ensure Project design follows County regulations, to ensure the safety of the workers during construction, and to ensure the safety of the public once construction is complete.

4.3.2.2 Los Angeles County General Plan

The County General Plan is the County's guide for long-term development and conservation. The General Plan provides the policy framework for future development by establishing goals, policies, and programs adopted by the County. The newest edition of the General Plan was adopted by the Board of Supervisors on October 6, 2015. The current General Plan is applicable for development through 2035.

Chapter 12 consists of the Safety Element of the County General Plan. The purpose of the Safety Element is to reduce potential risks to both people and property within the County from seismic and geotechnical hazards, as well other hazards which will not be covered in this report. Seismic and geotechnical hazards are addressed within Goal S 1 of the Safety Element, which consists of four policies identified as Policy S 1.1 through Policy S 1.4.

Potential seismic hazards identified consist of surface fault (ground) rupture, liquefaction, earthquake-induced landslides, and coastal flooding generated from tsunamis. These seismic hazards could result in damage to infrastructure with secondary impacts including fire, flooding, and release of dangerous materials. The County General Plan requires new projects located in Alquist-Priolo Earthquake Fault Zones and other seismic hazard mapping zones produced by the state to have a geotechnical study to evaluate these hazards.

Potential geotechnical hazards identified consist of hillside hazards such as mud and debris flows, active deep-seated landslides, hillside erosion, and man-induced slope instability. Other geotechnical hazards identified include erosion or undercutting of slopes, and natural or artificial compaction of unstable ground.

In addition to the Safety Element, the General Plan consists of Hillside Management Areas Ordinance and Hillside Design Guidelines. The Ordinance and Guidelines regulate development in areas with 25% or greater natural slope inclinations, providing applicable

design techniques, and an evaluation of potential hazards to address hillside geotechnical hazards.

5 ENVIRONMENTAL SETTING

5.1 Regional Geology

The Project site is located in the coastal Los Angeles Basin of southern California. The basin includes the low-lying area between the San Gabriel Mountains and the Pacific Ocean shoreline. Nearby hills and mountain ranges bordering the basin include the prominent Santa Monica Mountains to the north, the Hollywood Hills to the northeast, the Elysian and Repetto Hills to the east, the Peninsular Ranges to the southeast, and the Baldwin Hills to the south.

The Project site occupies the westerly extent of the La Brea Plain. The La Brea Plain is a broad, slightly elevated, and dissected surface underlain by coalescing Quaternary age (recent to 2.6 million years ago) alluvial fan and flood plain deposits. These alluvial sediments were deposited on the underlying Tertiary-age (2.6 to 66 million years ago) shallow marine sedimentary bedrock formations. Faulting and folding of the bedrock over millions of years has formed structural traps for petroleum deposits. Several oil and gas fields were developed within this portion of the Los Angeles Basin, including the Salt Lake and South Salt Lake fields.

At the Project site, crude oil and gas leaking from the petroleum deposits of the Salt Lake Field have migrated towards the ground surface through fractures and faults in the bedrock, permeating into the overlying alluvium. Upon reaching shallower depths, the lighter petroleum components are altered by evaporation and biologic processes resulting in a more viscous remnant tar (or asphalt) deposit.

5.2 Local Geology and Geologic Units

5.2.1 General

Regional geologic maps indicate the Project site is underlain by alluvial deposits, as shown on the Regional Geology Map, Figure 3 (Dibblee and Ehrenspeck, 1991). Specifically, the geologic map depicts the Project site being underlain by slightly elevated and dissected, older alluvium and alluvial fan sediments (mapped as Qae). Geotechnical explorations near the Project site indicate much of the alluvial deposits are covered by a layer of artificial fill. The subsurface conditions are described in more detail below.

5.2.2 Artificial Fill

Most of the subsurface explorations performed at the Project site encountered artificial fills extending to depths of approximately 1 to 8 feet bgs (Law/Crandall, 1995 and 1998). The fill is of variable composition, consisting of silty clay, sandy clay, clayey silt, and silty sand.

5.2.3 Alluvium

The Project site is underlain by units described as late-Pleistocene to Holocene (recent to about 11,000 years old) in age. The Pleistocene-age (about 11,000 to 1.8 million years) alluvial deposits consist of stiff to very stiff clays with some dense silt and silty sand layers. These relatively fine-grained materials overlie thicker deposits of dense to very dense sand. The fine-grained alluvial deposits belong to the Lakewood Formation, while the deeper sand beds correspond to the San Pedro Formation (California Department of Water Recourses [DWR], 1961). The youngest surficial deposits observed in this area are Holocene sediments of modern alluvial fans, stream channels (e.g., Los Angeles and San Gabriel Rivers), and their flood plains. These debris-flow, sheetflood, and fluvial deposits consist of boulder, cobble, and pebble gravel lenses and sheets, interbedded with sand, silt, and clay derived from the surrounding highlands (Bilodeau and others, 2007).

As noted previously, natural hydrocarbons are present in the alluvium due to the upward migration of crude oil leaking from oil deposits within the underlying bedrock. The crude oil has been altered near the ground surface to viscous tar, and the more permeable sand deposits are permeated with tar (Deane and others, 2018).

5.2.4 Bedrock

The Lakewood and San Pedro Formations are directly underlain by Tertiary-age sedimentary bedrock of the Fernando Formation. The bedrock consists primarily of well stratified, locally folded, interbedded claystone, siltstone, and sandstone (Converse, 1984). Borings from the adjacent LA Metro Westside Subway Extension project encountered Fernando Formation, consisting of primarily siltstone, beginning at depths of approximately 65 feet to 120 feet bgs (LA Metro, 2014). From the LACMA Building for Permanent Collection (BPC) project, Borings B-15-2 and B-15-3 did not encounter the Fernando Formation to a total depth explored of approximately 88 feet for both explorations. Boring B-15-4 encountered the Fernando Formation at an approximate depth of 94 feet bgs (AECOM, 2019).

5.3 Tar Sands and Seeps

The depth to tar sand is anticipated to vary throughout the Project site. AECOM subsurface explorations encountered tar sands at depths of approximately 13 feet to 20 feet bgs,

correlating to elevations of 151 feet to 156 feet (AECOM, 2019). The URS subsurface explorations encountered tar sands at depths of approximately 13 to 23 feet below grade, correlating to elevations of 142 feet to 157 feet (URS, 2002 and 2003). The LA Metro subsurface explorations showed more variability, with the subsurface explorations encountering tar sands at depths of approximately 6 feet to 30 feet bgs, correlating to elevations of 137 feet to 180 feet (LA Metro, 2014).

The subsurface explorations performed by AECOM indicated the tar content within the San Pedro Formation varied between approximately 11% and 18% within the collected soil samples (AECOM, 2019). The LA Metro subsurface explorations indicated the tar content within the San Pedro Formation varied between approximately 10% and 20% within the collected soil samples, though two samples collected (one within a gravel layer, and one within a sand with silt and gravel layer) resulted in tar contents of 2% and 4% (LA Metro, 2014).

Based on our previous experience at the LACMA Campus, we anticipate soil excavated above the groundwater likely would not contain significant natural oil or tar. As such, it likely could be disposed of as non-impacted soil. Spoils from excavations that extend below the groundwater could contain natural oil or tar. Excavation spoils will likely require chemical analyses for offsite disposal. In addition, the proposed deep foundations will likely penetrate the tar-impacted sands. Impacts from excavating the foundations into the tar sands will depend on the deep foundation system used, but likely will include drilling spoils generated from installation.

Tar seeps are locally found around the Project site. We understand the tar seeps occur randomly and are likely the result of methane and hydrogen sulfide gas pressure at depth mobilizing groundwater and tar to the surface. Where tar seeps occur below existing and proposed structures, barriers and ventilation should be designed in accordance with the Project methane specialist. Where tar seeps occur in landscaping or exterior portions of the park, temporary barriers should be installed until the gas driving the tar seeps dissipates.

5.4 Groundwater

The Project site is located within the Central Groundwater Basin of the Los Angeles Coastal Plain (DWR, 2004). The principal freshwater-bearing sediments of the Central Basin include the Holocene-age alluvial deposits, and the Pleistocene-age Lakewood and San Pedro Formations at depth (DWR, 1961).

According to the Seismic Hazard Zone Report for the Hollywood 7.5-Minute Quadrangle, the Project site lies within the 10-foot water level contour of the historically high groundwater levels, as shown in Figure 4 (CDMG, 1998). This indicates that the historical

high groundwater depth is at or shallower than 10 feet bgs. The previous subsurface explorations encountered groundwater levels at depths less than 10 feet bgs. Exhibit 5-1, shown below, presents groundwater depths encountered within exploration borings at or adjacent to the Project site. Groundwater depth is anticipated to fluctuate in response to rainfall, seasonal variations, and other factors, and is anticipated to vary throughout the site.

Exhibit 5-1: Groundwater Level Measurements in Existing Borings

Boring ID	Date of Exploration	GW Depth Measurement (feet)	Approximate GW Elevation (feet)
VBB-2005-B-4	October 4, 2004	6.6 [1]	164.4
VBB-2005-B-5	October 5, 2004	5.5 [2]	164.6
AECOM-B-15-3	November 2-3, 2015	30	138.5
AMC-2014-G-121	May 16-18, 2011	14	163
AMC-2014-M-108	May 2-3, 2011	35	154
URS-2003-B-8	October 15, 2003	18 [3]	147
URS-2002-B-1	July 17, 2002	50	120
URS-2002-B-2	July 24, 2002	22	148
L/C-1998-B-5	January 7, 1998	4 [4]	167
L/C-1998-B-7	January 7, 1998	6 [5]	172
L/C-1998-B-9	January 6, 1998	5.5 [4]	178.5
L/C-1995-B-1	January 26, 1995	1 [5]	- [6]
L/C-1995-B-2	January 23, 1995	4.5	- [6]
L/C-1995-B-3	January 23, 1995	7	- [6]
L/C-1995-B-5	January 24, 1995	4	- [6]
L/C-1995-B-7	January 24, 1995	6	- [6]
L/C-1995-B-8	January 26, 1995	2	- [6]
L/C-1995-B-9	January 27, 1995	2.5 [5]	- [6]
LCA-1984-B-4	April 12, 1984	4 [7]	164.3
LCA-1982-B-1	December 14, 1981	6.5 [8]	163.5
LCA-1982-B-3	December 15, 1981	6.5 [9]	159.2

NOTES:

1 Groundwater measurement made 15 days after completion of drilling.
2 Groundwater measurement made 14 days after completion of drilling.
3 Groundwater encountered identified as being perched groundwater.
4 Groundwater encountered noted as "Water seepage" in boring log.
5 Groundwater encountered noted as "Slight water seepage" in boring log.
6 Ground surface elevation not listed on boring log.
7 Groundwater measurement made 12 days after completion of drilling.
8 Groundwater measurement made 3 days after completion of drilling.
9 Groundwater measurement made 2 days after completion of drilling.

In addition, AECOM (2019) converted Borings B-15-3 and B-15-4 into groundwater monitoring wells. Groundwater level data was collected at Boring B-15-3 for over two years and collected at Boring B-15-4 for approximately a year and a half. Over that time, the shallowest groundwater depth encountered was approximately 1-foot bgs within Boring B-15-3 (corresponding to an elevation of approximately 167.5 feet) and approximately 5.7 feet within Boring B-15-4 (corresponding to an elevation of 164 feet).

Per the "Civil Engineering" sheets prepared by KPFF, substantial groundwater intrusion has occurred within the lowest level of the existing Page Museum. The "Structural Engineering" sheets prepared by MKA presents a list of locations within the existing Page Museum where water infiltration was observed by members of the design team.

Tar occurs within the groundwater as observed at Lake Pit, and tar seeps occur randomly throughout the site. Both of these indicate the potential for near-surface groundwater and tar to be encountered. AECOM (2019) stated that tar was observed in the groundwater for the LACMA site, which can lead to a negative effect on the efficiency of dewatering and water disposal systems. As such, AECOM recommended additional considerations for the dewatering well development and well/pump operation and maintenance (AECOM, 2019).

5.5 Faulting and Seismicity

5.5.1 Faulting

The Project site is located within the seismically active southern California area and is expected to experience the effects of future earthquakes on active faults. Figure 5, Regional Fault Map, illustrates active and potentially active faults mapped in the vicinity of the Project site.

Active faults are those that have moved during the Holocene Age. Potentially active faults are those faults that display latest movement during Quaternary geologic time, where Holocene activity cannot be demonstrated. The Quaternary time includes the Holocene and Pleistocene Epochs and represents the last 2.6 million years of geologic time. Potentially active faults are not considered an imminent fault rupture hazard, but the potential cannot be completely dismissed. Inactive faults are those faults where the latest displacement is older than the Pleistocene and are not considered a surface rupture hazard.

Exhibits 5-2 and 5-3, shown below, provide a list of significant active or potentially active faults, respectfully, which are capable of generating strong seismic ground shaking at the Project site. This list does not encompass all active or potentially active faults within southern California. The Los Angeles Basin, and the southern California region as a whole, is located within a complex zone of faults, fault systems, folds, and other geologic features.

Exhibit 5-2: Major Faults Considered to Be Active in Southern California

Fault	MCE M_w [1]	Fault Type [2]	Slip Rate (mm/yr) [2]	Approximate Distance from Project Site (miles) [3]	Direction from Project Site
Elysian Park - Lower Thrust	Unspecified	T	1.0 - 5.0	1.7	SE
Hollywood	6.7	R	1.0 - 5.0 (1.5)	2.3 (2.6)	N
Newport-Inglewood-Rose Canyon Fault Zone	7.5	SS	1.0 - 5.0	2.8 (1.7)	SW
Santa Monica	7.4	R	1.0 - 5.0 (1.5)	3.5 (2.4)	W
Elysian Park - Upper Fault	6.7	R	0.2 - 1.0	4.2	E
Raymond	6.8	SS	1.0 - 5.0 (0.8)	8.8 (7.1)	NE
Verdugo	6.9	R	0.2 - 1.0	9.1	NE
Sierra Madre Fault Zone - Sierra Madre Section	7.3	R	1.0 - 5.0 (4.0)	14 (14)	NE
Sierra Madre Fault Zone – San Fernando Section	6.7	T	1.0 - 5.0 (3.0)	14 (14)	N
Northridge	6.9	T	1.0 - 5.0	17	N-NW
Elsinore Fault Zone – Whittier Section	7.0	SS	1.0 - 5.0 (3.5)	18 (21)	SE
Sierra Madre Fault Zone – Santa Susana Section	7.2	R	> 5.0 (7.0)	19 (19)	N-NW
Oak Ridge	7.2	R	Unspecified	32 (38)	NW
San Andreas Fault Zone – Mojave Section	7.5	SS	> 5.0 (20 - 40)	36 (36)	NE
Elsinore Fault Zone – Chino Section	6.9	R	1.0 - 5.0 (2.0)	38 (38)	SE
San Jacinto Fault Zone – San Bernardino Valley Section	7.1	SS	> 5.0 (18)	51 (48)	E

NOTES:

1 Information for the MCE Mw was provided from the U.S. Geological Survey (USGS) 2008 National Seismic Hazards Map - Fault Database. Note that the USGS 2014 Fault Database does not include California faults at the time of this report preparation.

2 Information for fault type and slip rate was provided from the USGS 2014 National Seismic Hazards Map - Interactive Fault Map for Quaternary Fault and Fold Database. For slip rate, the provided range is considered the slip rate category. The value in the parenthesis is the maximum assigned slip rate value from Peterson and others (1996) for probabilistic seismic hazard assessment for the State of California, with exception to the San Andreas Fault Zone in which the value in the parenthesis is based on Weldon and others (2002).

3 Distances between Project site and faults are approximate. They were determined using the USGS 2014 National Seismic Hazards Maps - Fault Source Map. Distance values in parenthesis were determined using the California Geological Survey's interactive online map, Earthquake Zones of Required Investigation.

MCE M_w = Maximum Considered Earthquake moment magnitude; R = reverse; SS = strike slip; T = thrust

Exhibit 5-3: Major Faults Considered to Be Potentially Active in Southern California

Fault	MCE M_w [1]	Fault Type [2]	Slip Rate (mm/yr) [2]	Approximate Distance from Project Site (miles) [3]	Direction from Project Site
Overland Avenue	Unspecified	Unspecified	Unspecified	4.2	SW
Charnock	Unspecified	Unspecified	Unspecified	6.0	SW
Los Alamitos	Unspecified	Unspecified	Unspecified	20	SE
San Jose	6.7	R	0.2 - 1.0	27	E

NOTES:

1 Information for the maximum considered earthquake moment magnitude was provided from the U.S. Geological Survey (USGS) 2008 National Seismic Hazards Map - Fault Database. Note that the USGS 2014 Fault Database does not include California faults at the time of this report preparation.

2 Information for fault type and slip rate was provided from the USGS 2014 National Seismic Hazards Map - Interactive Fault Map for Quaternary Fault and Fold Database. For slip rate, the provided range is considered the slip rate category. The value in the parenthesis is the maximum assigned slip rate value from Peterson and others (1996) for probabilistic seismic hazard assessment for the State of California.

3 Distances between Project site and faults are approximate. They were determined using the USGS 2014 National Seismic Hazards Maps - Fault Source Map.

MCE M_w = Maximum Considered Earthquake moment magnitude; R = reverse; SS = strike slip; T = thrust

The following sections provide a discussion of nearby active faults to the Project site.

The Santa Monica and Hollywood faults are located at the southern base of the Hollywood Hills. The faults are considered to be a part of the larger Malibu-Santa Monica-Hollywood-Raymond fault zone, which extends from Malibu to Pasadena. The Santa Monica fault is a strike-slip, oblique/left-reverse fault, which has a slip rate of approximately 0.5 to 1.5 millimeters (mm) per year and is predicted to be capable of generating a 6.5 to 7.4 moment magnitude (M_w) earthquake (U.S. Geological Survey [USGS] 2008 National Seismic Hazard Maps; Petersen and others, 1996). The Hollywood fault is a sinistral-reverse oblique fault which has a slip rate of approximately 0.5 to 1.5 mm per year and is predicted to be capable of generating a 6.5 to 6.7 M_w earthquake (USGS 2008 National Seismic Hazard Maps; Petersen and others, 1996). Neither fault has generated a major earthquake in historic times.

The Newport-Inglewood Fault is a right-lateral, strike-slip fault. The fault extends from Culver City southeast to Newport Beach, at which point it runs out into the Pacific Ocean and joins with the Rose Canyon fault offshore of San Diego, creating the Newport-Inglewood-Rose Canyon fault system. The fault has a slip rate of approximately 1 mm per year and is predicted to be capable of producing a 6.5 to 7.5 M_w earthquake (USGS 2008 and 2014 National Seismic Hazard Maps). The 1933 Long Beach Earthquake was generated by this fault.

The Elysian Park fold and thrust belt includes a blind fault (i.e., a buried fault that does not extend to the surface) capped by a fold and thrust structure. The axial trend of the fold extends through the Elysian Park-Repetto Hills from about Silver Lake on the west to

Whittier Narrows on the east. The 1987 Whittier Narrows earthquake (magnitude 5.9) has been attributed to subsurface thrust faults, which are reflected at the earth's surface by a west-northwest trending anticline known as the Elysian Park anticline, or the Elysian Park fold and thrust belt. The subsurface faults that create the structure are not exposed at the surface. However, as demonstrated by the 1987 earthquake and two smaller earthquakes on June 12, 1989, the faults are a source for future seismic activity.

The Oak Ridge fault is a blind thrust fault located beneath the Santa Susana Mountains. The Northridge thrust fault is an inferred blind thrust fault that is considered the western extension of the Oak Ridge fault, and is associated with generating the January 17, 1994, Northridge Earthquake. The Northridge thrust is located beneath the majority of the San Fernando Valley. This thrust fault is not exposed at the surface. The Northridge thrust is an active feature that can generate future earthquakes.

5.5.2 Recent Seismicity

Several earthquakes of moderate to large magnitude (greater than 5.0) have occurred in southern California area within the last 90 years. A list of some of these earthquakes (with magnitudes greater than 5.7) within approximately 150 miles of the site is included in Exhibit 5-4 below.

Exhibit 5-4: Major Historic Earthquakes in Southern California

Earthquake	Date of Earthquake	Moment Magnitude Scale (M_w)	Distance to Epicenter (miles)	Direction to Epicenter
Long Beach	March 10, 1933	6.4	38	SE
Kern County	July 21, 1952	7.5	75	N-NW
Borrego Mountain	April 9, 1968	6.5	143	SE
San Fernando	February 9, 1971	6.5	24	N
Whittier Narrows	October 1, 1987	5.9	16	E
Superstition Hills	November 24, 1987	6.6	162	SE
Sierra Madre	June 28, 1991	5.8	24	NE
Joshua Tree	April 22, 1992	6.1	117	E
Big Bear	June 28, 1992	6.4	88	E
Landers	June 28, 1992	7.3	110	E
Northridge	January 17, 1994	6.7	15	NW
Hector Mine	October 16, 1999	7.1	125	NE
Ridgecrest Sequence	July 4-5, 2019	6.4, 7.1	123, 125	NE

NOTES:

1 Information provided by the Southern California Earthquake Data Center (SCEDC).

2 Distances to epicenter values were determined based on the latitude and longitude values presented by SCEDC.

5.6 Oil Field and Adjacent Oil Wells

According to maps prepared by the State of California Department of Conservation, Geologic Energy Management Division (CalGEM; formerly known as Division of Oil, Gas and Geothermal Resources [DOGGR]), the site is located within the Salt Lake Oil Field (CalGEM, 2022), as shown in Figure 6. The closest oil and gas wells include:

- Chevron Salt Lake 38 to the north
- Chevron Salt Lake 32 to the north
- Chevron Salt Lake 406 to the east
- Mars Oil Co. Masselin 1 to the south

According to CalGEM records, these wells are plugged and abandoned. The CalGEM maps do not show abandoned or active oil wells within the footprint of the Project site. However, the CalGEM well locations are approximate and location errors may be possible. Although the likelihood of encountering an abandoned oil well is low, mitigation or abandonment would be required if a well was found under proposed improvements.

5.7 Methane and Hydrogen Sulfide Gas

The Project site is located within an area of known shallow methane and hydrogen sulfide gas accumulation. Crude oil and methane gas leak out from the petroleum deposits and migrate through fractures and faults located within the bedrock until encountering the alluvial soils, where it permeates into the alluvium and continues to travel upwards to the ground surface. Many of the light petroleum components are lost to evaporation and biogenic processes, resulting in viscous tar seeping out of the ground surface (Deane and others, 2018).

Information and design to mitigate the gassy ground conditions will be developed during final design of the Project. We understand a methane specialist will be developing the ventilation system and barriers to reduce gas seepage into enclosed structures.

6 HAZARDS ANALYSIS

6.1 General

This section provides an evaluation for potential adverse environmental impacts associated with potential geologic hazards for the proposed development. Specific potential adverse impacts applicable for the Project are strong seismic ground shaking, expansive soils, and gas. With the exception of methane gas, these potential impacts, along with other potential geologic hazards in the area, are described in the following sections.

6.2 Methodology

Our geotechnical study for the proposed improvements and our evaluation of potential effects and potential design measures is based on available published information and existing subsurface explorations and laboratory testing performed by us or others in the Project vicinity. S&W has extensive experience in the site vicinity, which we have utilized for our hazards analysis.

The potential impacts discussed in the following subsections is based on the general environmental setting of the Project site, discussed above, and is based on potential seismic or geotechnical hazards discussed within the Safety Element of the County General Plan.

6.3 Potential Geology and Soils Hazards and Project Design Recommendations

6.3.1 Seismic Hazards

As discussed above, the Project site is located within the seismically active southern California area and is expected to experience the effects of future earthquakes on active faults. Seismic hazards include surface fault rupture, strong seismic ground motion, and seismically induced settlement due to liquefaction.

6.3.1.1 Surface Fault Rupture

Our surface fault rupture hazard evaluation is based on criteria developed by the CGS for the Alquist-Priolo Act program. In accordance with the act, an active fault is one that has ruptured within the Holocene geologic time.

Based on the "Earthquake Zones of Required Investigation" map for the Hollywood Quadrangle (CGS, 2014), the Project Site does not lie within an Alquist-Priolo Earthquake Fault Zone (AP Zone), as shown in Figure 7, Seismic Hazard Zones Map. The nearest AP Zones are the Newport-Inglewood-Rose Canyon Fault Zone, located approximately 1.6 miles southwest of the site, and the Hollywood Fault Zone, located approximately 2.2 miles north-northwest of the site (CGS, 2014 and 2018b).

The trace of the Sixth Street Fault is projected through the south to southwest portion of Project site (Converse, 1984). The Sixth Street Fault is a near-vertical fault, with north side movement up relative to the south side. The near-surface location of the fault is not well defined, nor is the fault listed as an active or potentially active by the CGS. Therefore, it is not included in the AP Zone maps. The fault likely does not penetrate the Lakewood Formation or the San Pedro Formation (Converse, 1984). The location of the fault is inferred based on the projection of data related to the Salt Lake Oil Field. The fault likely acts as a barrier for gas and oil migration.

6.3.1.2 Seismic Ground Shaking

We anticipate the site will experience strong ground shaking during an earthquake generated from faults in the region. The intensity of earthquake motion and seismic hazards that may impact the Project site will depend on the characteristics of the generating fault, distance to the earthquake fault, earthquake magnitude, earthquake duration, and site-specific geologic conditions. Likely sources for strong ground motion are known active faults or potentially active faults. Ground motions may be amplified or attenuated at the site depending on the level of ground shaking in the underlying bedrock, underlying soil type, depth to bedrock, and other factors. Discussion towards applicable building code

requirements to address potential strong ground shaking during an earthquake is provided below.

6.3.1.3 Liquefaction

Soil liquefaction is a phenomenon in which pore pressure in loose, saturated, granular soil increases during ground shaking to a level near the initial effective stress, resulting in a reduction of shear strength of the soil (i.e., quicksand like conditions). The loss in shear strength may generate ground settlement, lateral spreading (ground movement on gentle slopes), bearing capacity failure, and/or landslides. Liquefaction potential is greatest where loose granular soil (sand and non-plastic silt) is present below groundwater and is more likely to affect structures when it occurs at depths shallower than 50 feet. Liquefaction potential decreases as the fines (clay and silt content of soil) increases, and the liquefaction potential increases as ground shaking increases.

The seismic hazard zone map for the Hollywood Quadrangle includes liquefaction hazard zones for the quadrangle (CGS, 2014). The site is not mapped within a liquefaction hazard zone.

The geologic materials underlying the Project site generally consist of stiff cohesive (fine-grained) soil underlain by dense to very dense tar sand. Our previous explorations completed for the AMMP did encounter thin zones of loose silty sand that have a potential for liquefaction; however, the zones were discontinuous and localized. Furthermore, other previous explorations performed within the site vicinity did not encounter potentially liquefiable soil.

Based on the stiff and dense nature of the onsite subsurface materials, the potential for liquefaction to impact the proposed development is low.

6.3.1.4 Recommendations

Potential impacts associated with strong seismic ground shaking are anticipated for the proposed development. Implementation of the Project could expose the proposed development and people to strong seismic ground shaking, which represents a potentially significant adverse impact. However, these effects are not unique to the Project site as the general vicinity sits within a seismically active region.

The proposed improvements should be designed in accordance with the 2020 CLABC, which calls for consideration of seismic loading factors. Specifically, Section 1613 provides discussion towards earthquake loads and towards development of seismic ground motion design values. Per Section 1613, structures “shall be designed and constructed to resist the effects of earthquake motions in accordance with Chapters 11, 12, 13, 15, 17 and 18 of

ASCE 7, as applicable. The seismic design category for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7." ASCE 7 refers to "Minimum Design Loads and Associated Criteria for Buildings and Other Structures", prepared by the American Society of Civil Engineers and the Structural Engineering Institute. Adherence to the code will address the potential hazards associated with strong seismic ground shaking. No additional measures are required to address potential hazards associated with surface fault rupture, strong seismic ground shaking, or seismic-related ground failure such as liquefaction.

For preliminary design purposes, ground motion design parameters are provided herein. These values will need to be confirmed within the geotechnical design report. The ground motion design parameters are in accordance with the 2019 CBC and were determined using web-based tools. We characterized the site using Standard Penetration Test (SPT) N-values noted within the exploration logs. Based on an average SPT N-value for the upper 100 feet of the soil profile, we recommend the site be characterized as Site Class D.

The 2019 CBC design criteria considers a maximum considered earthquake (MCE) hazard as a seismic event with a 2% probability of exceedance in 50 years, i.e., a 2,475-year return period, with a deterministic maximum cap in some regions. For seismic design of structures in accordance with the CBC, the design spectral accelerations peak ground acceleration (PGA), S_S, and S_1 are required. We obtained these values and the site soil response factors (F_{PGA}, F_a, and F_v) using the web-based interactive Seismic Design Maps tool developed by the Structural Engineers Association of California and California's Office of Statewide Health and Planning Development, following ASCE 7-16 design reference.

The spectral accelerations PGA, S_S, and S_1 are determined assuming Site Class B conditions, and then adjusted for Site Class D using the site soil response factors to determine the MCE parameters adjusted for site class effects (PGA_M, S_{MS}, and S_{M1}). The design-based values (S_{DS} and S_{D1}) are then determined by multiplying the site adjusted MCE parameters by two-thirds. Exhibit 6-1 below presents our recommended CBC seismic design parameters.

Exhibit 6-1: 2019 CBC Seismic Design Values

Return Period (years)	Parameters/ Coefficients	Peak Ground Acceleration (PGA) (0-second)	Short Period (0.2-second)	Long Period (1-second)
2,475	Mapped MCE SRA[1] Parameters	PGA = 0.87 g	S_S = 2.04 g	S_1 = 0.73 g
	Site Class Coefficients[2]	F_{PGA} = 1.1	F_a = 1.0	F_v = 1.7
	Adjusted MCE SRA Parameters	PGA_M = 0.96 g	S_{MS} = 2.04 g	S_{M1} = 1.24 g
	Design SRA Parameters	S_{DPGA} = 0.54 g	S_{DS} = 1.36 g	S_{D1} = 0.83 g

NOTES:

1 SRA = Spectral Response Acceleration

2 Site class coefficients correspond to a Site Class D.

g = gravity

6.3.2 Landslides, Mudflow, and Slope Stability

Hazards associated with slope stability include landslides and mudflows. The site and surrounding area are relatively level. Therefore, the potential for the site or the area surrounding the site to experience slope stability hazards is negligible.

No potential impacts associated with landslides, mudflow, or slope stability are anticipated for the project. As such, no additional measures associated with these potential issues are required.

6.3.3 Soil Erosion

Erosion is the process in which soil or earth material is worn away and removed from its original location by natural forces such as moving water or wind. Erosion or the loss of topsoil can potentially lead to instable soil conditions, especially for hillside development or development containing or adjacent to slopes.

Based on the site conditions, site topography, and the proposed improvements, the Project is not anticipated to result in significant impacts associated with erosion, sedimentation, or loss of topsoil. However, grading, excavation, and other earth-moving activities would result in disrupting the ground surface and could potentially result in erosion and loss of topsoil during construction, a potentially significant impact. Furthermore, as with most development, there is a potential adverse impact from uncontrolled drainage.

Potential impacts associated with soil erosion or loss of topsoil are anticipated during construction of the proposed development, as earthwork activities would disrupt the ground surface. No requirements beyond the implementation of existing regulations are required to address these potential impacts. Grading and earthwork shall be performed in

accordance with the 2020 CLABC, specifically section 1804 and Appendix J of the CLABC. For grading performed in the "rainy season", as defined as the months of October to April by the CLABC, provisions will need to be made to control erosions. A Stormwater Pollution Prevention Plan should be prepared prior to the start of construction in accordance with County regulations and should be implemented during construction.

6.3.4 Geologic Instability, Including Lateral Spreading, Liquefaction, and Subsidence

6.3.4.1 Lateral Spreading or Liquefaction

Geologic instability resulting from liquefaction and lateral spreading is discussed above.

6.3.4.2 Subsidence

Subsidence of the ground surface can be caused by the removal of groundwater and/or petroleum from subsurface sources. If groundwater levels or head in petroleum reservoirs are lowered sufficiently, permanent collapse of pore space would result in ground settlement and could potentially damage structural improvements.

The Project site is located in the southern part of the Salt Lake Oil Field. However, we did not find documentation indicating subsidence has occurred due to removal of petroleum. Similarly, we did not find evidence of subsidence from groundwater pumping. Therefore, we conclude that potentially damaging subsidence from extraction of groundwater and/or petroleum during construction or operation of the structures is unlikely.

Temporary dewatering will be required during construction for any excavation which extends beneath the existing groundwater level. Groundwater depth will be confirmed based on completion of our subsurface explorations and preparation of our geotechnical design report, however, based on the available data discussed above, we anticipate relatively shallow groundwater at the Project site, on the order of 5 to 10 feet beneath the ground surface. Based on this, we anticipate temporary dewatering will be required for excavations extending more than 10 feet bgs.

We anticipate groundwater extracted during temporary dewatering will be in relatively small volumes to produce localized drawdown around the excavations. We do not anticipate construction dewatering to adversely impact the existing structures or the proposed improvements. Additional details with respect to temporary dewatering system is discussed in the Recommendations section below.

6.3.4.3 Compressible and Collapsible Soils

Compressible soils are soils which undergo consolidation when subject to a new load, such as a structure load or fill placement. Collapsible soils are soils which significantly decrease in volume when they are wetted and experience an increase in moisture content, regardless of whether a new load is placed on them. Compressible or collapsible soils can lead to excessive settlement distress for structural improvements.

Artificial fill that was not engineered and the near-surface alluvial deposits may be weak and compressible and/or collapsible, particularly with the addition of water. The existing artificial fill may not be suitable to support foundations, slabs on grade, paving or new compacted fills. Furthermore, the surficial alluvial deposits may not be suitable for supporting building loads. Utilizing the existing artificial fill or upper alluvial soils for load support can result with potential significant impact for the proposed structures, as it can lead to structural distress due to total or differential settlement. We recommend removing and replacing unsuitable soil with structural fill or supporting structural loads on deep foundations as described below.

6.3.4.4 Recommendations

Temporary Dewatering:
Temporary dewatering will be required for excavations which extend below the existing groundwater level. As discussed above, we anticipate temporary dewatering will be required for excavations greater than 10 feet bgs. We anticipate the deepest excavations will be associated with the proposed Page Museum one-story addition, as excavations will be required for construction of the proposed mat foundation and associated new utility placement.

Dewatering should be performed prior to excavation. The dewatering system should be designed to lower the site groundwater sufficiently to permit a dry environment and to prevent water seepage from the temporary perimeter cut slopes. The groundwater will be pumped from the tar sands and will contain a relatively high percentage of tar. The tar will need to be removed and the groundwater treated prior to disposal. If dewatering will be utilized, we recommend that a test installation be constructed prior to proceeding with the actual design of the system to verify the design's effectiveness.

It is important that the design of a temporary dewatering system should be performed by an experienced, qualified dewatering contractor, and a plan be developed to monitor the progress of the dewatering prior to proceeding with excavation. The design will need to balance the soil conditions with well spacing and well depth. The tar sands are relatively permeable, however the void spaces are filled with a mixture of tar and water. The water

drains relatively quickly, but the presence of tar reduces the overall permeability of the sands. As such, the presence of tar results with a relatively low permeability of the tar sands and can result with high pore pressures in these deposits. Due to its relatively high viscosity, the tar drains relatively slowly in comparison to the water.

It is our opinion that the most effective method of dewatering will consist of relatively closely spaced wells around the excavation perimeter, referred to as well points. The wells should be properly designed to include perforated casing with annular space filled with suitable filter material. Even with proper design, we anticipate eventual plugging of the wells with tar will occur. The well points should extend past the depth of proposed excavation.

Based on information provided within the "Civil Engineering" sheets prepared by KPFF, we understand a current dewatering system is set up to periodically lower the water level within Lake Pit. The dewatering system consists of collection piping, sump pumps, a sand-oil separator device, and a micro-filter device. In a similar fashion, separator and filter devices should be considered for temporary dewatering pumps to help maintain the system's efficiency and increase the amount of time prior to the pumps being plugged up with tar.

Compressible/Collapsible Soils:
Using the existing artificial fill or upper alluvial soils for support without implementing proper design measures may lead to a significant impact to the proposed development.

Based on the provided Master Plan and Concept Design sheets, we understand the proposed one-story expansion and the proposed entry pavilions and canopies will be supported on shallow foundations. If the proposed shallow foundations are embedded within the existing artificial fill or compressible upper alluvial soils, the development may experience excessive load-induced total or differential settlement, causing structural distress. To address this potential impact, we recommend excavation and replacement of existing compressible materials within the areas of the proposed improvements.

Excavation and replacement consists of complete removal of artificial fill and/or compressible surficial alluvial soil beneath the areas of the proposed improvements and replacement with compacted structural fill. Based on the past available explorations, we anticipate existing artificial fill depth will range between 1 to 8 feet bgs. This value will be confirmed after completion of our subsurface explorations.

Due to the anticipated soil contamination, onsite soils are not anticipated to be suitable for reuse as fill material and will need to be exported for proper remediation and disposal. Thus, structural fill material will need to be imported onsite. For preliminary earthwork

quantity estimates, the "Civil Engineering" sheets prepared by KPFF provide estimated cut and fill quantities. The estimated quantities consist of 7,500 cubic yards of cut material to be exported offsite, and approximately 36,000 cubic yards of fill material to be imported to the site.

The proposed bridge crossing Oil Creek is proposed to be supported on deep foundations. Deep foundations transfer the structure loads to deeper geologic units which are not significantly compressible, thus do not rely on the upper compressible/collapsible soils for support and are not susceptible to the potential load-induced settlement concern. Deep foundations should extend through the fill and upper alluvial soils (Lakewood Formation) and be embedded into the underlying stiff/dense alluvial deposits (San Pedro Formation).

6.3.5 Expansive Soil

Expansive soil occurs when clay particles of certain mineralogy interact with water, causing a volume change. Clay soil may swell with increasing moisture content and contract when dried. This phenomenon generally decreases in magnitude with increasing confining pressure at depth. These volume changes may damage spread footings, grade beams, floor slabs, pavement, and other shallow improvements.

Based on our review of the available data, the upper clay soils within the existing artificial fill and alluvium are subject to expansion and shrinkage resulting from changes in the moisture content. The available data with regard to potential expansive potential is discussed below.

Law/Crandall (1995) noted the onsite clayey soils are expansive. They recommended the expansive soil should not be used beneath building floor slabs or adjacent sidewalks and should not be placed behind retaining walls. Law/Crandall performed an expansion index test for soils collected from Boring B-4 at a depth range of 0 to 5 feet. The test resulted with an Expansion Index (EI) of 98, indicating a high expansion potential (Law/Crandall, 1995).

AECOM (2019) noted that expansion tests performed on collected samples indicated the clayey artificial fill and alluvium has a medium to high expansion potential, which would impact lightly loaded foundation elements and concrete flatwork. AECOM performed two expansion index tests, resulting with EI values of 21 and 64 (for Borings B-15-3 and B-15-4, respectively). An EI value of 21 indicates a low expansion potential, and an EI value of 64 indicates a medium expansion potential (AECOM, 2019).

VB&B (2005b) performed two expansion tests within alluvial clays. The tests resulted with EI values between 65 to 70, indicating a medium soil expansion potential (VB&B, 2005b).

VB&B also reviewed sidewalk heaving issues located north of the Project site (VB&B, 2005a). Prior to construction of the sidewalk, the underlying soils were excavated as deep as 5 feet bgs and recompacted. An expansion test performed on the sidewalk subgrade soil resulted with an EI value of 112, indicating a high expansion potential.

Based on the available data, we anticipate moderately to highly expansive soil to be present onsite, posing a potential significant impact to lightly loaded foundation elements and flatwork (e.g., sidewalks, driveways). Additional expansion testing should be performed for the proposed improvements, particularly in areas of proposed flatwork and lightly loaded canopy foundations. Options to address the potential adverse impact from expansive soils include over-excavation and replacement of the expansive material with a soil having low or non-expansive potential, soil treatment, or through structural design of the proposed improvements.

The recommended option is to overexcavate within the areas of the proposed improvements and replace the expansive material with a soil having a low or non-expansive potential. We recommend that the upper 2 feet of expansive soil (where encountered at the site) be removed and replaced with non-expansive fill.

Another option to address expansive soil potential is to improve the soil through chemical treatment, such as lime treatment. This generally involves mixing a certain percentage of the chemical into the subgrade soil, compacting the mixed soil-chemical material, and then allowing the material curing time prior to continuing construction. The percentage of the chemical addition and the associated engineering properties of the improved soil will need to be determined through geotechnical laboratory testing. If chosen, the geotechnical design report should provide design and construction recommendations related for this option.

A third option is through structural design of the proposed improvements. As discussed above, the expansion potential of soils generally decreases in magnitude with increasing confining pressure at depth. Therefore, structural design option would involve increasing the bearing pressure on the soil and/or extending the foundation or flatwork depth. However, while increasing the bearing pressure reduces the potential impact from expansive soil, it does increase the potential impact associated with excessive settlement. Settlement evaluation should be performed based on the proposed loading conditions and limited to a maximum differential of 1 inch over a 20-foot span within the structure.

6.3.6 Tsunami and Seiche Potential

A tsunami is generated in the ocean from large displacements of the sea floor, which could occur from an earthquake, volcanic explosion, or major submarine landslide. The Project site is located about eight and a half miles from the Pacific Ocean shoreline. In addition,

based on the "Tsunami Hazard Areas" figure for the County, Figure 12.3 of the County's General Plan, the Project site does not lie within a tsunami hazard area. Given the distance from the shoreline, tsunamis are not considered a significant hazard to the Project site and the potential impact from a tsunami is considered negligible.

A seiche occurs when an earthquake or landslide disturbs or displaces water in an enclosed body of water, resulting in waves that extend beyond the normal shoreline. Large bodies of uncovered water such as reservoirs, lakes, or ponds are not located directly up gradient or in the vicinity of the Project site. The nearest applicable body of water is the Hollywood Reservoir, located approximately 4 miles toward the north-northeast. Given the distance, seiches are not considered a significant hazard to the Project site and the potential impact from a seiche is considered negligible.

The existing grades around Lake Pit are between 5 to 9 feet higher than the water surface elevation. Given the elevation differences, the potential for a seiche from Lake Pit to impact the Project is unlikely.

6.3.7 Tar-Impacted Soil and Groundwater Disposal

As discussed above, tar-impacted soil is anticipated for soil beneath the groundwater. Tar-impacted soils and groundwater should be anticipated for excavations deeper than about 10 feet bgs. Based on our experience in the site vicinity, tar content of impacted soil is typically between 10% and 20%. Higher tar content and/or shallower depth of tar-impacted soil could be encountered near tar seeps observed in the Project vicinity.

Spoils from drilling of deep foundations and other excavations that extend below the groundwater will likely contain natural oil or tar. Excavation spoils will require chemical analyses for offsite disposal characterization. If the spoils are characterized as non-hazardous, export to a normal disposal facility is likely. If the spoils are characterized as hazardous, they will require disposal at a designated hazardous waste facility, which is comparatively more expensive than a normal disposal facility. We anticipate groundwater pumped from excavations will require treatment before disposal.

6.3.8 Oil Wells

The likelihood of encountering any known or previously undiscovered oil production well at the site is low. However, if an oil production well is encountered during construction activities, construction work should halt in the immediate area. Both CalGEM and the City Fire Department should be notified immediately. The oil production well(s) should be abandoned in accordance with the requirements of CalGEM and the Los Angeles Fire Department.

6.4 Regulatory Requirements

6.4.1 Development of a Geotechnical Investigation and Geologic Hazard Report

Per Section 1803 of the CLABC, the Project-specific geotechnical investigation and geologic hazard report (i.e., geotechnical design report) will address final design of the Project, incorporating recommendations to mitigate the hazards identified herein. The report shall meet 2020 CLABC requirements and the most current guidelines developed by the County of Los Angeles Department of Public Works Geotechnical and Materials Engineering Division (GMED). Specifically, the report shall:

- Confirm seismic ground-motion parameters,
- Further develop the soil profile at the site,
- Confirm groundwater conditions at the site are as anticipated,
- Evaluate soil strength and adequacy of load-bearing soils,
- Evaluate total and differential settlement potential,
- Recommend structural fill material properties and testing,
- Provide recommendations and design criteria for deep foundation systems, and
- Provide special design and construction criteria for shallow foundations and flatwork founded on expansive soils.

The report shall be prepared by a California-registered geotechnical engineer and California-certified engineering geologist. The geotechnical design and construction recommendations outlined in the geotechnical design report should be incorporated into the Project plans and specifications. Construction of the proposed Project shall be in accordance with the approved plans.

6.4.2 Seismic Loading Conditions

Required earthquake loading considerations are outlined in Section 1613 of the 2020 CLABC. Per Section 1613, every structure or portion of a structure shall be designed to resist the effects of earthquake motions in accordance with the CLABC and ASCE 7, as applicable.

6.4.3 Earthwork Activities

Earthwork activities, such as excavation, grading, and fill placement, shall follow the 2020 CLABC standards outlined in Section 1804 and Appendix J. The final geotechnical design report should provide general design and construction recommendation for earthwork activities.

6.4.4 Drainage

Drainage is a significant factor in the long-term performance of any structure or slope. We recommend drainage devices be incorporated into the civil design to improve performances and limit the potential for foundation instability or excessive erosion. We recommend sloping grades and pavement surfaces to promote gravity flow to drainage swales and catch basins. As discussed above, site grading shall follow the requirements outlined in Section 1804 and Appendix J of the 2020 CLABC, which includes guidelines for site grading to promote positive drainage flow.

6.4.5 Compliance to Applicable Building Codes and Regulations

Project design and construction shall comply with the 2020 CLABC, the most current guidelines outlined by GMED, general County laws, applicable standards published by the State of California, and the recommendations set forth in the geotechnical design report.

7 LIMITATIONS

The recommendations provided in this report are based upon our understanding of the described Project information and our interpretation of the data collected from past subsurface explorations performed by us and others. We have made our recommendations based upon experience with similar subsurface conditions under similar loading conditions. The recommendations apply to the specific Project discussed in this report; therefore, any change in the structure configuration, loads, location, or the site grades should be provided to us so that we can review or conclusions and recommendations and make any necessary modifications.

S&W has prepared and included the document, “Important Information About Your Geology and Soils Discipline Report” to assist you and others in understanding the use and limitations of our report.

8 REFERENCES

8.1 Report Bibliography

Numerous geotechnical studies have been performed within or adjacent to the Project site. Those prior studies have formed the basis for the findings, conclusions and recommendations contained in this report. An alphabetical listing of the prior reports, by the firm responsible for preparation of those reports, is listed below.

AECOM, 2019, Final report, geotechnical investigation, LACMA Building for Permanent Collection (BPC), Los Angeles County Museum of Art, 5905 Wilshire Boulevard, Los Angeles, California: Report prepared by AECOM, Los Angeles, Calif., project no. 60440464, for Los Angeles County Museum of Art, Facility Planning Department, December 19, 654 p.

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URS, 2002, Preliminary report, geotechnical evaluations – mobilization phase, proposed museum replacement project, 5905 Wilshire Boulevard, Los Angeles, California: Report prepared by URS, Los Angeles, Calif., project no. 29401607.00001, for the Los Angeles County Museum of Art, Los Angeles, Calif., September 5.

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Van Beveren & Butelo, Inc. (VB&B), 2008b, Report of geotechnical investigation, proposed phase 2 project, 6067 W. Wilshire Boulevard, Los Angeles, California: Report prepared by Van Beveren & Butelo, Inc., Glendale, Calif., project no. 04-053.7, for the Los Angeles County Museum of Art, Los Angeles, Calif., March 31, 20 p.

8.2 Technical Publications

The following technical publications were reviewed as part of the preparation of the Geology and Soils Discipline Report.

Bilodeau, W.L.; Bilodeau, S.W.; Gath, E.M.; and others, 2007, Geology of Los Angeles, California, United States of America: Environmental and Engineering Geoscience, v. 13, no. 2, p. 99-160.

California Department of Water Resources (DWR), 1961, Planned utilization of the ground water basins of the coastal plain of Los Angeles Count, appendix A, groundwater geology: Sacramento, Calif., California Department of Water Resources Bulletin No. 104.

California Department of Water Resources (DWR), 2004, Coastal plain of Los Angeles groundwater basin, central subbasin: California's Groundwater Bulletin 118, 5 p., available: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/4_011_04_CentralSubbasin.pdf

California Division of Mines and Geology (CDMG), 1998, Seismic hazard zone report for the Hollywood 7.5-minute quadrangle, Los Angeles County, California (rev. ed.): California Department of Conservation, Division of Mines and Geology, Seismic Hazard Zone Report 026, 61 p.

California Geologic Energy Management Division (CalGEM), 2022, Well finder, CalGEM GIS: Available: https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-118.94276/37.12009/6

California Geological Survey (CGS), 2002, Guidelines for evaluating the hazard of surface fault rupture: California Geological Survey Note 49, 4 p., available: https://www.conservation.ca.gov/cgs/Documents/Publications/CGS-Notes/CGS-Note-49.pdf

California Geological Survey (CGS), 2004, Recommended criteria for delineating seismic hazard zones in California (rev. ed.): California Geological Survey Special Publication no. 118, 18 p., available: https://www.conservation.ca.gov/cgs/Documents/Publications/Special-Publications/SP_118-2004-Criteria-Seismic-Hazard-Zones-CA.pdf

California Geological Survey (CGS), 2008, Guidelines for evaluating and mitigating seismic hazards in California (rev. ed.): California Geological Survey Special Publication no. 117A, 98 p., available: https://www.conservation.ca.gov/cgs/Documents/Publications/Special-Publications/SP_117a.pdf

California Geological Survey (CGS), 2014, Earthquake zones of required investigation, Hollywood quadrangle: California Geological Survey, Earthquake Fault Zones and Seismic Hazard Zones, Hollywood 7.5 Minute Quadrangle, 1 p., 1 sheet, scale 1:24,000. (Revised Official Map).

California Geological Survey (CGS), 2018a, Earthquake fault zones, a guide for government agencies, property owners/developers, and geoscience practitioners for assessing fault rupture hazards in California (rev. ed.): California Geological Survey Special Publication no. 42, 93 p., available: https://www.conservation.ca.gov/cgs/Documents/Publications/Special-Publications/SP_042.pdf

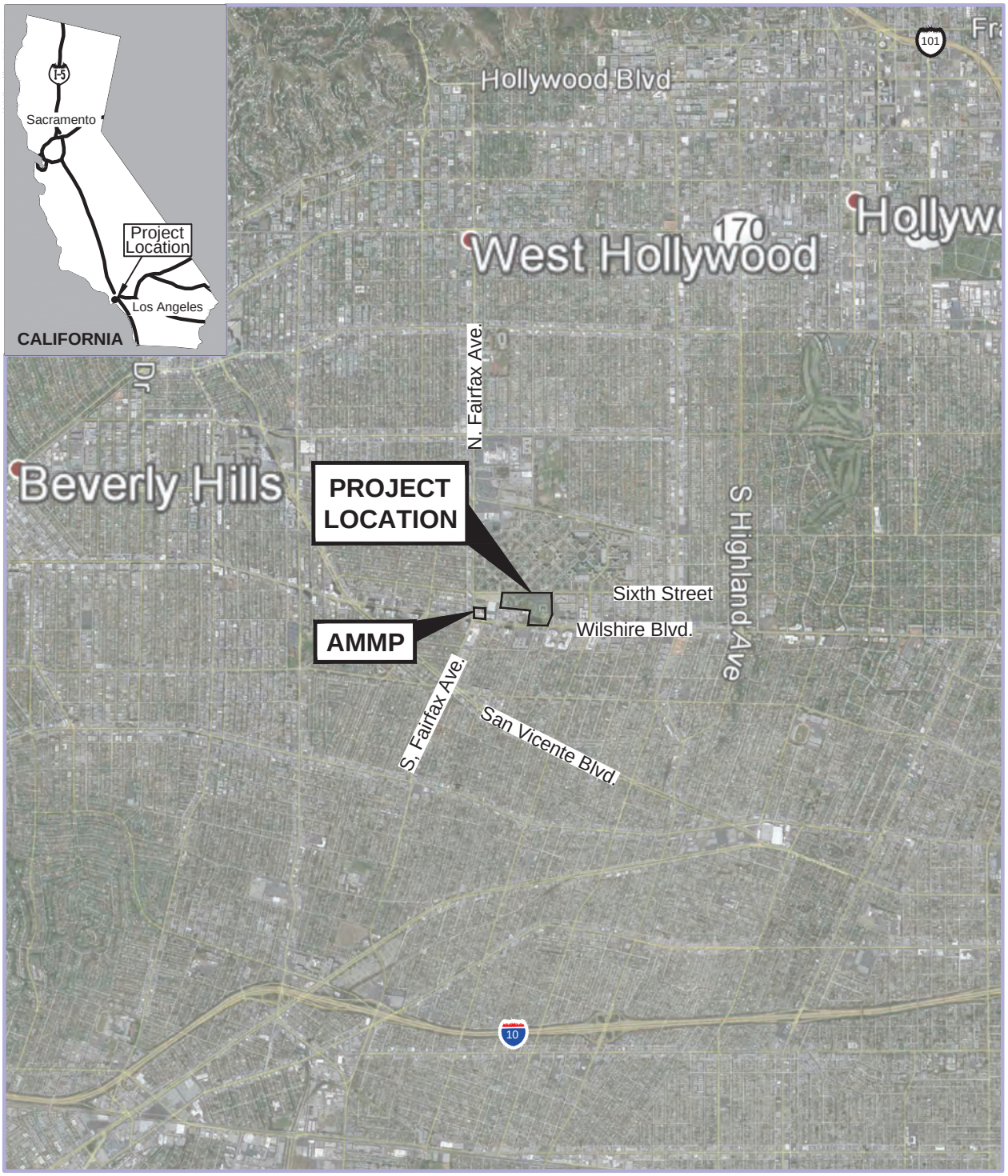
California Geological Survey (CGS), 2018b, Earthquake zones of required investigation, Beverly Hills quadrangle: California Geological Survey, Earthquake Fault Zones and Seismic Hazard Zones, Beverly Hills 7.5 Minute Quadrangle, 1 p., 1 sheet, scale 1:24,000. (Revised Official Map).

Deane, R.T.; Pradel, Daniel; and Robertson, C.A., 2018, Characterizing the strength of tar sands in Los Angeles, a case history, in Lemnitzer, Anne; Steudlein, A. W.; and Suleiman, M. T., eds., Recent developments in geotechnical engineering practice, IFCEE 2018, Orlando, Fla., Proceedings: Reston, Va., American Society of Civil Engineers, Geotechnical Practice Publication no. 11, p. 458-469.

Dibblee, T.W. and Ehrenspeck, H.E., 1991, Geologic map of the Hollywood and Burbank (south 1/2) quadrangles, Los Angeles County, California: Santa Barbara, Calif., Dibblee Geological Foundation, map no. DF-30, scale 1:24,000.

Petersen, M.D.; Bryant, W.A.; Cramer, C.H.; and others, 1996, Probabilistic seismic hazard assessment for the State of California: California Department of Conservation, Division of Mines and Geology Open-File Report 96-08 (also U.S. Geological Open-File Report 96-706), available: https://pubs.er.usgs.gov/publication/ofr96706

Weldon, R.J., II; Fumal, T.E.; Powers, T.; and others, 2002, Structure and earthquake offsets on the San Andreas fault at the Wrightwood, California Paleoseismic Site: Bulletin of the Seismological Society of America, Special Issue on Paleoseismology of the San Andreas Fault System, v. 92, no. 7, p. 2704-2725.



0 2000 4000 8000

SCALE: 1"=4000'

La Brea Tar Pits Museum Master Plan
Hancock Park
Los Angeles, California

VICINITY MAP

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FIG. 1

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Vicinity Map.dwg Layout: Figure 1 Date: 09-20-2022 Login: JRS

LEGEND

	Approximate Limit of Work
AECOM-B-15-4	Boring Designation and Approximate Location *(AECOM, 2019)*
AMC-2014-M-109	Boring Designation and Approximate Location *(Metro GDR, 2014)*
VBB-2005-B-5	Boring Designation and Approximate Location *(Van Beveren & Butelo, 2005)*
URS-2003-B-4	Boring Designation and Approximate Location *(URS, 2003)*
URS-2002-B-2	Boring Designation and Approximate Location *(URS, 2002)*
L/C-1998-B-9	Boring Designation and Approximate Location *(Law-Crandall, 1998)*
L/C-1995-B-9	Boring Designation and Approximate Location *(Law-Crandall, 1995)*
LCA-1984-B-4	Boring Designation and Approximate Location *(LeRoy Crandall, 1984)*
LCA-1982-B-3	Boring Designation and Approximate Location *(LeRoy Crandall, 1982)*

0 120 240

Scale in Feet

La Brea Tar Pits Museum Master Plan
Hancock Park
Los Angeles, California

SITE PLAN

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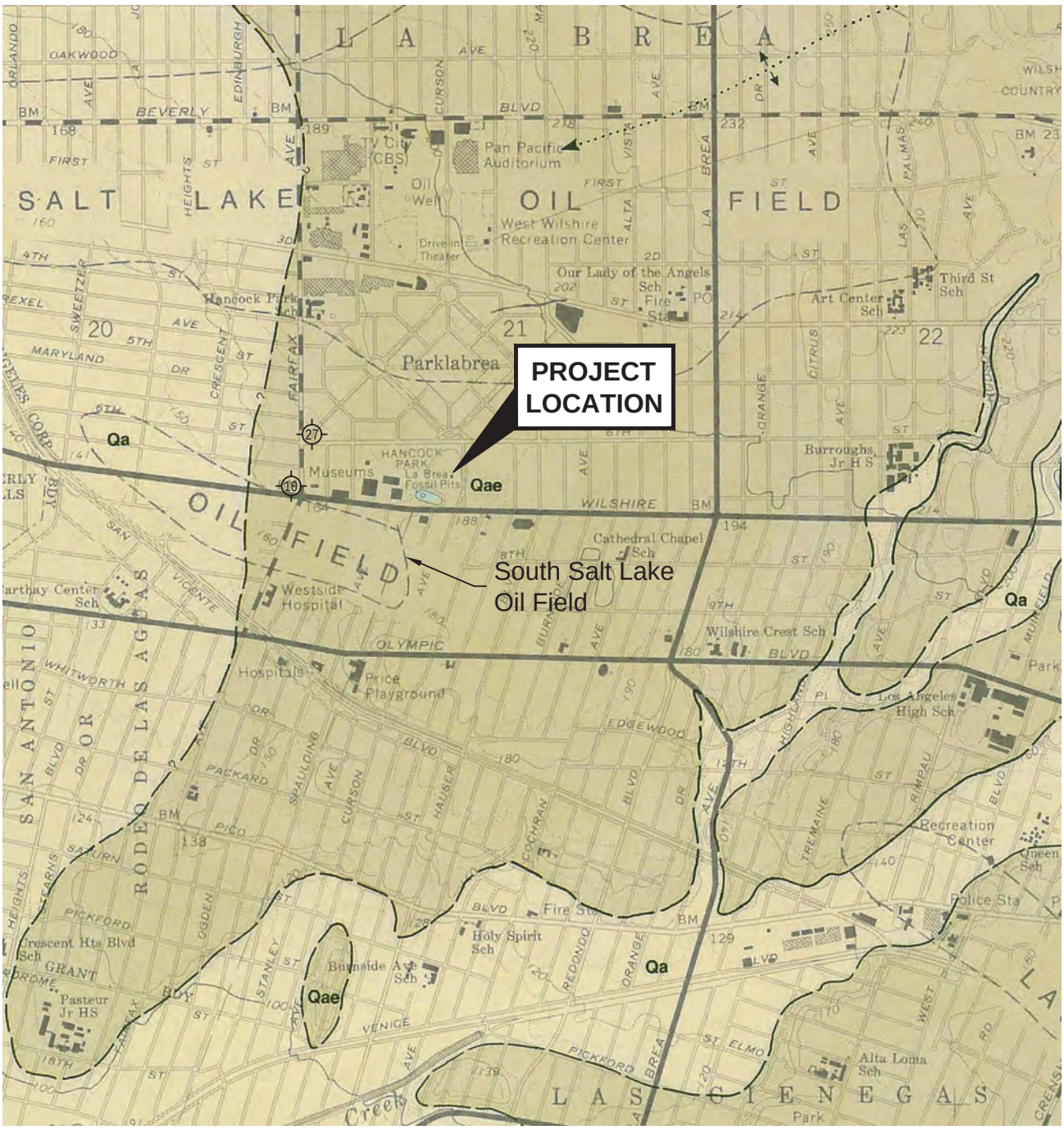
FIG. 2

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Site Plan.dwg Layout: Figure 2 Date: 09-20-2022 Login: JRS



LEGEND

Geologic Units

Qa Alluvium

Qae Alluvium (Elevated)

Oil Wells

10 Chevron 10

27 Chevron Salt Lake 27

NOTE

Map adapted from drawing titled Geologic Map of the Hollywood and Burbank Quadrangle, by Thomas W. Dibblee, jr., 1991.

0 1000 2000 4000

SCALE: 1"=2000'

La Brea Tar Pits Museum Master Plan
Hancock Park
Los Angeles, California

REGIONAL GEOLOGY MAP

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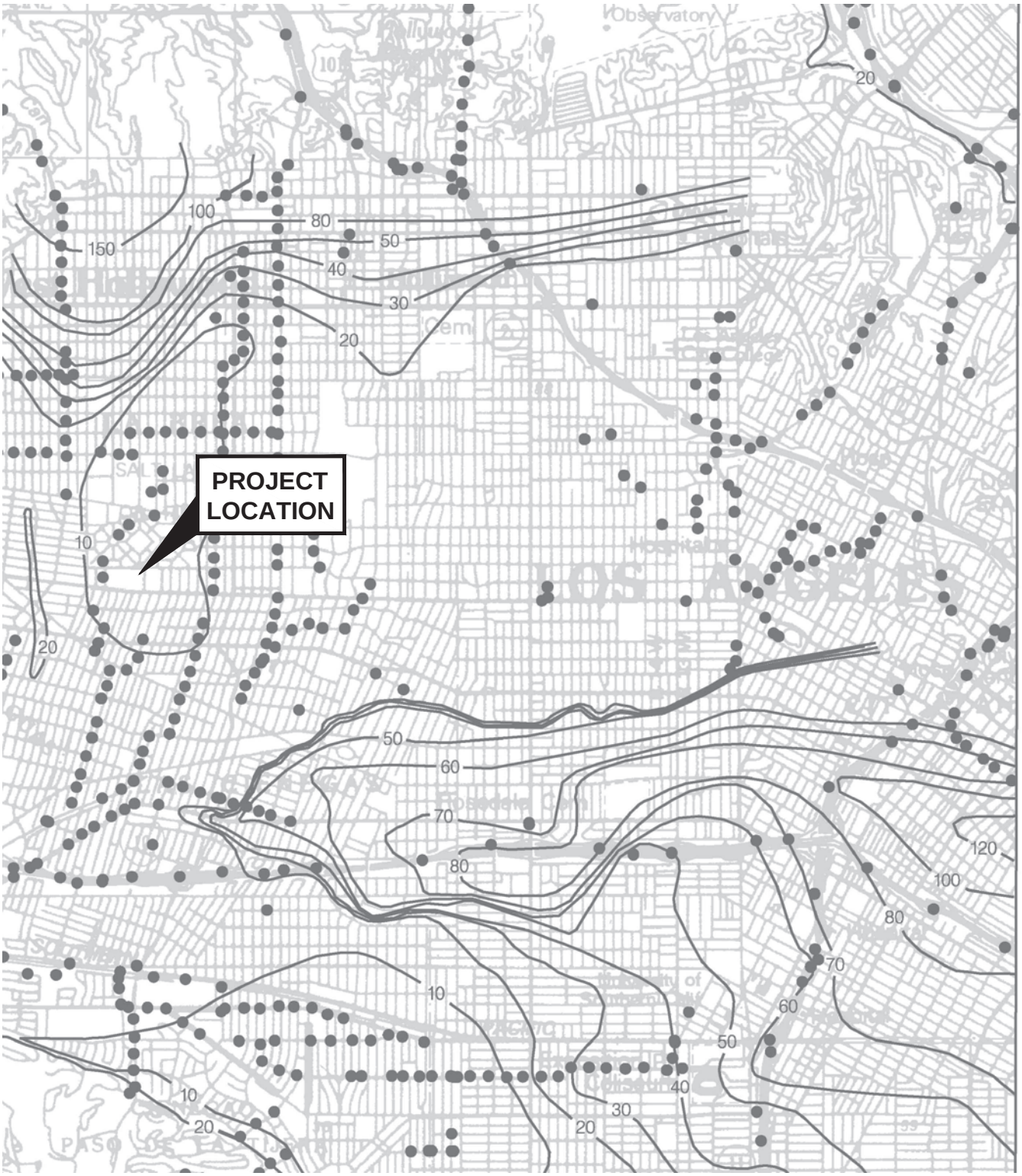
FIG. 3

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Geology Map.dwg Layout: Figure 3 Date: 08-25-2022 Login: JRS



0 0.5 1 2

SCALE: 1 inch = 1 mile

NOTES

1. Numbers are depth below ground surface.
2. Map adapted from Seismic Hazard Zone Report For the Hollywood 7.5-Minute Quadrangle, Los Angeles County, California, Plate 1.2, 1998.

N

La Brea Tar Pits Museum Master Plan
Hancock Park
Los Angeles, California

HISTORICAL HIGH GROUNDWATER MAP

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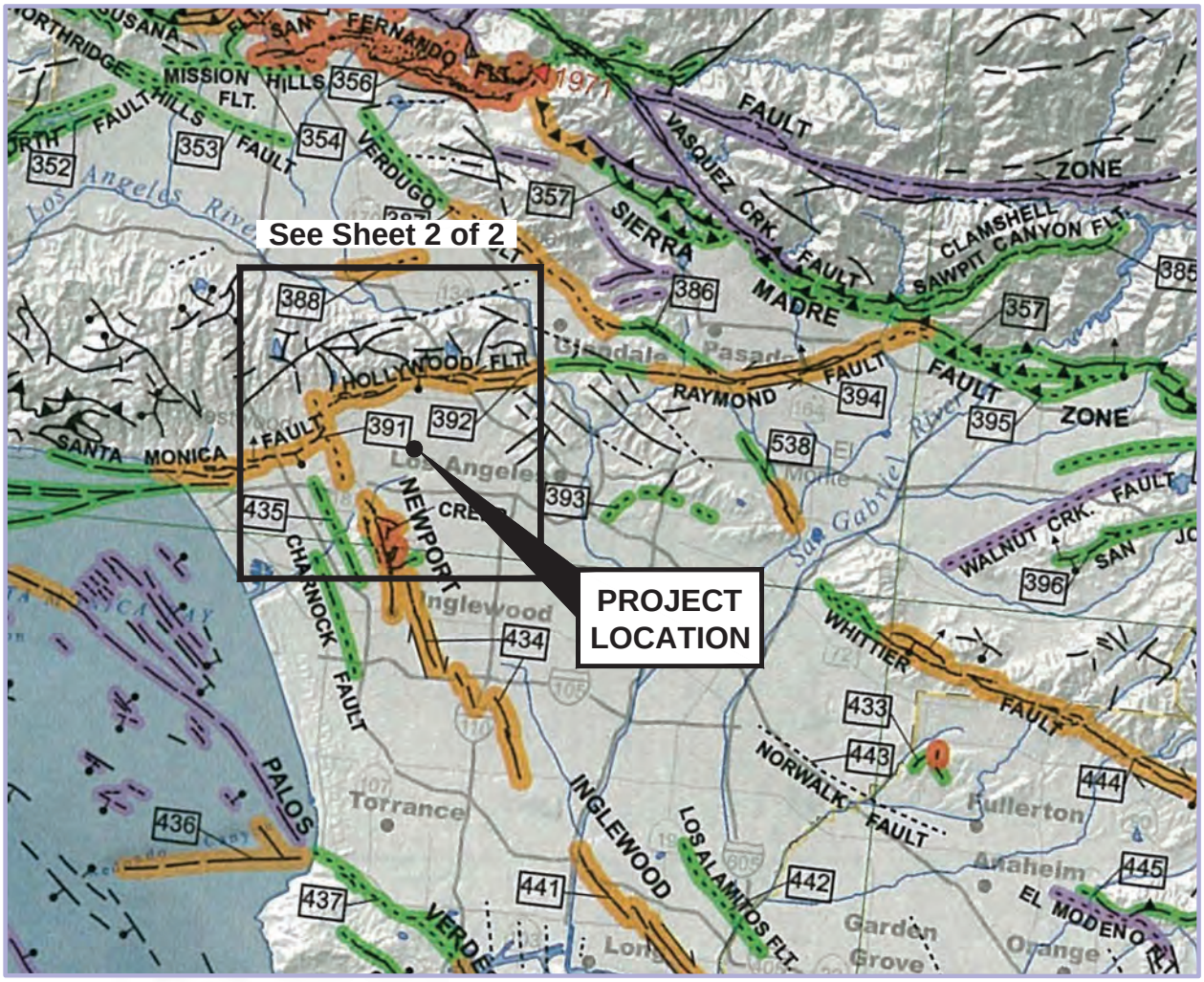
FIG. 4

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Hist High GW.dwg Layout: Figure 4 Date: 08-25-2022 Login: JRS



EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain.

FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred.

Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement.

ADDITIONAL FAULT SYMBOLS

Bar and ball on downthrown side (relative or apparent).

Arrows along fault indicate relative or apparent direction of lateral movement.

Arrow on fault indicates direction of dip.

Low angle fault (barbs on upper plate).

0 20,000 40,000 80,000

SCALE: 1"=40,000'

NOTE

Map adapted from Fault Activity Map of California, 2010 by California Geological Survey.

La Brea Tar Pits Museum Master Plan
Hancock Park
Los Angeles, California

REGIONAL FAULT MAP

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FIG. 5
Sheet 1 of 2

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Fault Map.dwg Layout: Figure 5-1 Date: 08-25-2022 Login: JRS

EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain.

FAULT CLASSIFICATION COLOR CODE
(Indicating Recency of Movement)

Fault along which historic (last 200 years) displacement has occurred.

Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement.

ADDITIONAL FAULT SYMBOLS

Bar and ball on downthrown side (relative or apparent).

Arrows along fault indicate relative or apparent direction of lateral movement.

Arrow on fault indicates direction of dip.

Low angle fault (barbs on upper plate).

0 5,000 10,000 20,000

SCALE: 1"=10,000'

NOTE

Map adapted from Fault Activity Map of California, 2010 by California Geological Survey.

La Brea Tar Pits Museum Master Plan
Hancock Park
Los Angeles, California

REGIONAL FAULT MAP

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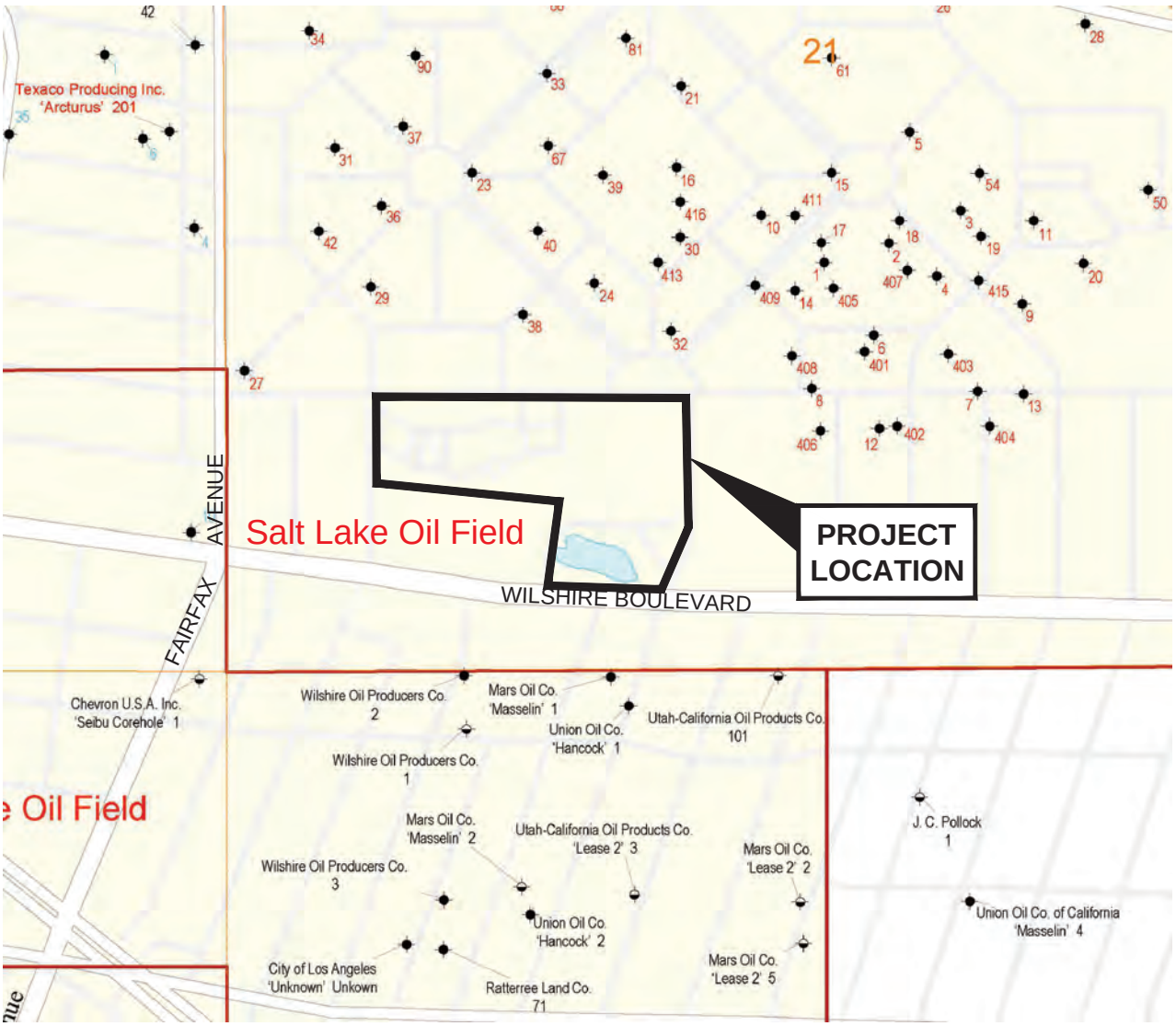
FIG. 5
Sheet 2 of 2

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Fault Map.dwg Layout: Figure 5-2 Date: 08-25-2022 Login: JRS



0 1000 2000

Scale in Feet

LEGEND

- Plugged and abandoned - oil
- Drilling - idle
- Plugged and abandoned - dry hole

NOTE

Map adapted from Oil Field Map, District 1, Map 118, by Division of Oil, Gas, and Geothermal Resources, dated September 17, 2003.

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Hancock Park
Los Angeles, California

OIL WELL AND FIELD MAP

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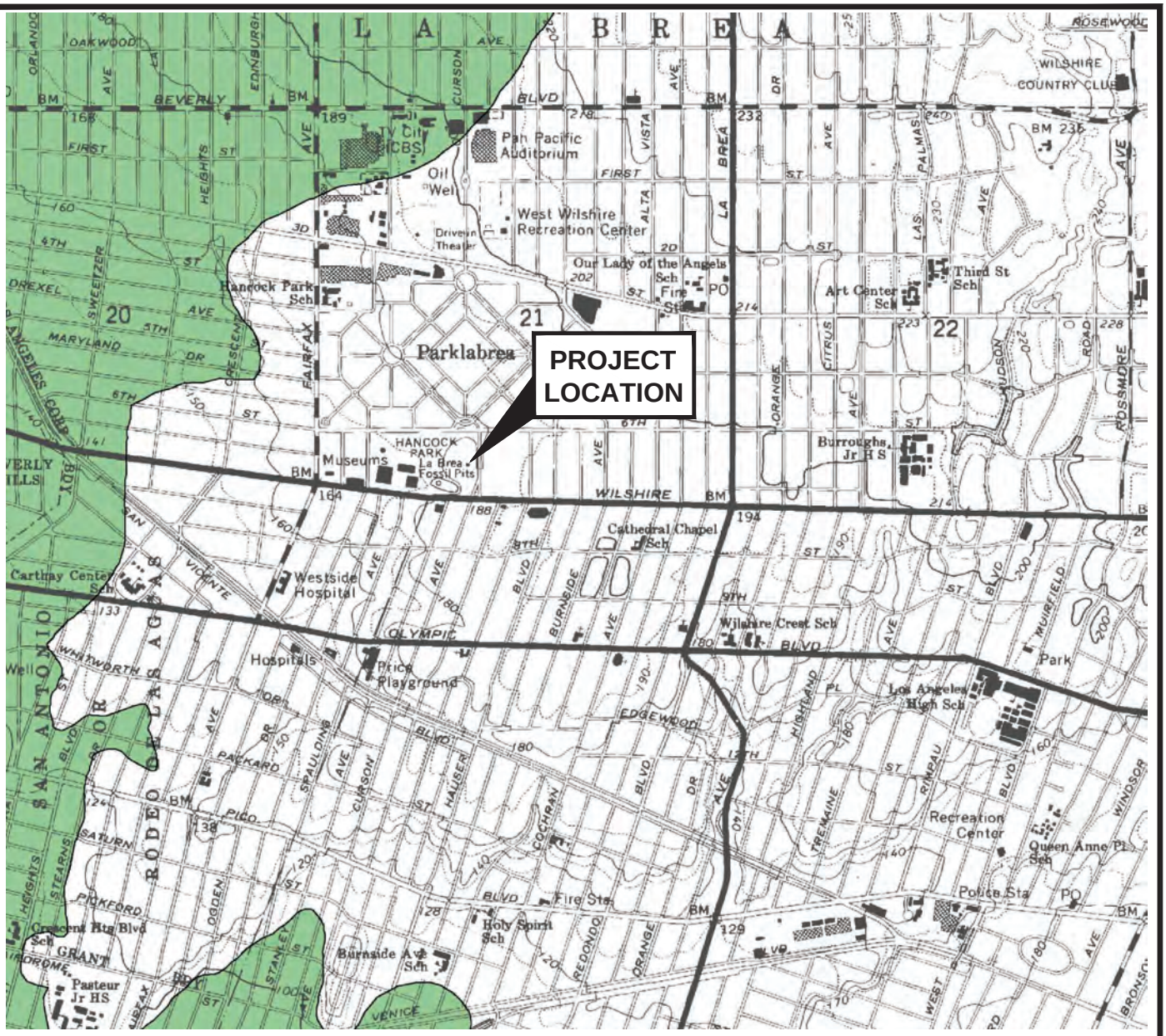
FIG. 6

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Oil Well and Field.dwg Layout: Figure 7 Date: 09-20-2022 Login: JRS



MAP EXPLANATION

Zones of Required Investigation:

Liquefaction

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

N

0 1000 2000 4000

SCALE: 1"=2000'

NOTE

Map adapted from drawing titled State of California Seismic Hazards Zones, Hollywood Quadrangle, By Division of Mines and Geology, Dated March 25, 1999.

La Brea Tar Pits Museum Master Plan
Hancock Park
Los Angeles, California

SEISMIC HAZARD ZONES MAP

January 2023 | 109748-001

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FIG. 7

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_LAX\109748\001\109748-001 Seismic Hazards.dwg Layout: Figure 6 Date: 08-25-2022 Login: JRS

APPENDIX A: PAST S&W AND VB&B FIELD EXPLORATIONS

Appendix A

Past S&W and VB&B Field Explorations

CONTENTS

- Van Beveren & Butelo, Inc., 2005b, BCAM and Subterranean Garage
  - Boring 4
  - Boring 5

BORING 4

Date Drilled: October 4, 2004
Equipment Used: Rotary Wash (5-inch-dia.)

Depth to Water: 6.6 feet
Driving Weight & Drop: 400 lbs. / 18 inches (Sample)
140 lbs. / 30 inches (SPT)

SURFACE ELEVATION: 171.0 feet MSL

ELEVATION (feet)	DEPTH (feet)	MOISTURE* (% of dry wt.)	DRY DENSITY** (pcf)	N VALUE (SPT)	BLOW COUNT (blows/foot)	SAMPLE LOCATION	Description
							Landscape Layer
							FILL SC - SANDY CLAY - brown
170		18.2	107	12			
	5	19.5	105	14			bluish gray to brown
165							some gravel (up to 1")
							NATURAL CH - CLAY - some sand, bluish gray
	10	38.3	82	8			[LL=57, PI=45]
160							
	15	24.8	99	17			some asphalt stains
155							
							SM - SILTY SAND - fine to medium, some asphalt stains, brown
	20	19.0	105	17			SP - ASPHALT SAND - fine, black
150		16.0	104	19			
	25	14.0	102	27			
145		6.9	111	28			
	30			31			[No Sample Recovery]
140		7.8	110	35			
		5.9	114	35			
	35						
135			55 for 6"				few gravel (up to 3/4")
	40						

(Continued on next page)

* MOISTURE = VOLATILE LIQUIDS

** DRY DENSITIES INCLUDE THE WEIGHT OF SOIL AND NON-VOLATILE ASPHALT

The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

Job No: 04-053 By: FA Date: 10-18-2004 Checked: VB Printed: 10-25-04 [LOG FOR FIELD; 04-053.GPJ]

LOG OF BORING

VAN BEVEREN & BUTELO, INC.

FIGURE A-1.4a

BORING 4
(Continued)

Date Drilled: October 4, 2004
Equipment Used: Rotary Wash (5-inch-dia.)

Depth to Water: 6.6 feet
Driving Weight & Drop: 400 lbs. / 18 inches (Sample)
140 lbs. / 30 inches (SPT)

SURFACE ELEVATION: 171.0 feet MSL

ELEVATION (feet)	DEPTH (feet)	MOISTURE* (% of dry wt.)	DRY DENSITY* (pcf)	N VALUE (SPT)	BLOW COUNT (blows/foot)	SAMPLE LOCATION	
							SP - ASPHALT SAND - (Continued)
130							
		5.2	103		58		few gravel (up to 1")
	45						
125							
			53 for 6"				
	50						
120							
		4.8	114		53		few shells
	55						
115							
			57 for 6"				
	60						
110							
		4.7	100		50		
	65						
105							
			35 for 6" 50 for 4"				
	70						
100							
	75	6.8	103		50		**END OF BORING AT 75 FEET.**
95							
	80						

Notes:

1) Fill to 8 feet.

2) Groundwater measured at a depth of 6.6 feet, 15 days after completion of drilling.

3) Installed two-inch-diameter PVC casing to permit future groundwater monitoring. Casing bottom covered with cap and sealed. Drilling mud removed before well construction.

4) Boring covered with traffic cover. Soil cuttings and drilling mud placed in disposal barrels.

The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

Job No: 04-053 By: FA Date: 10-18-2004 Checked: VB Printed: 10-25-04 [LOG FOR FIELD; 04-053.GPJ]

* **MOISTURE = VOLATILE LIQUIDS**

** **DRY DENSITIES INCLUDE THE WEIGHT OF SOIL AND NON-VOLATILE ASPHALT**

LOG OF BORING

VAN BEVEREN & BUTELO, INC.

FIGURE A-1.4b

BORING 5

Date Drilled: October 5, 2004
Equipment Used: Rotary Wash (5-inch-dia.)

Depth to Water: 5.5 feet
Driving Weight & Drop: 400 lbs. / 18 inches (Sample)
140 lbs. / 30 inches (SPT)

SURFACE ELEVATION: 170.1 feet MSL

ELEVATION (feet)	DEPTH (feet)	MOISTURE* (% of dry wt.)	DRY DENSITY** (pcf)	N VALUE (SPT)	BLOW COUNT (blows/foot)	SAMPLE LOCATION	Description
							Landscape Layer
							FILL SC - SANDY CLAY - brown
							NATURAL SM - SILTY SAND - fine to medium, brown
		18.0	105	12			
165	5						SP/SM - SAND/SILTY SAND - fine to medium, some gravel (up to 2"), brown
		14.4	116	17			[11.5% Passing 200 Sieve]
160	10						CH - CLAY - some sand and peat, some asphalt stains, bluish gray to dark gray
				11			[No Sample Recovery]
155	15						
		38.3	76	12			
150	20						
		25.8	91	12			few gravel (up to 2")
							SP - ASPHALT SAND - fine, black
145	25	6.1	110	50			
		6.6	111	40			few gravel (up to 1½")
		6.9	109	40			
140	30	4.9	108	50			
		6.4	111	50			
135	35	4.8	105	50			
	40		53 for 6"				

The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

(Continued on next page)

* MOISTURE = VOLATILE LIQUIDS

** DRY DENSITIES INCLUDE THE WEIGHT OF SOIL AND NON-VOLATILE ASPHALT

LOG OF BORING

VAN BEVEREN & BUTELO, INC.

FIGURE A-1.5a

Job No: 04-053 By: FA Date: 10-19-2004 Checked: VB Printed: 10-25-04 [LOG FOR FIELD; 04-053.GPJ]

BORING 5
(Continued)

Date Drilled: October 5, 2004
Equipment Used: Rotary Wash (5-inch-dia.)

Depth to Water: 5.5 feet
Driving Weight & Drop: 400 lbs. / 18 inches (Sample)
140 lbs. / 30 inches (SPT)

SURFACE ELEVATION: 170.1 feet MSL

ELEVATION (feet)	DEPTH (feet)	MOISTURE* (% of dry wt.)	DRY DENSITY** (pcf)	N VALUE (SPT)	BLOW COUNT (blows/foot)	SAMPLE LOCATION	
							SP - ASPHALT SAND - (Continued)
125	45	3.4	104	50			few thin gravelly layers [Rig Chattering]
120	50			40 for 6" 50 for 6"			
115	55	5.2	107	50			few gravel (up to 1")
110	60			43 for 6" 50 for 3"			
105	65	3.6	111	50			few gravel (up to ½")
100	70			39 for 6" 50 for 3"			
95	75	3.7	118	50			few shells **END OF BORING AT 75 FEET.**
	80						

The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

Notes:

1) Fill to 2 feet.

2) Groundwater measured at a depth of 5.5 feet, 14 days after completion of drilling.

3) Installed two-inch-diameter PVC casing to permit future groundwater monitoring. Casing bottom covered with cap and sealed. Drilling mud removed before well construction.

4) Boring covered with traffic cover. Soil cuttings and drilling mud placed in disposal barrels.

* MOISTURE = VOLATILE LIQUIDS

** DRY DENSITIES INCLUDE THE WEIGHT OF SOIL AND NON-VOLATILE ASPHALT

LOG OF BORING

VAN BEVEREN & BUTELO, INC.

Job No: 04-053 By: FA Date: 10-18-2004 Checked: VB Printed: 10-25-04 [LOG FOR FIELD; 04-053.GPJ]

FIGURE A-1.5b

APPENDIX B: PREVIOUS EXPLORATIONS BY OTHERS

Appendix B

Previous Explorations by Others

CONTENTS

- AECOM (2019), LACMA BPC
  - Boring B-15-2
  - Boring B-15-3
  - Boring B-15-4
- URS (2003), BCAM
  - Boring B-8
- URS (2002), Museum Replacement Project
  - Boring B-1
  - Boring B-2
- Los Angeles Metro (2014), Geotechnical Data Report, Westside Subway Extension
  - AMEC, Boring G-121
  - AMEC, Boring M-108
  - AMEC, Boring M-109
  - AMEC, Boring E-114A
  - AMEC, Boring E-114B
  - AMEC, Boring S-105
  - AMEC, Boring S-116
  - AMEC, Boring S-117
- Law/Crandall, Inc. (1998), Report for Proposed Additions to Hancock Park
  - Boring B-1
  - Boring B-2
  - Boring B-3
  - Boring B-4
  - Boring B-5
  - Boring B-6
  - Boring B-7
  - Boring B-8
  - Boring B-9

APPENDIX B: PREVIOUS EXPLORATIONS BY OTHERS

- Law/Crandall, Inc. (1995), Report for Proposed Additions to Hancock Park
  - Boring B-1
  - Boring B-2
  - Boring B-3
  - Boring B-4
  - Boring B-5
  - Boring B-6
  - Boring B-7
  - Boring B-8
  - Boring B-9
- LeRoy Crandall and Associates (1982), Proposed Additions at 5905 Wilshire Boulevard
  - Boring B-1
  - Boring B-3
- LeRoy Crandall and Associates (1984), Completion of Exploration Program
  - Boring B-4

Date(s) Drilled	11/20/15	Logged By	ALC
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	7-1/2" bullet bit
Drill Rig Type	CME 75	Hammer Data	140 lbs, 30-inch drop
Sampling Method(s)	Bulk, SPT, MC		
Approximate Groundwater Depth and Date Measured	No groundwater encountered		
Coordinate System		Location (ft and/or °)	Latitude 34.06332 Longitude -118.35712

Boring B-15-2

Sheet 1 of 3

Job Number	60440464
Total Depth Drilled (ft)	87.5
Approximate Ground Surface Elevation (ft)	171.2

Elevation (ft)	Depth (ft)	Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
	0						AC	**4-inch thick Asphalt**							
170							BASE	**14-inch thick Base**							
							CH	**ALLUVIUM [Qal]** **Sandy Fat CLAY** medium stiff to stiff, greenish gray mottled with dark brown, moist, high plasticity, some fine to coarse SAND, bedded with 5-inch thin layer of Sandy Lean CLAY, dark brown, moist, fine-grained sand							
	5		1	7	2 3 4				28		54	56	36		
	10						SC	**Clayey SAND** dense, dark grayish brown to very dark brown, moist, low to medium plasticity							
160			2	43	16 19 24				20	81	40	46	19		DSCD, CORR, CON
	15						CL	**LAKEWOOD FORMATION [Qlw]** **Sandy Lean CLAY** stiff to very stiff, very dark brown, moist, some fine SAND, low to medium plasticity, with tar veins							
			3	12	2 4 8				19		65				Tar Content (6.1%)
	20						SM	**SAN PEDRO FORMATION [Qsp]** **Silty SAND** very dense, black, slightly moist, fine to medium, with tar, strong hydrocarbon odor							
150			4	100+	24 48 50/2"				13	98					TXCU
	25						SM	**Silty SAND with GRAVEL** very dense, black mottled with olive, slightly moist, little fine subangular GRAVEL, bedded with 2-inch thin layer of bluish gray SILT							
			5	100+	33 41 50/4"				4						Tar Content (11.4%)
	30														

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LOG OF BORING

LACMA Phase III Transformation Project
5905 Wilshire Blvd, Los Angeles, CA
FOR: Los Angeles County Museum of Art

AECOM

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
	30						SP	**Poorly graded SAND with GRAVEL** very dense, black, slightly moist, fine to medium, little coarse sand, little fine gravel, trace of coarse subrounded to rounded gravel, strong hydrocarbon odor							
140			6	100+	49 50/4"										
	35						SP-SM	**Poorly graded SAND with SILT and GRAVEL** very dense, black, slightly moist, fine to medium, little coarse, little fine subrounded gravel, strong hydrocarbon odor							
			7	58	14 24 34				2						Tar Content (17.5%)
	40						SP-SM	**Poorly graded SAND with SILT** very dense, black, moist, fine to medium grained, trace fine subangular gravel, trace shell fragments							
130			8	100+	32 50/5"				3	121					TXCU
	45														
			9	100+	32 50/4"			some coarse grained, few fine angular gravel							
	50														
120			10	100+	32 48 50/5"			fine SAND, trace coarse, trace fine angular gravel							
	55														
			11	36	12 15 21		CL	little shell fragments **Lean CLAY** hard, very dark grayish brown, moist, medium plasticity, few tar veins	21						Tar Content (14.9%)
	60														
110			12	100+	50/5"			dark brown, few fine sand	21	98					
	65														
			13	34	9 12			very dark grayish brown, light hydrocarbon odor							

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

LOG OF BORING

LACMA Phase III Transformation Project

AECOM

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
					22		CL	**Lean CLAY** *(continued)*							
	70														
-100			14	100+	20 50/5"			very dark grayish brown mottled with dark olive brown, some tar veins, strong hydrocarbon odor							
	75														
			15	45	10 19 26			very dark grayish brown, trace tar veins	20						Tar Content (10.6%)
	80														
-90			16	100+	21 50/5"			no tar veins	14	95					
	85														
			17	42	10 17 25			very dark brown, trace tar veins							
								Bottom of boring at 87.5 feet bgs. No groundwater was encountered during drilling. Boring backfilled with cement bentonite grout.							
	90														
-80															
	95														
	100														
-70															
	105														

LOG OF BORING

LACMA Phase III Transformation Project

AECOM

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Date(s) Drilled	11/2/15-11/3/15	Logged By	ALC
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	7-1/2" bullet bit
Drill Rig Type	CME 75 (Limited Access)	Hammer Data	140 lbs, 30-inch drop
Sampling Method(s)	Bulk, SPT, MC		
Approximate Groundwater Depth and Date Measured	Groundwater encountered approximately at 30' bgs.		
Coordinate System		Location (ft and/or °)	Latitude 34.06282 Longitude -118.35757

Boring B-15-3

Sheet 1 of 3

Job Number	60440464
Total Depth Drilled (ft)	88.5
Approximate Ground Surface Elevation (ft)	168.5

Elevation (ft)	Depth (ft)	Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
	0						CONC	**16-inch thick Concrete**							
							CL	**ARTIFICIAL FILL [af]** **Sandy Lean CLAY** very stiff to hard, black, moist, low to medium plasticity, very fine grained sand							
	5		BLK-1												
			1	53	33 29 24										EI (21)
160															
							CL	**LAKEWOOD FORMATION [Qlw]** **Sandy Lean CLAY** very stiff, very dark brown, medium plasticity, with little tar along fractures							
	10														
			2	19	4 9 10										
	15		BLK-2												
							SM	**SAN PEDRO FORMATION [Qsp]** **Silty SAND** dense, black, moist, fine- to medium grained	3	121					TXCU
150															
	20														
			4	32	11 13 19			fine- to medium-grained sand, increase in tar	2						Tar Content (14.1%)
	25		BLK-3												
							SP-SM	**Poorly graded SAND with SILT** very dense, black, moist, medium-grained sand, trace subrounded gravel	4	118					TXCU
140															
	30														

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LOG OF BORING

LACMA Phase III Transformation Project
5905 Wilshire Blvd, Los Angeles, CA
FOR: Los Angeles County Museum of Art

AECOM

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
	30						SM	**Silty SAND** very dense, balck, moist, with three 1-inch layers of fine subrounded to rounded gravel, trace of well lenses							
			6	45	15 17 28				5						Tar Content (14.6%)
	35		BLK-4												
							SM	**Silty SAND with GRAVEL** very dense, black, moist, fine to medium grained, little fine gravel, with tar, strong hydrocarbon odor							
			7	100+	29 49 50/3"				20	74					TXCU
130															
	40														Tar Content (17.7%)
							SP-SM	**Poorly graded SAND with SILT** very dense, black, moist, trace of shell fragments							
			8	42	15 19 23				4						Tar Content (16.8%)
	45		BLK-5												
							SM	**Silty SAND** black, moist, fine to medium grained, with pockets of clay, trace subrounded coarse gravel							
			9	100+	42 50/3"										
120															
	50														
			10	41	14 18 23			no clay, no gravel							
	55		BLK-6												
			11	100+	26 52/6"			little coarse grained sand	11	98					
110							CL	**Lean CLAY** hard, dark brown, moist, low to medium plasticity							
	60														
			12	35	9 15 20				20						Tar Content (15.9%)
	65		BLK-7												
			13	100+	20										

LOG OF BORING

LACMA Phase III Transformation Project

AECOM

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
					58/6"		CL	**Lean CLAY***(continued)*							
100	70														
			14	44	10 17 27			top 6-inches with spots of tar along fractures							Tar Content (12.7%)
	75		BLK-8												
			15	100+	30 50/4.5"			trace of tar along fractures	18	91					
90	80														
			16	40	10 16 24			tar along fractures	18						Tar Content (10.8%)
	85														
			17	100+	25 52/6"										
80	90							Bottom of boring at 88.5 feet bgs. Borehole was backfilled with cement bentonite grout to 59 feet bgs, and was converted to groundwater monitoring well.							
	95														
70	100														
	105														

LOG OF BORING

LACMA Phase III Transformation Project

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Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

Date(s) Drilled	10/15/15-10/16/15	Logged By	ALC
Drilling Method	Rotary Wash	Drill Bit Size/Type	3-7/8" tricone bit
Drill Rig Type	D20	Hammer Data	140 lbs, 30-inch drop
Sampling Method(s)	Bulk, SPT, MC		
Approximate Groundwater Depth and Date Measured	Not measured		
Coordinate System		Location (ft and/or °)	Latitude 34.06401 Longitude -118.35857

Boring B-15-4

Sheet 1 of 4

Job Number	60440464
Total Depth Drilled (ft)	121.5
Approximate Ground Surface Elevation (ft)	169.8

Elevation (ft)	Depth (ft)	Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
	0		Blk-1				AC	**6-inch thick ASPHALT**							
							BASE	**12-inch thick BASE**							
							CL	**ALLUVIUM [Qal]** **Lean CLAY** stiff, black, moist, medium plasticity, few coarse grained sand, with little calcification and organics							EI (64), R-Value
	5		1	7	1 3 4										
							CL	**LAKEWOOD FORMATION [Qlw]** **Sandy Lean CLAY** stiff, mottled black and olive, moist, very fine-grained sand, with silt, medium plasticity							
160	10		2	13	2 4 9				25	89					PP = 1.5 tsf DSCD Tar Content (3.8%)
							SC	**SAN PEDRO FORMATION [Qsp]** **Clayey SAND** dense, black with very dark grayish green mottles, moist, fine to medium grained, with tar, hydrocarbon odor							
	15		3	25	6 9 16										
150	20		4	50	23 23 27			very dark grayish green, medium- to coarse-grained sand, increase in tar	10	118					TXCU
	25		5	40	4 7 33			very dense							
140	30														

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LOG OF BORING

LACMA Phase III Transformation Project
5905 Wilshire Blvd, Los Angeles, CA
FOR: Los Angeles County Museum of Art

AECOM

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

Elevation (ft)	Depth (ft)	Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
	30		6	100+	23 50/4"		SC	**Clayey SAND***(continued)* black, little tar	13						Tar Content (16.2%)
	35		7	38	17 15 23			dense, medium grained, with tar, little coarse sand, hydrocarbon odor							
130	40		8	100+	37 50/4"			very dense	12	92					
	45		9	100+	39 50/4"			increase in sand							
120	50		10	100+	33 50/2"		SP	**Poorly graded SAND with GRAVEL** very dense, black, moist, medium-grained sand, some fine angular gravel, increase in tar	3						Tar Content (13.8%)
	55		11	100+	28 50/6"		SP-SM	**Poorly graded SAND with SILT** very dense, black, moist, fine to medium grained	9						Tar Content (17.9%)
110	60		12	100+	44 50/3"		SM	**Silty SAND** very dense, black, moist	19	85					
	65		13	70	29 27 43		CL	**Sandy Lean CLAY** hard, very dark grayish green, moist, medium plasticity, fine-grained sand with little coarse-grained sand, trace of fine angular gravel, with mottled white sand pockets							

LOG OF BORING

LACMA Phase III Transformation Project

AECOM

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
							CL								
100	70		14	62	16 23 39			very dark brown	28	80					PP > 4.5 tsf Tar Content (9.9%) DSCD
	75		15	52	8 19 33			with tar along fractures							
90	80		16	100+	16 35 50/4"			decrease in tar	15	85					PP > 4.5 tsf
	85		17	54	10 21 33										
							SP-SM	**Poorly graded SAND with SILT** very dense, black, moist, fine-grained sand, with strong hydrocarbon odor							
80	90		18	100+	23 50/5"										PP > 4.5 tsf
							CL	**FERNANDO FORMATION [Tf]** **Lean CLAY** very dark grayish brown, moist, medium plasticity, with little tar along fractures							
	95		19	43	11 19 24										
70	100		20	100+	38 48 50/5"			No recovery							
	105														

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

LOG OF BORING

LACMA Phase III Transformation Project

AECOM

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Blows per 6 inches	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	% Passing No. 200 Sieve	Liquid Limit (%)	Plasticity Index (%)	PID Reading (ppm)	OTHER TESTS AND REMARKS
	105		21	45	12 17 28		CL	**Lean CLAY***(continued)*							
							CL	**Sandy Lean CLAY** hard, black, moist, very fine-grained sand, heavy tar							
60	110		22	100+	21 50/6"										PP > 4.5 tsf
	115		23	58	12 24 34										
50	120		24	100+	44 50/2"			No recovery							
								Bottom of boring at 121.5 feet bgs. Boring was backfilled with cement bentonite grout to 32 feet bgs, and was reamed to 8-inch diameter between existing ground and 32 feet bgs by hollow stem auger to convert to groundwater monitoring well.							
	125														
40	130														
	135														
30	140														

LOG OF BORING

LACMA Phase III Transformation Project

AECOM

Report: DMG4; Project File: C:\USERS\DENNIS.NGUYEN\DESKTOP\EARLY SITE PREPARATION\BORING LOGS REV3.GPJ; Data Template:URS HSA LOGS 2010.GDT Printed: 7/30/19

Date(s) Drilled	10/15/03	Logged By	Joe Gratzer
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch O.D.
Drill Rig Type	B61	Hammer Data	140 lbs, 30-inch drop
Sampling Method(s)	SPT, Dames & Moore Type-U, Bulk		
Approximate Groundwater Depth and Date Measured	Perched groundwater at 18 feet below the existing ground surface		
Comments			

Boring B-8

Sheet 1 of 2

Job Number	29401607.00002
Total Depth Drilled (ft)	41.0
Approximate Ground Surface Elevation (ft)	165 feet MSL

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
	0		BK-1			CL	**FILL** Sandy CLAY dark brown, moist, fine Grades light brown			
160	5					SC	**ALLUVIUM** Clayey SAND mottled reddish-brown and brown, loose, moist, fine to medium, with trace hydrocarbon like materials			
	10	■	1	12				19		-200 (38) CON
						SC-CL	Interbedded layers of Clayey SAND and Sandy CLAY brown to black, medium dense to very stiff, moist, fine			
150	15	◪	2	21						
						CL	CLAY dark brown, hard, moist			
	20	■	3	70/1"				22	94	Trace oil odor
						SP	SAND dark brown to black, dense, moist, fine, sticky			
140	25	◪	4	28				6		Hydrocarbon odor and stain
	30	■	5	70/4"			Grades very dense and noticed oil deposits	11	104	
130	35	◪	6	56				5		
	40									

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LOG OF BORING

PROPOSED BROAD CONTEMPORARY ART MUSEUM
LOS ANGELES, CALIFORNIA

FOR: LAC MUSEUM OF ARTS

URS

Report: DMG4: Project File: G:\NESA\PROJECTS\MUSEUM\LACMA2\LACMA.GPJ: Data Template:DMLA.GDT Printed: 11/12/03

LOS ANGELES, CALIFORNIA
FOR: LAC MUSEUM OF ARTS

Boring B-8
Sheet 2 of 2

Elevation (ft)	Depth (ft)	SAMPLES Type	SAMPLES Number	SAMPLES Blows per foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
	40	■	7	70/8"			Grades very dense			
120	45									
	50									
110	55									
	60									
100	65									
	70									
90	75									
	80									
80	85									
	90									

Report: DMG4; Project File: G:\WESA\PROJECTS\MUSEUM\LACMA2\LACMA.GPJ; Data Template:DMLA.GDT Printed: 11/12/03

Date(s) Drilled	07/17/02	Logged By	Joe Gratzer
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch O.D.
Drill Rig Type	B61	Hammer Data	140 lbs, 30-inch drop
Sampling Method(s)	SPT, Dames & Moore Type-U, Bulk		
Approximate Groundwater Depth and Date Measured	Groundwater at 50 feet below the existing ground surface		
Comments	Groundwater was measured immediately after completion of the boring on the same day		

Boring B-1

Sheet 1 of 2

Job Number	59401607.00001
Total Depth Drilled (ft)	51.5
Approximate Ground Surface Elevation(ft)	170 feet MSL

Elevation (ft)	Depth (ft)	SAMPLES Type Number	Blows per foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
170	0	BK-1			SC	4-inch thick Asphaltic Concrete Pavement			
						FILL			
		1	29			Clayey SAND dark brown, stiff, moist, fine			CORR -200(48)
					CL	**ALLUVIUM**			
	5	2	17			Sandy to silty CLAY greenish-gray, soft to firm, moist, fine			
		3	33			Grades mottled greenish-gray and dark brown, stiff	26	94	DSCD
					CL	with more sand			CON
160	10	4	28			CLAY dark brown, very stiff, moist, with interlayered fine sand			Slight hydrocarbon odor
					SP	SAND dark gray, dense, moist, fine, with tar, sticky			Hydrocarbon odor
	15	5	64						
150	20	6	86/11"			Grades dark brown to black, very dense			
	25	7	75/5"			Grades black, with trace gravel			
140	30	8	50/5"			Grades with interlayered clay, sticky			
	35	9	50/5"			Grades wet, with less clay			
130	40								

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LOG OF BORING

PROPOSED REPLACEMENT MUSEUM PROJECT
LOS ANGELES, CALIFORNIA
FOR: LAC MUSEUM OF ARTS

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FIGURE 5

Report: DMG4; Project File: G:\NESA\PROJECTS\MUSEUM\LACMA.GPJ; Data Template:DMLA.GDT Printed: 9/5/02

LOS ANGELES, CALIFORNIA
FOR: LAC MUSEUM OF ARTS

Boring B-1
Sheet 2 of 2

Elevation (ft)	Depth (ft)	SAMPLES Type Number	SAMPLES Blows per foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
130	40	10	50/5"		SP	SAND black, very dense, moist, fine to medium, with tar, sticky			
	45	11	75/6"						
120	50	12	59			Grades fine to coarse			
	55								
110	60								
	65								
100	70								
	75								
90	80								
	85								
80	90								

Report: DMG4; Project File: G:\NESA\PROJECTS\MUSEUM\LACMA.GPJ; Data Template:DMLA.GDT Printed: 9/5/02

URS

FIGURE 5

Date(s) Drilled	07/24/02	Logged By	Jeff Pyska
Drilling Method	Hollow Stem Auger	Drill Bit Size/Type	8-inch O.D.
Drill Rig Type	B61	Hammer Data	140 lbs, 30-inch drop
Sampling Method(s)	SPT, Dames & Moore Type-U, Bulk		
Approximate Groundwater Depth and Date Measured	Groundwater at 22 feet below the existing ground surface		
Comments	Groundwater was measured immediately after completion of the boring on the same day		

Boring B-2

Sheet 1 of 2

Job Number	59401607.00001
Total Depth Drilled (ft)	86.0
Approximate Ground Surface Elevation(ft)	170 feet MSL

Elevation (ft)	Depth (ft)	SAMPLES Type	Number	Blows per foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
170	0	BK	1			SM	5-inch thick Asphaltic Concrete Pavement			
							FILL:			
						CL	Silty SAND brown, moist, fine to coarse, with fine to coarse gravel			CORR
						CL	CLAY dark gray and black, slightly moist, with roots and trace bricks, concrete pieces, and ceremic pieces			
	5		1	24				26	97	-200 (64) DSCD CON
							ALLUVIUM:			
							Sandy to silty CLAY olive-gray, soft to firm, moist, fine, with some black tar deposits			
			2	18			Grades olive-brown Grades white, chalky			
160	10		3	24			Grades bluish-gray, stiff Grades with tar deposits			Slight hydrocarbon odor
	15		4	33		SM/ML	Silty SAND and Sandy SILT dark brown and gray, dense, moist, fine, with tar deposits			Slight hydrocarbon odor
						SM	Silty SAND dark gray and black, dense, wet, fine, with more tar			
150	20		5	39			▽			
	25		6	38						
140	30		7	100/6"			Grades black, very dense, very sticky			
	35		8	50			Grades with trace fine gravel			
130	40									

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LOG OF BORING

PROPOSED REPLACEMENT MUSEUM PROJECT
LOS ANGELES, CALIFORNIA
FOR: LAC MUSEUM OF ARTS

URS

Report: DMG4; Project File: G:\NESA\PROJECTS\MUSEUM\LACMA.GPJ; Data Template:DMLA.GDT Printed: 9/5/02

LOS ANGELES, CALIFORNIA
FOR: LAC MUSEUM OF ARTS

Boring B-2
Sheet 2 of 2

Elevation (ft)	Depth (ft)	Samples Type	Samples Number	Blows per foot	Graphic Log	USCS	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	OTHER TESTS and REMARKS
130	40	■	9	100/7"		SM	Silty SAND dark black, very dense, wet, fine, with fine to coarse gravel and tar			
	45	◪	10	50/6"						
120	50	■	11	50/4"						
	55	◪	12	50/6"						
110	60	■	13	100/8"			Grades with trace olive-brown clay pockets			
	65	◪	14	50/4"						
100	70	■	15	50/5"						
						CL	CLAY dark olive-gray, hard, moist			
	75	◪	16	50/6"		SM	Silty SAND dark black, very dense, wet, fine, with fine to coarse gravel and tar, trace clay			
90	80	■	17	50/3"		CL	CLAY dark olive-gray, hard, moist, with tar			
	85	◪	18	53			Grades with some black sands			
80	90									

Report: DMG4; Project File: G:\NES\PROJECTS\MUSEUM\LACMA.GPJ; Data Template:DMLA.GDT Printed: 9/5/02

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FIGURE 6

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
C & L Drilling / Mayhew 1000		G-121
DRILLING METHOD	**BOREHOLE LOCATION**	
Rotary Wash	Sta 516+36, Rt 14 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
5/16/2011 - 5/18/2011	4-7/8 inches	177 feet

GROUND-WATER READINGS
Drilling mud bailed. Ground-water level measured at 14 feet below the ground surface.

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS		
											4-inch thick Asphalt Concrete over 7-inch Portland Cement Concrete
175										CL	**FILL [Af]** SANDY LEAN CLAY - moist, brown, fine to medium sand, occasional fine gravel
	5		0.0	24.5	90	Push		⊠			More gravel
170											
	10	23	0.0	29.0	-		3	☒		GP	**LAKEWOOD FORMATION [Qlw]** ***TAR IMPACTED SOILS*** POORLY GRADED GRAVEL with SAND - medium dense, wet, olive brown to bluish gray with light brown mottled, fine to coarse sand, fine gravel (up to 3/4 inch in size), saturated with tar (16%)
165										SP-SM	▼ **SAN PEDRO FORMATION [Qsp]** POORLY GRADED SAND with SILT - medium dense, moist, black to dark brown, fine-grained
	15		0.0	18.0	77	18		⊠			
160										GM	SILTY GRAVEL with SAND - wet, dark reddish brown, fine to coarse sand
	20	24	0.0	13.6	-		59	☒		ML	SANDY SILT - very stiff, moist, black, fine sand, some medium to coarse, occasional gravel (up to 3/8 inch in size), saturated with tar (17%)
155											
	25		0.0	29.3	84	7		⊠			Becomes medium stiff, wet, dark brown
150										SP-SM	POORLY GRADED SAND with SILT - dense, moist, black, fine to medium-grained, moderately infused tar
	30	33	0.0	12.1	-			☒			
145											
	35		0.0	6.9	101	10	7	⊠			Becomes loose, fine-grained, trace medium, saturated with tar (17%)
140											
	40										

Field Tech: HTY
Prepared/Date: YN 6/20/2011
Checked/Date: LT/RM 9/21/2011

(CONTINUED ON FOLLOWING FIGURE)

MTA Westside Subway Extension
Los Angeles, California

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LOG OF BORING

Project No.: 4953-10-1561 Figure: A-1.3.4a

LA METRO PB L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\ROTARY WASH GINT LOGS\4953-10-1561_(120-139).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
C & L Drilling / Mayhew 1000		**G-121 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Rotary Wash	Sta 516+36, Rt 14 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
5/16/2011 - 5/18/2011	4-7/8 inches	177 feet

GROUND-WATER READINGS
Drilling mud bailed. Ground-water level measured at 14 feet below the ground surface.

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS		
135									PMT		
	45	56	0.0	8.0	-			☒		GC	CLAYEY GRAVEL with SAND - very dense, moist, black, fine to coarse gravel, moderately infused tar
130										SP	POORLY GRADED SAND - dense, moist, dark brown, fine to medium-grained, saturated with tar
	50	41	0.0	10.2	-			☒			
125										GW	WELL GRADED GRAVEL with SAND - wet, black, fine to coarse gravel, saturated with tar
	55			-	-	13		⊠		SP	POORLY GRADED SAND - medium dense, moist, black, fine to medium-grained, trace gravel, saturated with tar
120										GP	POORLY GRADED GRAVEL with SAND - medium dense, wet, black, fine to coarse, fine sand
	60			-	-	15		⊠			
115											
	65	16	0.0	3.4	-		2	☒			Becomes fine (up to 3/4 inch in size), coarse sand, some fine to coarse sand, slightly infused tar (2%)
110											
	70	23	0.0	6.8	-		8	☒		SW-SM	WELL GRADED SAND with SILT and GRAVEL - medium dense, moist, fine to coarse-grained, fine gravel (up to 1/2 inch in size), slightly infused tar (4%)
105											
	75	53	0.0	25.5	-			☒		ML	SILT with SAND - hard, moist, dark brown, fine sand, moderately infused tar
100											
	80										

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: HTY
Prepared/Date: YN 6/20/2011
Checked/Date: LT/RM 9/21/2011

MTA Westside Subway Extension
Los Angeles, California

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LOG OF BORING

Project No.: 4953-10-1561 Figure: A-1.3.4b

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G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\ROTARY WASH GINT LOGS\4953-10-1561_(120-139).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
C & L Drilling / Mayhew 1000		**G-121 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Rotary Wash	Sta 516+36, Rt 14 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
5/16/2011 - 5/18/2011	4-7/8 inches	177 feet

GROUND-WATER READINGS
Drilling mud bailed. Ground-water level measured at 14 feet below the ground surface.

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS		
			0.0	21.5	91	18	77	⊠			Becomes very stiff, some medium sand, saturated with tar (19%)
95											
	85	45	0.0	22.2	-			☒			Becomes hard
90											Trace gravel
	90		0.0	21.4	-	21		⊠		GM	SILTY GRAVEL with SAND - medium dense, wet, dark brown, fine gravel (up to 3/4 inch in size), fine to coarse sand, moderately infused tar, (sample disturbed)
85											
	95	54	0.0	23.5	-		33	☒			Becomes dense, moderately infused tar (11%)
80											
	100		0.0	14.0	-	17		⊠			**FERNANDO FORMATION [Tf]** SILTSTONE - very stiff to hard (Sample disturbed)
75											
	105	62	0.0	24.8	-			☒			More sand
70											
	110		0.0	22.3	88	21		⊠			Less sand
65											END OF BORING AT 111 FEET
	115										
60											
	120										

NOTES:
Hand augered upper 5 feet to avoid damage to utilities.
Borehole grouted with cement-bentonite slurry and patched with asphalt concrete.
"N" Value Standard Penetration Test: Number of blows required to drive the SPT sampler 18 inches using a 140 pound automatic hammer falling 30 inches

*Number of blows required to drive the Crandall Sampler 12 inches using a 380 pound hammer falling 18 inches

**Photo Ionization Detector used for OVA readings
Downhole Test: PMT = Pressuremeter

Field Tech: HTY
Prepared/Date: YN 6/20/2011
Checked/Date: LT/RM 9/21/2011

MTA Westside Subway Extension
Los Angeles, California

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LOG OF BORING

Project No.: 4953-10-1561 Figure: A-1.3.4c

LA METRO PB L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\ROTARY WASH GINT LOGS\4953-10-1561_(120-139).GPJ 9/17/12

BORING M-108

DATE DRILLED: 5/2/2011 - 5/3/2011
EQUIPMENT USED: CME-75, Martini Drilling
HOLE DIAMETER (in.): 11.3
ELEVATION: 189 **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	PID	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
								0.58 feet of Asphalt
								0.75 feet of Base, fine to coarse grained
								0.58 feet of Base, coarse gravel up to 2" in diameter, some cobble sized
							CL/ ML	CLAYEY SILT (cl-ml) - (GLEY1 2.5/N) black, stiff, moist, no odor
185	5							Becomes more clayey
180	10				10	X		CLAYEY SILT (cl-ml) - (GLEY1, 3/2) very dark greenish gray, stiff, moist, weak sulfuric odor
175								Becomes (2.5/1) black, strong hydrocarbon odor
	15				22	X		CLAYEY SILT (cl-ml) - (5Y, 2.5/1) black, very stiff, moist, some asphaltic sand, strong odor
							SM	TAR IMPACTED SOILS, SAN PEDRO FORMATION (Qsp) SILTY SAND (sm) - (5Y, 2.5/1) black, damp, fine grained, asphaltic tar sand
170	20				20	X	ML	SILT (ml) - (GLEY1, 3/N) very dark gray, very stiff, moist, strong odor
165	25				15	X		CLAYEY SILT (cl-ml) - (5Y, 2.5/1) black, stiff, moist, strong odor
160	30				9	X		Becomes (GLEY1, 3/N) very dark greenish gray
							SP	
155	35				22	X		FINE TAR SAND (sp) - (5Y, 2.5/1) black, medium dense, damp to wet, some silt, fine grained, strong odor
150	40							

Field Geol: PK & RM
Prepared By: KP

(CONTINUED ON FOLLOWING FIGURE)

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

B2SOIL_AMEC_PID G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.5 SUBSURFACE GAS\3.2 ALL FIELD NOTES\LIBRARY MACTEC OCT11.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.5 SUBSURFACE GAS\3.2 ALL FIELD NOTES\4953-10-1561_NEUHAUS_OCT 21 2011.GPJ 5/21/13

BORING M-108 (Continued)

DATE DRILLED: 5/2/2011 - 5/3/2011
EQUIPMENT USED: CME-75, Martini Drilling
HOLE DIAMETER (in.): 11.3
ELEVATION: 189 **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	PID	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
					44	X		Same as above
145								
	45				45	X		Same as above
							ML	
140								
	50				45	X		PETROLIFEROUS SILT (ml) - (5Y, 2.5/1) black, hard, damp, strong odor
135								
	55				69	X		Same as above
130								
	60				61	X		Same as above
							ML	
125								
	65				31	X		CLAYEY SILT (cl-ml) - (5Y, 2.5/1) black, hard, moist, some tar, strong odor
							ML	
120								
	70				50/2"	X		SILTSTONE (ml) - dark greenish gray, strongly indurated
115								
	75							
110								
	80							

NOTES:
Total depth = 71 feet bgs, refusal
Groundwater measured at 35 feet bgs
Hand augered to 5 feet bgs
The boring was initialy drilled with 8-inch O.D. augers and later reamed with 11.25-inch O.D. augers.
Soil samples collected using an SPT sampler.
After reaming, a nested well was installed. See well construction diagram for details.

Field Geol: PK & RM
Prepared By: KP

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

B2SOIL_AMEC_PID G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.5 SUBSURFACE GAS\3.2 ALL FIELD NOTES\LIBRARY MACTEC OCT11.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.5 SUBSURFACE GAS\3.2 ALL FIELD NOTES\4953-10-1561_NEUHAUS_OCT 21 2011.GPJ 5/21/13

BORING M-109

DATE DRILLED: 5/10/2011 - 5/12/2011
EQUIPMENT USED: CME-75, Martini Drilling
HOLE DIAMETER (in.): 8.5
ELEVATION: 185 **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	PID	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
								0.58 feet of Asphalt 0.75 feet of Base
							SM	
180	5							
175	10			0.0	21	X		SILTY SAND (sm) - (10YR, 3/3) dark brown, medium grained, tar odor
							ML	
170	15			0.0	17	X		CLAYEY PETROLIFEROUS SILT (ml) - (10YR, 2/2) very dark brown, slightly moist, hydrocarbon odor Driller notes perched water zone at approximately 15 feet due to wet sample rod.
165	20			0.0	23	X		TAR IMPACTED SOILS Same as above, oil stringers
160	25			0.0	20	X		Same as above
							SP	
155	30			0.0	50/6"	X		TAR SAND (sp) - (10YR, 2/2) very dark brown, sticky, saturated with tar, fine to medium grained
150	35			0.0	29	X		Same as above
	40							

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Field Geol: RM
Prepared By: KP

(CONTINUED ON FOLLOWING FIGURE)

BORING M-109 (Continued)

DATE DRILLED: 5/10/2011 - 5/12/2011
EQUIPMENT USED: CME-75, Martini Drilling
HOLE DIAMETER (in.): 8.5
ELEVATION: 185 **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	PID	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
				0.0	34			Same as above
140	45			0.0	41			Same as above
135	50			0.0	68			Same as above Broken shale fragments present at 51 feet
130	55			0.0	87/10.5"			Same as above, no shale fragments present
							SM/ ML	
125	60			0.0	64			PETROLIFEROUS SILT (ml) to SILTY SAND (sm) - (10YR, 2/2) very dark brown, fine grained sand
							SP	TAR SAND (sp) - (10YR, 2/2) very dark brown, fine to medium grained
120	65			0.0	55		ML	PETROLIFEROUS SILT (ml) - (10YR, 2/2) very dark brown, slightly moist, wood chip/fragment at 66 feet
115	70			0.0	27			Same as above, tar pods present
							CL	
110	75			0.0	38			SILTY PETROLIFEROUS CLAY (cl) - (10YR, 2/2) very dark brown, slightly moist, tar pods present, shale fragments at bottom of sampler
	80							

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Field Geol: RM
Prepared By: KP

(CONTINUED ON FOLLOWING FIGURE)

BORING M-109 (Continued)

DATE DRILLED: 5/10/2011 - 5/12/2011
EQUIPMENT USED: CME-75, Martini Drilling
HOLE DIAMETER (in.): 8.5
ELEVATION: 185 **

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	PID	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
				0.0	31	X	ML	Same as above, no shale fragments present
100	85			0.0	32	X		CLAYEY PETROLIFEROUS SILT (ml) - (10YR, 2/2) very dark brown, slightly moist, tar pods present
95	90			0.0	27	X		Same as above
90	95			0.0	29	X		Same as above, no tar pods present (not noted)
85	100			0.0	25	X		Same as above
80	105							
75	110							
70	115							
	120							

NOTES:
Total depth = 101.5 feet bgs
Groundwater apparently not encountered
Hand augered to 6 feet bgs
Backfilled with hydrated bentonite chips
Groundwater sample taken using disposable PVC casing and bailer.

Field Geol: RM
Prepared By: KP

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

B2SOIL_AMEC_PID G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.5 SUBSURFACE GAS\3.2 ALL FIELD NOTES\LIBRARY MACTEC OCT11.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.5 SUBSURFACE GAS\3.2 ALL FIELD NOTES\4953-10-1561_NEUHAUS_OCT 21 2011.GPJ 5/21/13

BORING E-114A

DATE DRILLED: July 17, 2012
EQUIPMENT USED: CME 75
HOLE DIAMETER (in.): 8
ELEVATION: 169**

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	PID (ppm)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
							6-inch asphalt concrete over 5-inch concrete
						CL-ML	**LAKEWOOD FORMATION (Qlw)** SILTY CLAY - moist, black, some fine sand
165	5						
160	10					ML	SANDY SILT - moist, greenish gray (GLEY1 2.5/1)
155	15						
						SM	***TAR IMPACTED SOILS*** SILTY SAND - moist, black (GLEY1 2.5/N), fine grained, some clay, trace tar
150	20		3.0				
145	25						No clay
						SP-SM	**SAN PEDRO FORMATION (Qsp)** POORLY GRADED SAND with SILT - moist, black (GLEY1 2.5/N), fine grained
140	30		51.3				
135	35						
						SM	SILTY SAND - moist, black (GLEY1 2.5/N), fine-grained, trace medium to coarse
130	40						

Field Tech: PK
Prepared By: PWK
Checked By: PK

(CONTINUED ON FOLLOWING FIGURE)

BORING E-114A (Continued)

DATE DRILLED: July 17, 2012
EQUIPMENT USED: CME 75
HOLE DIAMETER (in.): 8
ELEVATION: 169**

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	PID (ppm)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
			32.6				
125	45		29.4				
120	50		17.5			SP-SM	POORLY GRADED SAND with SILT - moist, black (GLEY1 2.5/N), fine-grained
115	55		27.0			SM	SILTY SAND - moist, black (GLEY1 2.5/N), fine grained
110	60		82.1				
105	65		43.1			ML	SILT
100	70		162.0				Less tar
95	75		132.0			SW	WELL GRADED SAND - moist, black (GLEY1 2.5/N), fine to coarse-grained
						ML	SILT - moist, black, fine sand
90	80		140.0				Becomes dark olive gray, some clay, trace tar END OF BORING AT 80 FEET

NOTES:

Hand augered upper 5 feet to avoid damage to utilities. Borehole grouted with cement-bentonite slurry and patched with asphalt concrete.

Groundwater was not measured at the time of drilling.

**Elevations based on topographic map provided by PB on 8/22/2012

Field Tech: PK
Prepared By: PWK
Checked By: PK

MTA Westside Subway Extension
Los Angeles, California

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LOG OF BORING
Project: 4953-11-1421 Figure: A-3.2.1b

METRO ENVIRO "N" L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT DIRECTORIES\4953\2011\111421 WESTSIDE - APE\3.2 ALL FIELD NOTES\GINT LOG\ENVIRONMENTAL\4953-11-1421 ENVIRONMENTAL.GPJ 10/12/12

BORING E-114B

DATE DRILLED: July 17, 2012
EQUIPMENT USED: CME 75
HOLE DIAMETER (in.): 8
ELEVATION: 167**

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	PID (ppm)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
							6-inch asphalt concrete over 5-inch concrete
165						CL-ML	**FILL [Af]** SILTY CLAY - moist, mottled
	5						
160							
	10					ML	**LAKEWOOD FORMATION** SANDY SILT - very stiff, moist, dark yellowish brown
155		18					
	15					CL	LEAN CLAY - moist, dark olive gray, trace silt
150						SM	SILTY SAND - very dense, moist, dark greenish gray (GLEY1 4/1), some clay, hydrogen-sulfide oder, with tar stains
	20	79	11.2				Becomes greenish black
145							
	25						
140							
	30	69	63.7			SP-SM	***TAR IMPACTED SOILS*** **SAN PEDRO FORMATION (Qsp)** POORLY GRADED SAND with SILT - very dense, moist, black (GLEY1 2.5/N), fine grained, trace clay
135							
	35						
130							
	40						

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK
Prepared By: PWK
Checked By: PK

MTA Westside Subway Extension
Los Angeles, California

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LOG OF BORING
Project: 4953-11-1421 Figure: A-3.2.2a

METRO ENVIRO "N" L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT DIRECTORIES\4953\2011\111421 WESTSIDE - APE\3.2 ALL FIELD NOTES\GINT LOG\ENVIRONMENTAL\4953-11-1421 ENVIRONMENTAL.GPJ 10/12/12

BORING E-114B (Continued)

DATE DRILLED: July 17, 2012
EQUIPMENT USED: CME 75
HOLE DIAMETER (in.): 8
ELEVATION: 167**

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	PID (ppm)	BLOW COUNT* (blows/ft)	SAMPLE LOC.		
		82	64.4				
125							
	45	50/4"	72.6				
120						SP-SM	POORLY GRADED SAND with SILT - very dense, moist, black (GLEY1 2.5/N), fine-grained
	50	50/4"	30.5				
115							
	55	71	84.9				
110						SP	POORLY GRADED SAND - very dense, moist, black (GLEY1 2.5/N), medium to coarse-grained
	60	85	169.0				
105						ML	SILT - very stiff to hard, moist, black (GLEY1 2.5/N), trace fine sand, some clay
	65	30	57.2				
100							Less tar
	70	48	56.9				
95						SM/SP	SILTY SAND to POORLY GRADED SAND - very dense, moist, black (GLEY1 2.5/N), fine to medium-grained
	75	64	56.2				
90							
		28	130.0			ML	SILT - very stiff, moist, black (GLEY1 2.5/N), some clay
	80						

Field Tech: PK
Prepared By: PWK
Checked By: PK

(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING
Project: 4953-11-1421 Figure: A-3.2.2b

METRO ENVIRO "N" L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT DIRECTORIES\4953\2011\111421 WESTSIDE - APE\3.2 ALL FIELD NOTES\GINT LOG\ENVIRONMENTAL\4953-11-1421 ENVIRONMENTAL.GPJ 10/12/12

BORING E-114B (Continued)

DATE DRILLED: July 17, 2012
EQUIPMENT USED: CME 75
HOLE DIAMETER (in.): 8
ELEVATION: 167**

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	PID (ppm)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
85					
	85				
80					
	90				
75					
	95				
70					
	100				
65					
	105				
60					
	110				
55					
	115				
50					
	120				

END OF BORING AT 80 FEET

NOTES:

Hand augered upper 5 feet to avoid damage to utilities. Borehole grouted with cement-bentonite slurry and patched with asphalt concrete.

Groundwater was not measured at the time of drilling.

"N" Value Standard Penetration Test: Number of blows required to drive the SPT sampler 18 inches using a 140 pound automatic hammer falling 30 inches

**Elevations based on topographic map provided by PB on 8/22/2012

Field Tech: PK
Prepared By: PWK
Checked By: PK

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE; REFER TO PLOT PLAN FOR MORE ACCURATE LOCATION INFORMATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

METRO ENVIRO "N" L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT DIRECTORIES\4953\2011\111421 WESTSIDE - APE\3.2 ALL FIELD NOTES\GINT LOG\ENVIRONMENTAL\4953-11-1421 ENVIRONMENTAL.GPJ 10/12/12

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LOG OF BORING
Project: 4953-11-1421 Figure: A-3.2.2c

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic Drilling Rig		**S-105**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	508+89, Lt 20 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/7/11, 4/8/11 and 4/11/11	6 inches	188 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.		
									6-inch thick Asphalt Concrete over 8-inch thick Portland Cement Concrete and no Base Coarse
								CL-ML	**FILL [Af]** SILTY CLAY - moist, grayish brown, trace rock
185									**QUATERNARY OLDER ALLUVIUM [Qalo]**
								CH	FAT CLAY - moist, dark gray black
								CL-ML	SILTY CLAY - moist, light gray to black, trace sand, gravel
	5							CL	LEAN CLAY - moist, light grayish green, medium plastic
									Becomes light grayish green, trace sand, medium plastic
									No Core Recovery from 7.0 to 7.5 feet
								SP	***TAR IMPACTED SOILS*** POORLY GRADED SAND - dense, moist, light gray (5Y 7/2) to greenish gray, coarse grained, tar around clean core
180									**SAN PEDRO FORMATION [Qsp]**
								CL	SANDY LEAN CLAY - medium stiff to stiff, moist, black, fine to medium sand, slightly to moderate tar
	10							SM	SILTY SAND - dense to very dense, moist, black, fine to medium grained, some calcium carbonate nodules
		1	1	85	8.9	13			Moderately infused tar (11%)
									No Core Recovery from 12.0 to 13.0 feet
175								ML	SANDY SILT - stiff, moist, black, fine sand, saturated with tar
					4.6				
	15							SM	SILTY SAND - dense to very dense, moist, black, fine to medium grained, occasional gravel (up to 3/8 inch in size), moderately infused tar
									Layer of Silt, hard, moist, black, some clay
					6.7	15			Moderately infused tar (12%)
170									
								ML	SILT - stiff, moist, black, trace fine grained, moderately infused tar
	20								

(CONTINUED ON FOLLOWING FIGURE)

Logged By: RH
Prepared/Date: DR/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

MTA Westside Subway Extension
Los Angeles, California

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LOG OF BORING

Project No.: 4953-10-0161 Figure: B-1.1.2a

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (101-110).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic Drilling Rig		**S-105 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	508+89, Lt 20 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/7/11, 4/8/11 and 4/11/11	6 inches	188 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
		2	2	95	17.8		ML	Becomes hard, dark brown to black, trace coarse gravel, moderately infused tar
165								
	25							
					23.4	46	SM	SILTY SAND - medium dense, moist, black to dark brown, fine to medium grained, saturated with tar (20%)
					23.4			
160								
	30							Moderately infused tar
		3	3	95	3.4	9	SP-SM	POORLY GRADED SAND with SILT - dense, moist, black, fine to medium grained, trace coarse, trace fine gravel (up to 3/4 inch in size), moderately infused tar (14%)
155								
	35							Trace coarse gravel (up to 3 inches in size)
								More silt
								No Core Recovery from 37.0 to 38.0 feet
150					2.0			
								More gravel, fine to coarse (up to 3 inches in size)
	40							

Logged By: RH
Prepared/Date: DR/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

(CONTINUED ON FOLLOWING FIGURE)

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Los Angeles, California

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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.2b

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (101-110).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic Drilling Rig		**S-105 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	508+89, Lt 20 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/7/11, 4/8/11 and 4/11/11	6 inches	188 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.		
		4	4	95	2.1			SP-SM	Less gravel Becomes saturated with tar (17%)
145	45				2.4				
140	50		5	100	2.1			SM	SILTY SAND - medium dense to dense, moist, black, fine to medium grained, saturated with tar
			6	90	2.3	8		SP-SM	POORLY GRADED SAND with SILT and GRAVEL - medium dense to dense, moist, black, fine to medium grained, some coarse, fine gravel (up to 3/4 inch in size), moderately infused tar (11%)
135								SM	SILTY SAND - medium dense to dense, moist, black, fine to coarse grained, moderately infused tar
	55				1.5			SW	WELL GRADED SAND - dense, moist, black, fine to coarse grained, fine to coarse gravel, moderately infused tar
								SM	SILTY SAND - dense, moist, black, fine to coarse grained, moderately infused tar
					2.5	10		SW-SM	WELL GRADED SAND with SILT - dense, moist, black, fine to coarse grained, trace fine gravel (up to 3/8 inch in size), moderately infused tar (12%)
130			7	100				ML	SANDY SILT - medium stiff, moist, black, fine sand, moderately infused tar
	60								

Logged By: RH
Prepared/Date: DR/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

(CONTINUED ON FOLLOWING FIGURE)

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Los Angeles, California

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LOG OF BORING

Project No.: 4953-10-0161 Figure: B-1.1.2c

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (101-110).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic Drilling Rig		**S-105 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	508+89, Lt 20 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/7/11, 4/8/11 and 4/11/11	6 inches	188 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
					5.8		ML	
125					5.0			**FERNANDO FORMATION [Tf]** SANDY SILTSTONE - hard, moist, very dark grayish brown, fine to medium sand, slightly to moderately infused tar
	65		8	100	21.5			
120			9	100				Becomes very dark brown to black
	70		10	100	20.0			
115			11	100	19.8	67		About 6-inch thick layer of Sandy Siltstone, saturated with tar (19%)
	75				17.6			
110			12	100	19.1			
	80							

(CONTINUED ON FOLLOWING FIGURE)

Logged By: RH
Prepared/Date: DR/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.2d

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (101-110).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic Drilling Rig		**S-105 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	508+89, Lt 20 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/7/11, 4/8/11 and 4/11/11	6 inches	188 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
								About 6-inch thick layer of Sandy Siltstone, black, saturated with tar, less sand
					20.1	75		Saturated with tar (18%)
105			13	100				
	85				19.5			
100			14	100				
	90				22.4			
95			15	100				
	95				21.0	79		Less sand, saturated with tar (19%)
90			16	100				
	100							

(CONTINUED ON FOLLOWING FIGURE)

Logged By: RH
Prepared/Date: DR/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.2e

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (101-110).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic Drilling Rig		**S-105 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	508+89, Lt 20 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/7/11, 4/8/11 and 4/11/11	6 inches	188 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
					19.0			
85								
	105							
80								
	110							
75								
	115							
70								
	120							

END OF BORING AT 102 FEET

NOTES:

Consistency description on this log is based on pocket penetrometer test results and/or visual observation of soil samples.

Hand augered upper 7 feet to avoid damage to utilities.

Borehole grouted with cement-bentonite slurry and patched with asphalt concrete.

Logged By: RH
Prepared/Date: DR/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

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LOG OF BORING

Project No.: 4953-10-0131 Figure: B-1.1.2f

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (101-110).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-116**
DRILLING METHOD Sonic Coring	**BOREHOLE LOCATION** 512+50, Lt 17 feet	
DATES DRILLED 4/11/11 and 4/12/11	**HOLE DIAMETER** 6 inches	**GROUND EL.** 185 feet
GROUND-WATER READINGS Ground-water level not measured.		

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.		
									12-inch thick Asphalt Concrete over 4 inch thick Portland Cement Concrete, 2-inch thick Base Course
								CL-ML	**FILL [Af]** SILTY CLAY - moist, blueish-gray, trace black gravel, trace orange brick fragments (less than 4 inches in size)
180	5								
									No Core Recovery from 7 to 9 feet
								CL	**QUATERNARY OLDER ALLUVIUM [Qalo]** ***TAR IMPACTED SOILS*** LEAN CLAY with SAND - stiff to medium stiff, wet, dark greenish gray (5G 3/1) with black to dark brown tar spots, fine to coarse sand, trace fine to coarse gravel (up to 1 inch in size), some calcium carbonate nodules, tar content increases with depth, some Sandy Clay seams
175	10	1	1	80					
								ML	**SAN PEDRO FORMATION [Qsp]** SANDY SILT - hard, moist, dark brown to black, trace fine gravel, slightly to moderately infused tar
								ML	SILT with SAND - hard, moist, dark brown to black, varying shades of dark greenish gray, fine to medium sand, slightly to moderately infused tar
170	15								
					13.1				Layers of Sandy Silt
									No Core Recovery between 17 to 18 feet
					3.3			SP-SM	POORLY GRADED SAND with SILT - dense, moist, fine to medium-grained, saturated with tar (19%)
	20								

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Logged By: RS/RH
Prepared/Date: YN/WL 9/29/2011
Checked/Date: LT/PE 9/29/2011

(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-1361 Figure B-1.1.3a

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (111-120).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-116 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	512+50, Lt 17 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/11/11 and 4/12/11	6 inches	185 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.		
		2	2	90	15.2			ML	SANDY SILT - hard, moist, dark brown to black, shades of dark greenish gray, moist, slightly to moderately infused tar
									Less sand, some clay
160	25								
									No Core Recovery between 27 to 29 feet
					5.3			SP-SM	POORLY GRADED SAND with SILT - medium dense to dense, moist, dark greenish gray, fine to medium grained, saturated with tar
155	30	3	3	80					
150	35				3.1				
									No Core Recovery between 37 to 38 feet
					2.3	6			Becomes fine grained, some medium and coarse, saturated with tar (17%)
	40								

Logged By: RS/RH
Prepared/Date: YN/WL 9/29/2011
Checked/Date: LT/PE 9/29/2011

(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-0101 Figure: B-1.1.3b

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (111-120).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-116 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	512+50, Lt 17 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/11/11 and 4/12/11	6 inches	185 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.		
		4	4	90				SP-SM	Trace fine slate gravel
					3.9				Trace fine to coarse gravel (up to 1½ inches in size), subrounded
140	45								
					5.2	16			Layer of Silty Sand, fine grained, occasional medium and coarse, trace gravel (up to 3/8 inch in size), saturated with tar (18%)
		5	5	100					Trace fine gravel
135	50								
					4.1				Saturated with tar (17%)
					5.9				More fine to coarse gravel (up to 2½ inches in size), fine to coarse sand
		6	6	100					No gravel, fine to medium sand
130	55								
					1.5				Fine to coarse sand, trace fine to coarse gravel
					1.1	13		SM	SILTY SAND with GRAVEL - moist, dark gray, fine to medium grained, moderately infused tar (12%)
		7	7	100				ML	SANDY SILT - wet, black, fine sand, saturated with tar
	60								

Logged By: RS/RH
Prepared/Date: YN/WL 9/29/2011
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(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-0101 Figure B-1.1.3c

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (111-120).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-116 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	512+50, Lt 17 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/11/11 and 4/12/11	6 inches	185 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
					4.8		ML	
					5.1			Trace fine gravel, saturated with tar (18%)
		8	8	100	4.4			
120	65							Some shell fragments
					15.0			**FERNANDO FORMATION [Tf]** SILTSTONE with Sand - hard, moist, dark brown, fine sand, fine to medum sands, slightly to moderately infused tar
		9	9	100				
115	70				19.1			
		10	10	100				
110	75				12.1	78		Saturated with tar (20%)
								No Core Recovery from 77.7 to 78.2 feet
		11	11	95	19.6			Thin layer of Silty Sand, moist, black, medium to coarse grained, saturated with tar
	80							

(CONTINUED ON FOLLOWING FIGURE)

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Prepared/Date: YN/WL 9/29/2011
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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.3d

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
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DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-116 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	512+50, Lt 17 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/11/11 and 4/12/11	6 inches	185 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
					16.1	77		Saturated with tar (23%)
		12	12	96				No Core Recovery from 84 to 87 feet
100	85				13.8			
								No Core Recovery from 87.3 to 87.6 feet
								No Core Recovery from 88.5 to 88.6 feet
		13	13	94	9.9			
95	90				15.4	80		Saturated with tar (18%)
					20.5			
		14	14	96				
90	95							No Core Recovery from 95.1 to 95.3 feet
					25.5			
					11.3			Saturated with tar (17%)
		15	15	100				
	100							

Logged By: RS/RH
Prepared/Date: YN/WL 9/29/2011
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(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.3e

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
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DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-116 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	512+50, Lt 17 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/11/11 and 4/12/11	6 inches	185 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
					17.1	76		Saturated with tar (19%)
								No Core Recovery from 102.2 to 102.4 feet and from 102.5 to 102.7 feet
		16	16	92	20.8			
80	105							
					19.2	77		Saturated with tar (19%)
75	110							
70	115							
	120							

END OF BORING AT 107 FEET

NOTES:

Consistency description on this log is based on pocket penetrometer test results and/or visual observation of soil samples.

Hand augered upper 7 feet to avoid damage to utilities. Borehole grouted with cement-bentonite slurry and patched with asphalt concrete.

This boring was originally planned as a rotary wash boring G-120, converted to sonic core boring.

Logged By: RS/RH
Prepared/Date: YN/WL 9/29/2011
Checked/Date: LT/PE 9/29/2011

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LOG OF BORING
Project No.: 4953-10-0361 Figure: B-1.1.3f

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G:\PROJECT_DIRECTORIES\4953\2010\101561_METRO_WESTSIDE_EXTENSION\6.2.3.1 GEOTECHNICAL DESIGN\3.2 ALL FIELD NOTES\GINT LOG\SONIC CORE GINT LOGS\101561 SONIC (111-120).GPJ 9/17/12

DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-117**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	521+50, Lt 18 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/14/11 - 4/18/11	6 inches	167 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.		
									12 inch thick Asphalt Concrete over 6 inch thick Base Course
165								ML	**LAKEWOOD FORMATION [Qlw]** SILT - moist, dark brown, some clay
								CL-ML	SILTY CLAY - moist, dark brown
	5								
								SC	***TAR IMPACTED SOILS*** CLAYEY SAND - fine grained, tar content
160									
									Becomes brown
	10								
					20.8			ML	SANDY SILT - medium stiff, moist, olive (5Y 5/4), fine to medium sand, non-plastic
155									
					22.3				
		1	1	96					Pockets of tar sand, slightly infused tar, black, dark greenish gray (5G 4/1)
	15								Moderately infused tar (13%), black (5Y 25/1)
					14.5				
150									No Core Recovery between 17 to 18 feet
					6.8			SM	SILTY SAND - dense, moist, black, fine grained, some medium to coarse, moderately infused tar
	20								

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(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.4a

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
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DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-117 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	521+50, Lt 18 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/14/11 - 4/18/11	6 inches	167 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
		2	2	90			SM	Becomes very dark brown, slightly infused tar
145					5.8	13		Fine grained, occasional medium to coarse, non-plastic, saturated with tar (16%)
	25							
140								**SAN PEDRO FORMATION [Qsp]** No Core Recovery from 27 to 29 feet
							SP-SM	POORLY GRADED SAND with SILT- dense, moist, black, fine to medium grained, trace medium to fine gravel, saturated with tar
	30				2.4			
		3	3	90				
135								More gravel (up to 1 inch in size)
	35							Becomes medium to coarse grained
					2.8	11		Fine grained, some medium, trace coarse, occasional gravel (up to 3/8 inch in size), saturated with tar (16%)
130					2.0			
		4	4	80	5.4	15	SM	SILTY SAND - medium dense, moist, black, fine grained, occasional medium to coarse, fine subrounded slate gravel (up to 3/8 inch in size), alternating layers of Clayey Sand, saturated with tar (18%)
	40							

(CONTINUED ON FOLLOWING FIGURE)

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Prepared/Date: YN/WL 9/28/2011
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LOG OF BORING

Project No.: 4953-10-0101 Figure: B-1.1.4b

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
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DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-117 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	521+50, Lt 18 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/14/11 - 4/18/11	6 inches	167 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
							SM	
125								
		5	5	100	4.8			Gravel (up to 1 inch in size)
	45							
120					3.1	11	SP-SM	POORLY GRADED SAND with SILT - dense, moist, black, fine to coarse grained, moderately infused tar (14%) Becomes medium to coarse grained
		6	6	100				Becomes fine to coarse grained, trace silt
	50				2.2			
115								Becomes coarse grained
		7	7	100	2.9			
	55				2.1	9		Fine to coarse grained, trace gravel (up to ½ inch in size), moderately infused tar (13%)
110							SM	SILTY SAND - dense, moist, black, fine to medium grained, trace fine gravel, saturated with tar, small shell fragments, some clay
		8	8	100				
	60							

Logged By: RS/RH
Prepared/Date: YN/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-0101 Figure: B-1.1.4c

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
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DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-117 (Continued)**
DRILLING METHOD Sonic Coring	**BOREHOLE LOCATION** 521+50, Lt 18 feet	
DATES DRILLED 4/14/11 - 4/18/11	**HOLE DIAMETER** 6 inches	**GROUND EL.** 167 feet
GROUND-WATER READINGS Ground-water level not measured.		

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.		
								SM	
105					5.4	41			Fine grained, occasional medium; no gravel, non-plastic, saturated with tar (18%)
		9	9	100	4.1			SP	POORLY GRADED SAND - dense, moist, black, medium to coarse grained, trace silt, trace fine to medium gravel, saturated with tar, shell fragments, moderately infused tar (10%)
	65								
								ML	SILT - hard, moist, black and dark brown(10YR 2/2), trace fine sand, moderately infused tar, large shell fragments Becomes very dark brown (10YR 2/2)
100					10.2	94			Saturated with tar (20%)
		10	10	100					
	70								Less sand
95					14.0				
		11	11	100					
	75								Some shell fragments
90					11.7				**FERNANDO FORMATION [Tf]** SILTSTONE - hard, moist, very dark brown (10YR 2/2), trace fine sand
		12	12	100					
	80								

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

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(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-1561 Figure: B-1.1.4d

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
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DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-117 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	521+50, Lt 18 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/14/11 - 4/18/11	6 inches	167 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
85	85	13	13	100	12.0			
80	90	14	14	100	25.7			Layer of Sandstone, fine to medium sand, occasional gravel (up to 3/8 inch in size)
75	95	15	15	100	25.6	96		Trace fine sand, saturated with tar (18%)
70	100	16	16	100	21.0			

(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.4e

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DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
Boart Longyear / 600T Trusonic drill rig		**S-117 (Continued)**
DRILLING METHOD	**BOREHOLE LOCATION**	
Sonic Coring	521+50, Lt 18 feet	
DATES DRILLED	**HOLE DIAMETER**	**GROUND EL.**
4/14/11 - 4/18/11	6 inches	167 feet
GROUND-WATER READINGS		
Ground-water level not measured.		

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	BOX #	RUN #	% RECOVERY	MOISTURE CONTENT (% of dry wt.)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	
65								END OF BORING AT 102 FEET
	105							
60								
	110							
55								
	115							
50								
	120							

NOTES:

Consistency description on this log is based on pocket penetrometer test results and/or visual observation of soil samples.

Hand augered upper 11 feet to avoid damage to utilities.

Borehole grouted with cement-bentonite slurry and patched with asphalt concrete.

This boring was originally planned as a rotary wash boring G-122, converted to sonic core boring.

Logged By: RS/RH
Prepared/Date: YN/WL 9/28/2011
Checked/Date: LT/PE 9/28/2011

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LOG OF BORING

Project No.: 4953-10-0361 Figure: B-1.1.4f

METRO SOIL CORE MC 200 L:\70131 GEOTECH\GINTW\LIBRARY AMEC JUNE2012.GLB
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JOB 70131.70548.0002 DATE 1/21/1998 F.T. GMC DR. O.E. MS CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 1

DATE DRILLED: January 7, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 173**

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		
						CL	FILL - SILTY CLAY - some Sand, some pieces of brick, light brown
		18.4	84	25	■		SURFACE OF NATURAL SOIL SANDY CLAY light brown
170						CL	
		20.3	93	17	■	CL	SILTY CLAY - light grey
	5						
		24.3	95	58	■		

END OF BORING AT 6'.

NOTE: Water not encountered.

* Number of blows required to drive the Crandall sampler 12 inches using a 140 pound hammer falling 30 inches.

** Elevations refer to datum of reference survey; see Figure 1

LOG OF BORING

LAW/CRANDALL

FIGURE 2.1

JOB 70131.70548.0002 DATE 1/21/1998 F.T. GMC DR. O.E. MS CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 2

DATE DRILLED: January 7, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 174

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		
						CL	SILTY CLAY - some caliche, light grey
		26.9	89	18	■		
						CL	SANDY CLAY - white to light grey
170		21.2	106	11	■		END OF BORING AT 4'.
							NOTE: Water not encountered.

LOG OF BORING

LAW/CRANDALL

FIGURE 2.2

BORING 3

DATE DRILLED: January 7, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 174

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of cry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.			
		26.4	94	15	■		CL	SILTY CLAY - dark brown to black
170		30.8	81	17	■		CL	SANDY CLAY - white to light grey
	5	21.7	105	18	■			END OF BORING AT 6'.
								NOTE: Water not encountered.

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.
It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131.70548.0002 DATE 1/21/1998 F.T. GMC DR. O.E. MS CHKD MS

LOG OF BORING

LAW/CRANDALL

FIGURE 2.3

JOB 70131.70548.0002 DATE 1/21/1998 F.T. GMC DR. O.E. MS CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.
It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 4

DATE DRILLED: January 7, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 173

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.			
							CL	SILTY CLAY - dark brown to black
		18.5	95	47	■			
170		23.3	85	22	■			
	5	21.4	106	16	■			
								END OF BORING AT 6'.
								NOTE: Water not encountered.

LOG OF BORING

LAW/CRANDALL

FIGURE 2.4

BORING 5

DATE DRILLED: January 7, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 171

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of cry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.			
170		25.0	93	20	■		CL	SILTY CLAY - dark grey to black
		31.9	88	23	■			Some Sand
	5							
165		34.8	88	20	■			Light grey END OF BORING AT 6'.

NOTE: Water seepage encountered at a depth of 4'.

JOB 70131.70548.0002 DATE 1/21/1998 F.T. GMC DR. O.E. MS CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.
It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL

FIGURE 2.5

JOB 70131.70548.0002 DATE 1/21/1998 F.T. GMC DR. O.E. MS CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.
It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 6

DATE DRILLED: January 7, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 169

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		
						CL	FILL - SILTY CLAY - mottled brown and grey
							SURFACE OF NATURAL SOIL
		24.2	99	20	■	CL	SILTY CLAY - some rootlets, dark grey to black
165		21.9	88	28	■		
	5	29.5	67	30	■		Layer of Asphaltic Sand
							END OF BORING AT 6'.
							NOTE: Water not encountered.

LOG OF BORING

LAW/CRANDALL

FIGURE 2.6

JOB 70131.70548.0002 DATE 1/21/1998 FT. GMC DR. O.E. MS CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 7

DATE DRILLED: January 7, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 178

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		
		21.1	98	12	■	CL	FILL - SILTY CLAY - mottled brown and grey
							↓ SURFACE OF NATURAL SOIL
175						CL	SILTY CLAY - some caliche, grey
		26.1	94	12	■		
						ML	CLAYEY SILT - dark grey to black
	5	33.4	76	7	■		
							END OF BORING AT 6'.

NOTE: Slight water seepage encountered at a depth of 6'.

LOG OF BORING

LAW/CRANDALL

FIGURE 2.7

BORING 8

DATE DRILLED: January 6, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 182

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		
						CL	FILL - SANDY CLAY - mottled grey and dark grey
180		25.1	101	21	■		SURFACE OF NATURAL SOIL
						CL	SANDY CLAY dark greysih brown
		25.0	87	42	■		
	5						
		17.7	109	14	■		Some roots, light grey
175							
		22.0	74	16 for 9"	■		Layer of Asphaltic Sand
							END OF BORING AT 8'.
							NOTE: Water not encountered.

DB 70131.70548.0002 DATE 1/21/1998 F.T. GMC DR. O.E. MS CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL

FIGURE 2.8

JB 70131.70548.0002 DATE 1/21/1998 FT. GMC DR. O.E. MS CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 9

DATE DRILLED: January 6, 1998
EQUIPMENT USED: 8" - Diameter Hollow Stem Auger
ELEVATION: 184

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		
		29.9	77	38	■	CL	FILL - SANDY CLAY - some pieces of decayed vegetation and roots, dark brown to black
							↓ SURFACE OF NATURAL SOIL
						CL	SANDY CLAY - dark brown
180		27.6	64	16	■		
	5						Large Cobble
		28.2	82	16	■	CL	SILTY CLAY - some organics, black
175		38.6	79	29	■		END OF BORING AT 9'.

NOTE: Water seepage encountered at a depth of 5½'.

LOG OF BORING

LAW/CRANDALL

FIGURE 2.9

JB 2661.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 1

DATE DRILLED: January 26, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
	39.7	75	16	■	CL	FILL - SILTY CLAY - few rootlets, dark grey to black
						SURFACE OF NATURAL SOIL
	25.7	95	25	■	CL	SILTY CLAY - some asphalt, light grey and black
5	24.8	95	40	■		END OF BORING AT 6'

* Number of blows required to drive the Crandall sampler 12 inches using a 50 pound hammer falling 12 inches.

NOTE: Slight water seepage encountered at a depth of 1'. No caving.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.1

BORING 2

DATE DRILLED: January 23, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
					CL	FILL - SILTY CLAY - dark grey to black
	53.2	60	35	■		
	54.2	60	70 for 10"	■		SURFACE OF NATURAL SOIL SANDY CLAY - some asphalt, light grey
5					CL	
	26.6	89	70	■		
	19.8	111	35	■		
10	21.4	107	40	■		END OF BORING AT 10'

NOTE: Slight water seepage encountered at a depth of 4'. Water level measured at a depth of 4½' after completion of drilling. No caving.

JB 2661.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.2

JB 2001.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 3

DATE DRILLED: January 23, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
	39.0	81	16	■	CL	FILL - SILTY CLAY - few rootlets and brick fragments, dark grey to black
					CL	SURFACE OF NATURAL SOIL SANDY CLAY - light grey
5	22.1	103	35	■		
	23.7	101	45	■	SC	CLAYEY SAND - fine to medium, light brownish grey
10	25.3	94	60	■		END OF BORING AT 10'

NOTE: Water seepage encountered at a depth of 7'. Water level measured at a depth of 7' 10 minutes after completion of drilling. No caving.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.3

JOB 2661.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 4

DATE DRILLED: January 23, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
	40.3	72	30	■	CL	FILL - SILTY CLAY - some Sand, some rootlets and pieces of brick, dark grey to black
	34.8	78	45	■		
5						SURFACE OF NATURAL SOIL
	22.6	101	35	■	CL	SILTY CLAY - some Sand, light grey
	19.0	106	35	■	CL	SANDY CLAY - some asphalt, light grey and black
10	27.0	80	60	■		END OF BORING AT 10'

NOTE: Water not encountered. No caving.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.4

JOB 2661.40813.0001 DATE 2/14/1995 F.T. AR DR. O.E. JB CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 5

DATE DRILLED: January 24, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
	40.2	60	15	■	CL	FILL - SANDY CLAY - some asphalt, light brown and grey Cemented layer
	29.6	76	50	■		Some pieces of cemented asphalt SURFACE OF NATURAL SOIL
5					SP	ASPHALTIC SAND - fine to coarse, brownish grey
	13.2	112	100	■		
	11.4	116	100	■		END OF BORING AT 8'

NOTE: Water seepage encountered on top of concrete slab at a depth of 1'. Water level measured at a depth of 4'after completion of drilling. No caving.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.5

BORING 6

DATE DRILLED: January 27, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
						4½" Asphaltic Paving - 5" Sand and Gravel Base
					ML	FILL - CLAYEY SILT - some Sand, dark grey
	31.2	90	15	■		SURFACE OF NATURAL SOIL
					CL	SILTY CLAY - light brownish grey
	31.3	92	40	■		
5					SC	CLAYEY SAND - fine to medium, light brownish grey
	19.1	104	45	■		END OF BORING AT 6'

NOTE: Water not encountered. No caving.

JB 2661.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.6

BORING 7

DATE DRILLED: January 24, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
	24.1	66	25	■	ML	FILL - CLAYEY SILT - some Sand, dark grey to black
	32.3	79	30	■	CL	FILL - SANDY CLAY - some asphalt, dark brownish grey
5	22.6	97	30	■		SURFACE OF NATURAL SOIL
	24.0	94	34	■	SP	ASPHALTIC SAND - fine to medium, dark grey to black
10	6.3	115	70	■		END OF BORING AT 11'

NOTE: Slight water seepage encountered at depths of 1'and 2'. Water level measured at a depth of 6' after completion of drilling. No caving.

JB 2661.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD MS

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.7

BORING 8

DATE DRILLED: January 26, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
					CL	FILL - SILTY CLAY - some Sand, brown and dark grey
	26.9	88	12	■		Piece of concrete
	36.3	78	9	■		(ENCOUNTERED AN OBSTRUCTION AT A DEPTH OF 3'; MOVED BORING 1' TO THE WEST)
5						SURFACE OF NATURAL SOIL
	32.0	83	30	■	CL	SILTY CLAY - greyish brown
	33.2	71	50	■	SP	ASPHALTIC SAND - fine to medium, black
10	15.0	106	100	■		END OF BORING AT 11'

NOTE: Water level measured at a depth of 2' 5 minutes after completion of drilling. No caving.

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JB 2661.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.8

JB 2661.40813.0001 DATE 2/3/1995 F.T. AR DR. O.E. JB CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 9

DATE DRILLED: January 27, 1995
EQUIPMENT USED: 6" - Diameter Hand Auger

DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	BLOW COUNT* (blows/ft.)	SAMPLE TYPE		
	15.0	81	25	■	CL	FILL - SILTY CLAY and SANDY CLAY - some rootlets, dark brownish grey
	19.2	100	20	■		SURFACE OF NATURAL SOIL SANDY CLAY - light yellowish grey
5	38.8	85	30	■	CL	
	43.9	79	30	■		
10	45.0	70	60	■	ML	CLAYEY SILT - some asphalt, dark grey
						END OF BORING AT 11'

NOTE: Slight water seepage encountered at a depth of 2½'. No caving.

LOG OF BORING

LAW/CRANDALL, INC.

FIGURE A-1.9

BORING I

DATE DRILLED: December 14, 1981

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION: 170.0***

ELEVATION (ft)	DEPTH (ft)	VOLATILE LIQUIDS * (% of dry wt)	DRY DENSITY ** (lbs/cu ft)	% of ENERGY (% of ...)	SAMPLE		
						CL	4" Concrete Slab FILL - SANDY CLAY - streaks of asphalt, some gravel, black and grey Pieces of tile
		27.8	88	2	■		
165	5						
		28.0	88	1	■		
						ML	SANDY SILT - some Clay, dark greyish-brown
		28.0	93	<1	■		
160	10				∇		
						CL	SANDY CLAY - dark greyish-brown
		28.0	85	2	■		
155	15	26.3	95	2	■	CL	SILTY CLAY - grey and brown
							Streaks of asphalt
		16.3	102	6	■		Petroleum odor
						SP	SAND - IMPREGNATED WITH ASPHALT - fine, black
150	20						
		6.1	118	8	■		
145	25						
		6.6	114	13	■		
140	30						
		7.3	110	14	■		
135	35						Some gravel
		4.6	118	14	■		
130	40						

* Liquids that are evaporated at 105°C.

** Within the asphaltic soils, the dry densities include the weight of soil and non-volatile asphalt.

*** Elevations refer to datum of reference drawing; see Plate 1 for location and elevation of bench mark.

∇ Indicates surface of firm soils.

(CONTINUED ON FOLLOWING PLATE)

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

JOB A-81396 DATE 12/18/81 DR JOHN C.E. MD W.P. fm CHKD

Form 123

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

BORING I (CONTINUED)

DATE DRILLED: December 14, 1981

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	VOLATILE LIQUIDS (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
		5.1	114	13	■	About 20% gravel
125	45	7.5	115	14	■	Less gravel
120	50					About 10% gravel
115	55	6.2	110	13	■	Coarse Sand, about 20% gravel
110	60	13.3	104	10	■	
						SILTSTONE - weathered, streaks of asphalt, dark greyish-brown
105	65	27.1	79	11	■	
100	70	26.0	87	11	■	
95	75	14.5	98	26	■	
90	80					

NOTE: Drilling mud used in drilling process. Mud removed to 25' at completion of drilling. Water level measured at about 6½' 3 days after completion of drilling.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

JOB A-81396 DATE 12/18/81 DR JOHN I.E. MD W.P. fm CHKD

Form 124

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

BORING 3

DATE DRILLED December 15, 1981

EQUIPMENT USED 5"-Diameter Rotary Wash

ELEVATION 165.7

ELEVATION (ft)	DEPTH (ft)	VOLATILE LIQUIDS (% of dry wt.)	DRY DENSITY (lbs/cu ft)	DRIVE ENERGY (ft kips/ft)	SAMPLE LOC		
165						CL	FILL - SANDY CLAY - about 20% gravel, some cobbles, brown and grey
		11.4	115	5			Pieces of concrete and brick
160	5						
		33.3	86	<1		ML	CLAYEY SILT - some Sand, black
					▽		
155	10					CL	SILTY CLAY - streaks of asphalt, grey
		20.9	105	8		ML	SANDY SILT - some Clay, streaks of asphalt, dark brown
150	15	10.3	116	6		SP	SAND - IMPREGNATED WITH ASPHALT - fine, dark grey to black
							Some fines
145	20	8.6	125	14			
140	25	7.7	119	13			
135	30	5.4	118	19			Some gravel
	35	5.9	119	11			

NOTE: Drilling mud used in drilling process. Mud removed to 20' at completion of drilling. Water level measured at 6½' 2 days after completion of drilling.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES

Form 123 JOB A-81396 DATE 12/18/81 DR JOHN D.E. RID W.P. CHKD

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE A-1.3

BORING 4

DATE DRILLED: April 12, 1984

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 168.3***

ELEVATION (ft.)	DEPTH (ft.)	VOLATILE LIQUIDS (% of dry wt.) *	DRY DENSITY (lbs./cu.ft.) **	DRIVE ENERGY (ft.-kips/ft.) **	SAMPLE LOC.		
165		30.9	100	< 1	■	CL	FILL - SILTY CLAY - few gravel, roots, dark grey
	5						Exposed sewer pipe (moved boring 5' south)
		19.6	108	2	■	CL	SILTY CLAY (POSSIBLY FILL) - dark grey
160		16.8	99	10	■ ▽		
	10					ML	SANDY SILT - streaks of asphalt, dark grey
		19.1	103	3	■	CL	SILTY CLAY - streaks of asphalt, dark grey
155							
	15	17.2	99	7	■		Some fine Sand
150		7.0	116	11	■	SP	SAND - IMPREGNATED WITH ASPHALT - fine, black
	20	6.5	119	11	■		
145							
	25	7.3	116	14	■		
140							Some gravel
	30	6.5	124	19	■		
135							
	35	4.2	116	19	■		
130							
	40						

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at 4' 12 days after removal of mud.

* Liquids that are evaporated at 105°C.

** Within the asphaltic soils, the dry densities include the weight of soil and non-volatile asphalt.

*** Elevations refer to datum of reference drawing; see Plate 1 for location and elevation of bench mark.

▽ Indicates surface of firm soils.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Form 123 JOB A-81396-B DATE 4/18/84 DR. JOHN E. D. W.P. K CHKD TM

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

IMPORTANT INFORMATION

Important Information

About Your Geology and Soils Discipline Report

IMPORTANT INFORMATION

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors that were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining

IMPORTANT INFORMATION

your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims

IMPORTANT INFORMATION

being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland

APPENDIX F

Paleontological Resources Technical Report

Paleontological Resources Technical Report La Brea Tar Pits Master Plan, Los Angeles, California

JANUARY 2023

PREPARED FOR

Los Angeles County Museum of Natural History Foundation

LEAD AGENCY

County of Los Angeles

PREPARED BY

SWCA Environmental Consultants

PALEONTOLOGICAL RESOURCES TECHNICAL REPORT
LA BREA TAR PITS MASTER PLAN
LOS ANGELES, CALIFORNIA

Prepared for:

Los Angeles County Museum of Natural History Foundation
On behalf of County of Los Angeles Museum of Natural History
900 Exposition Boulevard
Los Angeles, California 90007
Attn: Dawn McDivitt, Chief Deputy Director

Lead Agency: County of Los Angeles

Prepared by:

Mathew Carson, M.S., Lead Paleontologist
Kristina Akesson, B.S., Assistant Staff Paleontologist
Russell Shapiro, Ph.D., Principal Paleontologist

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

SWCA Project No. 63953

January 2023

EXECUTIVE SUMMARY

Purpose and Scope: The Los Angeles County Museum of Natural History Foundation (Foundation) retained SWCA Environmental Consultants (SWCA) to prepare a Paleontological Resources Technical Report in support of the proposed La Brea Tar Pits Master Plan (proposed project) in the City of Los Angeles, California. The La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities are owned by the County of Los Angeles (County) but are managed by the non-profit Foundation. The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the Natural History Museums of Los Angeles County, including the La Brea Tar Pits and Page Museum. The overall Master Plan consists of nine principal project components: 1) Page Museum renovations, 2) Wilshire Gateway entry plaza and Lake Pit, 3) enhanced Central Green, 4) revamped Pit 91, 5) new museum building, 6) new public promenade, 7) new pedestrian path, 8) 6th Street entry gateway, and 9) support building. SWCA has prepared this technical report to summarize the results of a paleontological existing conditions assessment that includes a review of asphalt pit and fossil locality data from multiple sources, published scientific literature, online fossil locality database results, previous paleontological resources assessments, and museum records search results from the County Museum of Natural History (Museum of Natural History); regional and local geologic maps; and subsurface geotechnical/borehole data. This technical report also includes an impacts assessment for the potential project and proposes avoidance and minimization measures to reduce potential impacts to less-than-significant levels, pursuant to the requirements of the California Environmental Quality Act (CEQA).

Date of Investigation: In summer 2022, SWCA reviewed scientific literature; online fossil locality databases; geologic and paleontological information from previous paleontological resources assessments and environmental documents; and fossil taxonomic data provided by the Page Museum. These data were supplemented by a museum records search from the Museum of Natural History that was received on February 5, 2022. SWCA also conducted site visits to verify the data with the Page Museum curators, collections managers, and preparators in September and October 2022.

Summary of Findings: The La Brea Tar Pits represents a world-renowned fossil site that has yielded millions of significant late Pleistocene to middle Holocene fossils, with recovered taxa characteristic of the "Rancholabrean" North American Land Mammal Age stage. A review of the existing conditions at the site indicates that the entirety of Hancock Park contains a veneer of artificial fill overlying older alluvium that is subsequently underlain by the San Pedro Sand and Fernando Formation at greater depths. Although considered scientifically less valuable or scientifically nonsignificant in most circumstances (Society of Vertebrate Paleontology 2010), fossils from artificial fill and reworked sediments originating from within Hancock Park may still provide scientifically important information due to the heightened paleontological importance and level of fossil preservation of this world-renown fossil site. Therefore, Recent artificial fill and reworked sediments originating from Hancock Park have a high potential to produce significant paleontological resources. Additionally, asphalt deposits seeping from the underlying geologic units to the surface through the artificial fill may contain fossils, albeit to lesser degrees than the underlying older alluvium. The thickness of fill and disturbed sediments likely varies across the site but may extend as deep as 8 feet below ground surface in some areas, or as shallow as 3 feet below ground surface in others. Generally, late Pleistocene older alluvium, early Pleistocene San Pedro Sand, and early Pleistocene to Pliocene Fernando Formation have high paleontological potential throughout their extents within the Los Angeles Basin. Crosscutting the site's stratigraphy, asphalt pools, seeps, and chimneys have yielded a substantial proportion of the fossils recovered from Hancock Park. Most asphalt or asphalt-saturated alluvial sediments that have yielded Rancholabrean fossils are from 13 to 20 feet below ground surface, but possibly range from near the surface to approximately 40 feet below ground surface. It is critical to recognize that the age of the fossils is related to when the asphalt reached the surface, not the age of the enclosing geological formation. This has proved a challenge to researchers as established principles of

superposition do not apply at Rancho La Brea. Therefore, significant paleontological resources may be impacted by construction or implementation of the project regardless of depth since ground-disturbing activities associated with the construction of the project have the potential to impact asphalt seeps containing aggregates of fossils.

Conclusions and Recommendations: Any fossils encountered during ground-disturbing activities could be at risk for damage or destruction from such activities, which could constitute a potentially significant impact under CEQA, depending on the nature of the fossil encountered. The implementation of appropriate feasible mitigation measures prior to and during ground-disturbing activities will ensure that fossils, if encountered, are assessed for significance and, if significant, salvaged to the extent feasible for laboratory analysis and (eventual) curation within the Page Museum (or their designee). These actions will reduce impacts to paleontological resources to less-than-significant levels, pursuant to CEQA.

Avoidance and minimization measures include: 1) retaining a Qualified Professional Paleontologist (Project Paleontologist) who meets the standards defined by the Society of Vertebrate Paleontology; and 2) development of a Paleontological Resources Management Plan (PRMP) that includes (but is not limited to) communication and coordination protocols, monitoring procedures, fossil salvage and processing procedures, and final reporting requirements. The PRMP shall require that full-time paleontological monitoring shall occur during all ground-disturbing activities (regardless of depth), including the inspection of artificial fill and reworked sediments to check for the presence of asphaltum and fossilized remains previously not collected. The Project Paleontologist may recommend changes in the implementation of the PRMP in consultation with the County of Los Angeles (County) and the Page Museum curators. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations, including but not limited to the paleontological screening of tar sands prior to disposal or treatment. Paleontological monitoring shall include inspection of exposed sedimentary units during active excavations, grading, tar sand removal, and any other ground-disturbing activity that has the potential to impact sediments capable of preserving significant fossils. The Page Museum curators (or their representatives) and the paleontological monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant or likely significant, professionally and efficiently recover the fossil specimens and collect associated data. Data collection procedures may require the support of construction contractors to carefully and efficiently collect field data and extract the fossils to allow construction to continue. Grading and earthwork contractors shall follow the guidance of the Page Museum staff or Project Paleontologist regarding the collection and/or extraction of paleontological resources. The monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be directly retained by the Page Museum for later analysis, laboratory preparation, and eventual curation if deemed significant or important.

Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing paleontological monitoring shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Page Museum and the County within 90 days after construction is completed.

Disposition of Data: This report will remain on file at the Page Museum, the County, and SWCA's Pasadena office.

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1 INTRODUCTION

1.1 Project Purpose and Scope

The 13-acre La Brea Tar Pits project site is located within the eastern and northwestern portions of the 23-acre Hancock Park (Assessor's Parcel Number [APN] 5508-016-902). The La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County of Los Angeles but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the County of Los Angeles Museum of Natural History (Museum of Natural History), including the La Brea Tar Pits and the Page Museum. The County of Los Angeles (County) is the Lead Agency under the California Environmental Quality Act (CEQA); the Museum of Natural History is a County departmental unit.

The Foundation retained SWCA Environmental Consultants (SWCA) to prepare a Paleontological Resources Technical Report in support of the proposed La Brea Tar Pits Master Plan (proposed project) in the City of Los Angeles, California. The Foundation proposes a redevelopment, or "reimagining," of the La Brea Tar Pits site, including the Page Museum and portions of the surrounding Hancock Park. The Foundation proposes a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex, including renovations to the Page Museum. The project site is located at 5801 Wilshire Boulevard in Los Angeles, California. Hancock Park was established on the site in the early twentieth century. The western boundary of the project site is approximately 0.05 miles to the eastern entrance of the Los Angeles County Museum of Art (LACMA).

The project site encompasses the La Brea Tar Pits, whose facilities include the 1977 Page Museum; 1952 Observation Pit; various excavation sites (including the Lake Pit) and features, primarily with temporary construction serving as support facilities; a concession and public restroom building; a multipurpose lawn and recreational areas; hardscaping/landscaping features throughout the park; and a surface parking lot.

This study was conducted to address potentially significant adverse direct and indirect impacts to paleontological resources to facilitate compliance with the CEQA, California Public Resources Code (PRC) 5097.5, and local regulations.

1.2 Key Personnel

The lead author and investigator for this study was Lead Paleontologist, Mathew Carson, M.S. Assistant Staff Paleontologist Kristina Akesson, B.S., contributed to researching and writing portions of the report. Principal Paleontologist, Russell Shapiro, Ph.D., provided oversight and quality assurance/quality control (QA/QC). Mr. Carson and Dr. Shapiro are Qualified Professional Paleontologists (Project Paleontologists) who meet or exceed the professional standards defined by the SVP (2010) (see Appendix A). Additional input was provided by SWCA Senior Archaeologist, Chris Millington, M.A., Registered Professional Archaeologist (RPA). John Dietler, Ph.D., RPA, served as the Principal-in-Charge of the project, and Bobbette Biddulph served as Project Manager. Figures were generated by SWCA Geographic Information System (GIS) Specialists Marty Kooistra, M.A., RPA, and Matthew DeFreese, M.A. Copies of the report are on file with the County, the Foundation, and SWCA's Pasadena office.

2 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The La Brea Tar Pits property (project site) is located at 5801 Wilshire Boulevard within the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902) (Figures 1 and 2). The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to the LACMA. The project site is located approximately 5.5 miles west from downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and the LACMA to the west (an approximately 250-foot-long frontage). The area is known as the Miracle Mile neighborhood of the city of Los Angeles. This location is plotted in Sections 20 and 21, Township 1 South, Range 14 West, as depicted on the U.S. Geological Survey (USGS) Hollywood, California, 7.5-minute topographic quadrangle (Figure 1, Figure 2, and Figure 3).

2.2 Existing Conditions and Surrounding Land Uses

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as the La Brea Tar Pits, which includes the Page Museum (see Figure 2). The entirety of Hancock Park is enclosed within an 8- to 10-foot-high metal fence, which serves to secure the site by providing full closure of Hancock Park when the La Brea Tar Pits, Page Museum, and LACMA are closed in the evenings.

The Page Museum is approximately 63,200 square feet and is located on the eastern portion of the project site. The project site contains multiple active fossil quarries, commonly called "tar pits." The active tar pits (Pits 3, 4, 9, 13, 61, 67, and 91) are located within the northwestern portion of the project site, along with the Observation Pit on the western boundary of the project site. Project 23[1] and Pit 91 are active fossil recovery and excavation sites also located in the northwestern portion of the project site. The Lake Pit is a former commercial asphalt quarry and is the largest excavation on the grounds of Hancock Park; the Lake Pit is located in the southeastern portion of the project site.

The project site includes an approximately 28,000-square-foot multipurpose grass lawn, known as the Central Green, located to the west of the Page Museum. Parking for the La Brea Tar Pits is located in the northeast corner of the project site, at the corner of South Curson Avenue and West 6th Street (see Figure 2). Vehicles enter and depart the lot from both directions on South Curson Avenue.

The project site is surrounded by a variety of commercial uses, museums, residential buildings, and schools. The project site is bounded by the Park La Brea Pool and multi-family residential uses to the north across West 6th Street, commercial and residential uses to the east across South Curson Avenue, the Craft Contemporary Museum and other museum and commercial uses south across Wilshire Boulevard, and museum and commercial uses to the west.

[1] During construction on the LACMA parking garage in 2006, 16 new paleontological deposits were discovered, including an almost-complete skeleton of an adult mammoth. Given the size of the discoveries, 23 large wooden boxes were built around the various deposits, allowing many of the discoveries to remain intact. "Project 23" has now become the short-hand descriptor for the location and activities related to the excavation of deposits within the 23 large wooden boxes that is now occurring in a portion of the La Brea site.

Figure 1. Project site vicinity.

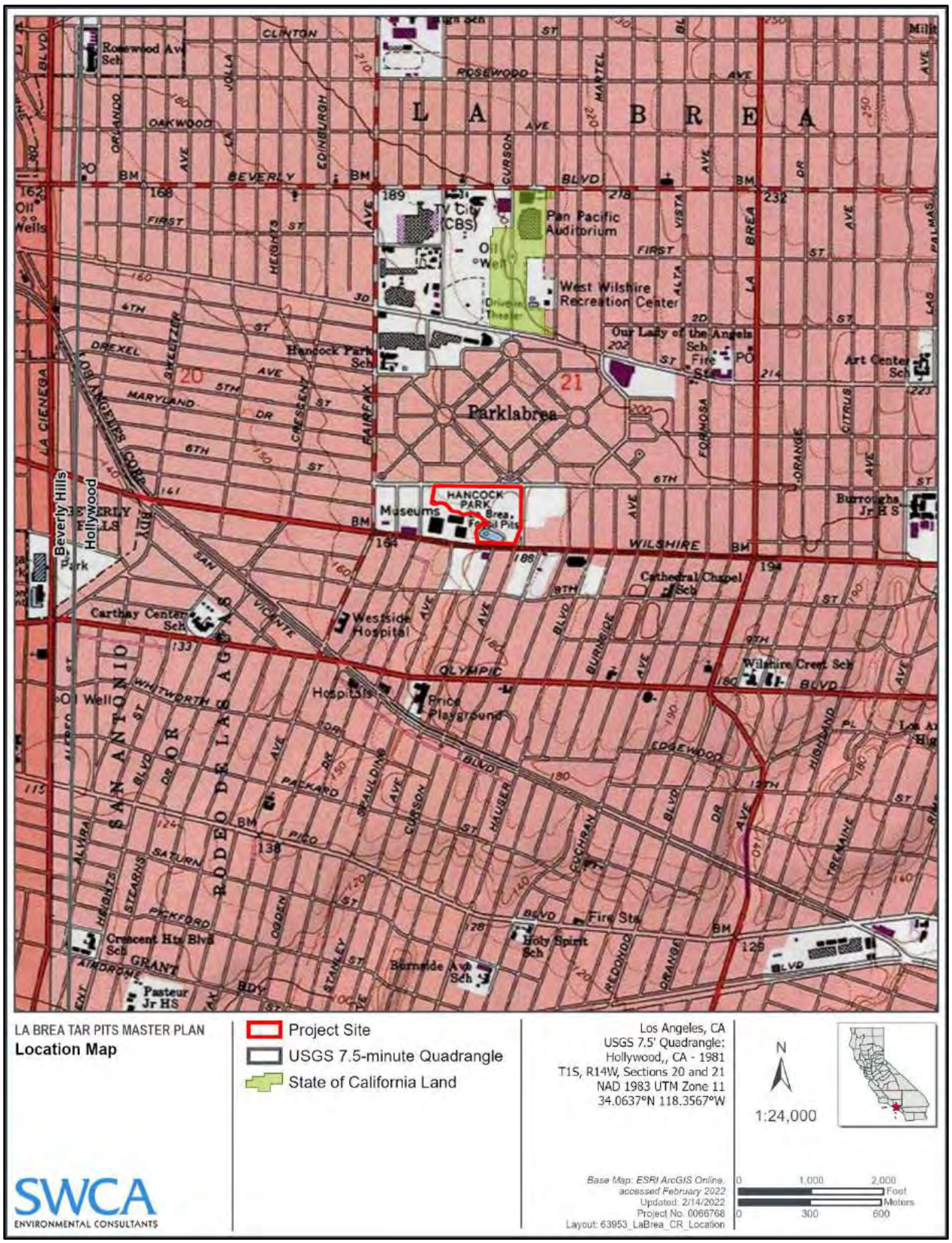

Figure 2. Project site plotted on the Hollywood, California, USGS 7.5-minute topographic quadrangle.

Figure 3. Project site shown on 2020 aerial photograph.

2.3 Proposed Project

The project would result in a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex and portions of Hancock Park, including renovations to the Page Museum (Figure 4). Table 1 provides a summary of the project components; more detail on the project components is provided following the table.

Table 1. Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building in same footprint (approximately 63,200 square feet). Demolish existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. Construct new 2,000-gross-square-foot (gsf) satellite maintenance and support building.
New Museum Building	Construct a new two-story 40,000-gsf museum building northwest of the Page Museum, including two new theaters.
Wilshire Gateway	Renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
The Lake Pit	Construct a pedestrian bridge and walking path over the Lake Pit. Install a new garden bioswale.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pits (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous 1-kilometer-long paved pedestrian path linking existing features on the project site. Improvements to the Central Green (establish a drivable path for food truck access). Establish a children's play area, picnic areas, and a small dog park west of the 6th Street Gateway.
Circulation and Parking	Expand existing parking lot from 63,000 square feet to 65,000 square feet and relocate approximately 50 to 70 feet to the north. This would require removal and relocation of existing trees on-site. Increase vehicle parking spaces approximately 5 to 15 spaces for a total of 160 to 170 vehicle parking spaces. Addition of new landscaping and vehicle access lanes to the parking lot. Establish new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping Concept Plan	Establish three distinct landscaping zones encircled by looping pedestrian path. Creation of biofiltration areas for stormwater management. Introduction or relocation of approximately 84 trees from existing locations on-site to new locations on-site.

Figure 4. Conceptual site plan, La Brea Tar Pits Master Plan

2.3.1 Page Museum Renovations

The project would renovate the existing Page Museum within the same footprint as the existing building (currently approximately 63,200 square feet) to allow for enlarged exhibition space, additional storage, a ground floor café, and retail space. The central atrium would be renovated to provide additional exhibitions and provide additional classroom and laboratory space. The second floor of the Page Museum would contain two classrooms and a multipurpose space. An outdoor café and bar would be located next to these spaces on the center terrace on the west side of the Page Museum. A sloped green roof would be installed to the north of the Page Museum and would curve to the west. The project would add several sustainability features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and rooftop solar photovoltaic panels.

In addition, the project would demolish the existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. A new 2,000-gross-square-foot (gsf) satellite maintenance and support building would be constructed for additional storage, administration, and research space directly west of the parking lot.

2.3.2 New Museum Building

A new two-story museum building would be located to the northwest of the Page Museum (see Figure 3 and Figure 4). The building would be approximately 40,000 gsf and would increase the total museum square footage to 104,000 gsf. The new museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock.

The Page Museum and new museum building would be continuously connected on the first floor. The first-floor central lobby would face southwest toward the Central Green and branch off into the Page Museum to the east and the new museum building to the west. An updated retail and café space would be located off the lobby and look out over the Central Green. The Page Museum and the new museum buildings would be disconnected on the second floor, which would rise above the earthen berm. The separated facilities would be accessible through sloped outdoor walkways from the Central Green or interior staircases in the museum. There would be pedestrian entrances leading into the central lobby from the Central Green and from the parking lot. The existing Page Museum entrance would be converted to an educational group and tour entrance, which would be connected to a new school drop-off area on South Curson Avenue.

2.3.3 Entrance Renovation and Other Internal Circulation Improvements

The project would renovate the existing entrance to the La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza; this would provide orientation, spaces for gathering and queuing, and restrooms (see Figure 3 and Figure 4). A picnic area would also be located under the shaded canopy.

A pedestrian bridge and walking path would be constructed over the Lake Pit. Directly to the east of the Lake Pit, a new garden bioswale would be installed to manage stormwater and would include vegetation related to the relocated mammoths and mastodon sculptures.

A school drop-off area on South Curson Avenue would lead directly to the education museum entrance, enabling the choreography of student tour itineraries that are distinct from general museum visitors and other tour groups.

The project would renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA parking garage. Similar to the Wilshire Gateway, a shaded canopy and welcome pavilion would provide orientation, legibility, and amenities. As a visible point of arrival from the residential communities to the north, this new entry would welcome visitors to a shaded park space where community park and recreational needs are balanced with the research activities of La Brea. Under the canopy of shade trees, visitors would find diverse destinations, including play areas, picnic areas, seating and interpretation zones at the protected tar seeps, the gentle topography and bioswales along Oil Creek, and the revitalized destinations of the Dorothy Brown Amphitheater, Observation Pit, and Pit 91. Along the south edge of the loop path, connections would allow access to other Hancock Park programs and transportation connections.

2.4 Ground Disturbances

At the time of preparation of this report, the proposed project is at the preliminary design stages, and final engineering, design, and grading plans for the project have not been finalized. Therefore, estimates of the depth of ground disturbances that were provided by the Foundation are discussed here. Due to anticipated soil conditions, on-site soils are not expected to be suitable for reuse and would need to be exported for remediation and disposal. As such, it is anticipated that project earthwork activities would include an estimated 53,000 cubic yards of cut/export and potentially 37,000 cubic yards of imported fill. While the exact depth of construction and the finish grade of the new museum building has not been established, this analysis assumes that the depth of excavation would be approximately 6 to 10 feet below ground surface. While the final elevation of the foundation for the new museum building is not known at this time, it may be below the existing ground surface in order to provide a smooth connection to the existing Page Museum.

3 REGULATORY SETTING

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value and are afforded protection under state and local laws and regulations.

3.1 State Regulations

3.1.1 California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at California PRC Section 21000 et seq. CEQA requires lead agencies to determine whether a proposed project would have a significant effect on the environment, including significant effects on paleontological resources. Guidelines for the Implementation of CEQA, as amended most recently on December 28, 2018 (Title 14, Chapter 3, California Code of Regulations 15000 et seq.), define procedures, types of activities, persons, and public agencies required to comply with CEQA. Section VII(f) of the Environmental Checklist (State CEQA Guidelines: Appendix G) asks whether a project would directly or indirectly destroy a unique paleontological resource and result in impacts to the environment.

3.1.2 California Public Resources Code Section 5097.5

Requirements for paleontological resource management are included in PRC Division 5, Chapter 1.7, Section 5097.5, which states,

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

These statutes prohibit the removal, without permission, of any paleontological site or feature from land under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. Consequently, local agencies are required to comply with PRC Section 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others. PRC Section 5097.5 also establishes the removal of paleontological resources as a misdemeanor and requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, and district) land.

3.2 County of Los Angeles

The Conservation and Natural Resources Element of the *Los Angeles County General Plan 2035* (General Plan) (County of Los Angeles 2015) recognizes paleontological resources in Section VIII: Historic, Cultural, and Paleontological Resources, and aims to promote public awareness of their value and foster their public enjoyment. Therefore, the General Plan contains one goal (C/NR 14) aimed at the protection of historic, cultural, and paleontological resources, with the following four policies pertinent to paleontological resources:

- **Policy C/NR 14.1:** Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.
- **Policy C/NR 14.2:** Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.
- **Policy C/NR 14.5:** Promote public awareness of historic, cultural, and paleontological resources.
- **Policy C/NR 14.6:** Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

3.3 City of Los Angeles

While the project site is located within the City of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles; however, the project will be in compliance with City of Los Angeles requirements. Planning documents of the City of Los Angeles that are most relevant to the project as they relate to paleontological resources are discussed herein for informational purposes.

Section 3 (Archaeological and Paleontological) of the *City of Los Angeles General Plan Conservation Element* (Conservation Element) recognizes paleontological resources (page II-3) and contains an objective (page II-5) to protect the city's archaeological and paleontological resources for historical, cultural, research, and/or educational purposes (City of Los Angeles 2001). The Conservation Element

includes the policy to "continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities." The Conservation Element also states the following:

> Pursuant to CEQA, if a land development project is within a potentially significant paleontological area, the developer is required to contact a bona fide paleontologist to arrange for assessment of the potential impact and mitigation of potential disruption of or damage to the site. If significant paleontological resources are uncovered during project execution, authorities are to be notified and the designated paleontologist may order excavations stopped, within reasonable time limits, to enable assessment, removal or protection of the resources. (City of Los Angeles 2001:II-5)

Section D:1 of the *L.A. CEQA Thresholds Guide* (City of Los Angeles 2006) specifies that the determination of significance for paleontological resources shall be made on a case-by-case basis, taking into consideration the following factors:

- Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a paleontological resource.
- Whether the paleontological resource is of regional or statewide significance.

4 DEFINITION OF SIGNIFICANCE

The Society of Vertebrate Paleontology (SVP) has established standard guidelines that outline professional protocols and practices for conducting paleontological resource assessments and surveys; monitoring and mitigation; data and fossil recovery; sampling procedures; and specimen preparation, identification, analysis, and curation (SVP 1995, 2010). Most practicing professional mitigation paleontologists in California adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological laws, ordinances, regulations, and standards accept and use the professional standards set forth by the SVP.

As defined by the SVP, significant paleontological resources are

> fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years). (SVP 2010:11)

Numerous paleontological studies have developed criteria for the assessment of significance for fossil discoveries (e.g., Eisentraut and Cooper 2002; Murphey et al. 2019; Scott and Springer 2003). In general, these studies assess fossils as significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living, or extinct.
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein.

3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas.
4. The fossils demonstrate unusual or spectacular circumstances in the history of life.
5. The fossils are in short supply and/or are in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation and are not found in other geographic locations.

5 PALEONTOLOGICAL POTENTIAL CLASSIFICATION

Geologic units known to preserve significant fossils or fossil localities are likely to contain additional undiscovered and potentially significant fossils throughout their areal and stratigraphic extent. Paleontological potential ("sensitivity") is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by the paleoenvironmental conditions or depositional setting of the geologic units, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. The extent of sensitivity differs from that defined for archaeological resource sites as follows:

> It is extremely important to distinguish between archaeological and paleontological (fossil) resource sites when defining the sensitivity of rock units. The boundaries of archaeological sites define the areal extent of the resource. Paleontological sites, however, indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire rock formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case. (SVP 1995:23)

Many archaeological sites contain features visually detectable on the surface. In contrast, fossils may be present at the surface or at depth within sediments or bedrock. Subsurficial fossils would not be observable or detectable unless exposed by erosion or human activity. In the case of human activity, such as project-related ground disturbances within geologic units with a high probability to yield significant fossils, direct or indirect adverse impacts to significant fossils may occur.

In *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources* (SVP 2010:1–2), the SVP defines four categories of paleontological sensitivity for rock units with considerations for the potential of direct or indirect adverse impacts. These categories are: high, low, undetermined, and no potential.

> **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e.g., ash or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstone, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstone, fine-grained marine sandstone, etc.). Paleontological potential consists of both a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with

animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.

Low Potential. Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g., basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.

Undetermined Potential. Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

No Potential. Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection or impact mitigation measures relative to paleontological resources. (SVP 2010:1–2)

6 METHODS

The following sections present an overview of the methodology used to establish the existing paleontological conditions of the project site, analyze the potential for adverse impacts to significant paleontological resources due to implementation or construction of the proposed project, and determine avoidance and minimization measures to reduce adverse impacts to less-than-significant levels. The methodology used in this assessment conforms to industry standards as developed by the SVP (1995, 2010), as well as published best practices for mitigation paleontology (Murphey et al. 2019).

6.1 Existing Conditions Review

The La Brea Tar Pits has yielded the best preserved, most diverse, and most numerous fossils of the late Pleistocene and early to middle Holocene, providing paleontologists a unique opportunity to reconstruct the paleoecology of life as it existed in the Los Angeles region during that time (Stock and Harris 2007). Based on conditions listed in Section 4, Definition of Significance, and the paleontological potential classes described in Section 5, Paleontological Potential Classification, above, the geologic units within Hancock Park have an undeniably high paleontological sensitivity. In fact, the La Brea Tar Pits site has been selected as one of the first 100 Geological Heritage Sites by the International Union of Geological Sciences due to its local and global importance in understanding evolution, extinction, and climate change (personal communication from Dr. Lori Bettison-Varga [2022]). Nonetheless, questions persist regarding 1) the vertical and horizontal extent of fossiliferous deposits within the site; 2) the variation in quantities and irregular distribution of fossil material recovered from the different exploration pits across the site; 3) the historic exploration and salvage of fossils within the site and the influence such activities may have had on the current distribution of subsurface fossils in reworked sediments within Hancock Park; and 4) the ideal methodology to be used for data recovery and fossil salvage during preconstruction ground-

disturbing activities that minimizes the loss of scientifically important paleontological information. To establish the existing conditions within the site to the extent feasible, SWCA conducted an analysis of available existing data pertinent to paleontological resources within Hancock Park. This analysis included a review of asphalt pit and fossil locality data from multiple sources including published scientific literature; online fossil locality database results; previous paleontological resources assessments; museum records search results from the Museum of Natural History; regional and local geologic maps; and subsurface geotechnical/borehole data.

In summer 2022, SWCA reviewed scientific literature, online fossil locality databases, geologic and paleontological information from previous paleontological resources assessments and environmental documents, and fossil taxonomic data provided by the Page Museum. These data were supplemented by a museum records search from the Museum of Natural History that was received on February 5, 2022. Appendix B (confidential) provides a copy of the museum records search results. For a review of geologic mapping within and around Hancock Park, SWCA reviewed geologic maps prepared by Dibblee and Ehrenspeck (1991) at a scale of 1:24,000, Yerkes and Graham (1997) at a scale of 1:24,000, and Campbell et al. (2014) at a scale of 1:100,000. Being the most recently published map at the highest resolution, SWCA uses geologic mapping by Yerkes and Graham (1997) as the base for this investigation, with special considerations from Dibblee and Ehrenspeck (1991) and Campbell et al. (2014), following published best practices (Murphey et al. 2019). At the time of preparation of this report, a preliminary geotechnical investigation for the proposed project within Hancock Park was completed; however, further geotechnical work is needed following refinement of the project design. To supplement SWCA's synthesis of existing data relevant to the project site, Mr. Carson and Dr. Shapiro verified these data sources with the Page Museum curators, collections managers, and preparators during site visits in September and October of 2022. A summary of the existing conditions is presented in Section 7, Paleontological Resources Results.

6.2 Potential Impacts Review

CEQA requires that significant adverse impacts to paleontological resources be reduced to less-than-significant levels to the extent feasible. To determine if a project could result in direct or indirect impacts, published best practices in mitigation paleontology (Murphey et al. 2019; SVP 2010) recommend that the extent and depth of ground-disturbing activities that have the potential to impact previously undisturbed sediments of high paleontological sensitivity should be considered when assessing potential impacts. At the time of this paleontological resources study, the project is still in the conceptual stages, and the full extent and depth of ground-disturbing activities is unknown. Nonetheless, the potential for direct or indirect impacts can be assessed based on review of the existing conditions described above. After reviewing the existing data, SWCA analyzed the potential for direct and indirect impacts to significant paleontological resources due to construction or implementation of the project. A summary of the potential impacts is presented in Section 8 below.

6.3 Avoidance and Minimization Measures Determination

Based on review of the existing conditions and determination of the potential impacts, SWCA developed appropriate avoidance and minimization measures to reduce significant adverse impacts to less-than-significant levels, pursuant to the CEQA. To develop appropriate measures that would not preclude or drastically delay construction of the project while still protecting the scientific integrity of this world-renowned fossil site, SWCA reviewed previous paleontological resources assessments, CEQA environmental documents, paleontological mitigation plans, and final paleontological monitoring reports prepared by other environmental consultants for projects located within or adjacent to Hancock Park, many of which were for private development projects; published standard field and laboratory procedures

prepared by the Page Museum staff; and information from the Page Museum staff obtained by SWCA's Lead Paleontologist during two site visits in September 2022, and one site visit by SWCA Principal Paleontologist in October 2022. The information in these references, coupled with additional information from the Page Museum staff, were synthesized to develop avoidance and minimization measures that, when implemented under the direct supervision of the Page Museum, would reduce potential impacts to less-than-significant levels.

7 PALEONTOLOGICAL RESOURCES RESULTS

7.1 Regional Geology

The geological conditions that have made the La Brea Tar Pits the most renowned paleontological locality in the world are closely tied to the origin and development of petroleum reservoirs within the Los Angeles Basin, a structural depression approximately 50 miles long and 20 miles wide in the northernmost Peninsular Ranges Geomorphic Province (Ingersoll and Rumelhart 1999; Norris and Webb 1990; Yerkes et al. 1965). Although referred to as the "La Brea Tar Pits" today, the terms "brea" are "tar" are misnomers—the sticky, organic substance that is present at the surface is more correctly referred to as asphaltum (asphalt) or bitumen derived from naturally occurring petroleum. Within the La Brea Tar Pits and its vicinity within the Los Angele Basin, alluvial sediments are often saturated with the asphalt that seeps up to the surface from the underlying reservoirs. Asphalt from Rancho La Brea has been widely used by humans during prehistoric and historic periods, resulting in the discovery of the large quantities of significant fossil material during its extraction (see Millington et al. 2022).

Beginning in the Miocene when tectonic movement along the San Andreas Fault zone caused the rotation and northern migration of the Transverse Ranges from the Peninsular Ranges, the Los Angeles Basin originated as a subsided structural block located between these two providences (Critelli et al. 1995; Norris and Webb 1990). By the middle Miocene, tectonic subsidence resulted in the advancement of the sea across the primordial Los Angeles Basin, resulting in the deposition of thick, organic-rich, deep submarine basin sediments along the sea floor. Organic-rich sediments consisted of the deposition of dead microorganisms, such as diatoms, algae, and bacteria that settled to the seafloor, as well as organic-rich clays washed in from the Peninsular Ranges and Transverse Ranges. After subsequent burial and lithification, these organic-rich marine strata formed substantial petroleum reservoirs, some of which are the most prolific sources of oil in Southern California (Norris and Webb 1990; Yerkes et al. 1965).

The deposition of thick, organic-rich marine strata persisted through the Pliocene, a time when the rate of subsidence accelerated within the central region of the Los Angeles Basin where the La Brea Tar Pits are located today; this subsidence coincided with marked uplift of the surrounding mountain ranges along the basin's margins that continued contributing to the thick accumulations of organic-rich marine deposits within the basin (Norris and Webb 1990).

By the end of the Pliocene, more than 3,000 meters (10,000 feet) of mostly marine sedimentary deposits had filled the basin (Norris and Webb 1990). The latest Pliocene and early to middle Pleistocene were marked by tectonic movement of ancillary faults branching from the San Andreas Fault Zone. Tectonic movement during the latest Pliocene and early to middle Pleistocene deformed the older marine strata, facilitating the movement of gas and oil in the Los Angeles Basin to the surface via fractures and seeps, forming asphalt pools at the surface (Stock and Harris 2007). For example, local fissures, pipes, and chimneys allow petroleum from the underlying Miocene to Pliocene marine strata extracted below the surface within the Salt Lake Oil Field located immediately north of Hancock Park to seep to the surface as asphalt within Hancock Park (Stock and Harris 2007). The continuous recharge of asphalt seeped to the surface from the underlying Miocene and Pliocene marine petroleum reservoirs, plus the influx of

terrestrial alluvial sediments deposited at the surface, resulted in one of the best depositional environments for preserving fossils.

During the late Pleistocene and early to middle Holocene, changes in global sea level, tectonic subsidence, and rates of sedimentation resulted in the deposition of thick accumulations of nonmarine, alluvial deposits within the Los Angeles Basin (Norris and Webb 1990; Yerkes et al. 1965). The formation of asphalt pools at the surface, drawn up to the surface from the underlying marine Miocene and Pliocene strata via structural fractures, continues today within Hancock Park, though likely to a much lesser degree since the middle Holocene.

7.2 Local Geology and Paleontology

Because of its importance in petroleum exploration and the public and scientific interest in its paleontological setting, the La Brea Tar Pits has been the subject of intense study for the past 100 years. This section provides a summary of the local existing conditions at La Brea Tar Pits, including an overview of the history of paleontological discovery and exploration, as well as an overview of more recent local geological mapping and geotechnical investigations within Hancock Park and its immediate vicinity.

7.2.1 Paleontology of the La Brea Tar Pits

The paleoecological and paleoenvironmental conditions and unique geologic setting during the late Pleistocene and Holocene within Rancho La Brea have contributed to the high level of fossil preservation at the La Brea Tar Pits. In places where petroleum reached the surface, sticky pools of asphalt were left behind as the lighter petroleum products evaporated (Akersten et al. 1983). These pools of asphalt would then trap most organisms that passed through, most notably large predators, such as saber-toothed cats, dire wolves, and other extinct carnivores. This mechanism is reflected in the composition of mammals and birds discovered at the La Brea Tar Pits, which are 90% carnivores that likely had been attracted to the site to prey on those individuals already mired in the asphalt, but ultimately became mired themselves (Friscia et al. 2008). Bones could also be transported and entrapped in the asphaltic sediments through normal fluvial processes (Spencer et al. 2003); however, the extent that fluvial systems flowing across the asphaltic pools at the surface affected the preservation of paleontological resources in the vicinity of Hancock Park remains largely unexplored. Regardless, the asphalt that saturates the bones and other hard tissues of animals contributes to their excellent preservation.

With more than 100 excavation sites/pits resulting in over 3 million specimens representing over 600 species having been collected since the first scientific explorations (Figure 5), late Pleistocene and Holocene fossil taxa recovered, described, and curated include: diatoms, green algae, flowering plants and gymnosperms, scorpions, spiders, ostracods, isopods, millipedes, centipedes, insects, bivalves, gastropods, bony fish, salamanders, frogs, toads, pond turtles, lizards, iguanas, snakes, grebes, cormorant, herons, spoonbills, ibis, waterfowl, storks, teratornithids, vultures, hawks, eagles, falcons, landfowl, cranes, shorebirds, pigeons, roadrunners, owls, nightjars, woodpeckers, perching birds, shrews, moles, bats, ground sloths, rabbits, hares, rodents, weasels, badgers, skunks, coyotes, domesticated dogs, wolves, dire wolves, foxes, racoons, ringtails, short-faced bears, black bears, grizzly bears, saber-toothed cats, scimitar-toothed cats, American lions, cougars, bobcats, mastodons, mammoths, horses, tapirs, camels, llamas, peccaries, deer, antelopes, bison, shrub-ox, sheep, and others, as well as the human remains of one individual (i.e., the La Brea Woman) recovered from Pit 10 in 1914 (see Figure 5) (ArchaeoPaleo Resource Management, Inc. 2014; Museum of Natural History 2022; Pham 2015; Stock and Harris 2007).

Prior to the advent of modern radiometric dating methods, the geologic age of the fossil-bearing deposits at Rancho La Brea was determined by biochronologic correlations, comparing the fossil taxa excavated

from Rancho La Brea (see above) to taxa recovered from other fossil sites in North America (Stock and Harris 2007). Based on these comparisons, Stock and Harris determined that the Rancho La Brea deposits likely date to the late Pleistocene (Stock and Harris 2007). In fact, the "Rancholabrean" North American Land Mammal Age (NALMA) stage, characterized by the presence of the genus *Bison* and other extinct megafauna (e.g., genus *Mammuthus*), is named after the fossils recovered from Rancho La Brea that represent the latest Pleistocene Epoch (Savage 1951). Since Stock and Harris's work, modern radiometric dating confirmed the results of relative dating, with the oldest specimens recovered from Rancho La Brea being at least 55,000 years old (latest Pleistocene) and the youngest at least 200 years old (latest Holocene, which extends after the Rancholabrean NALMA stage) (Mychajliw et al. 2020; Bischoff and Rosenbauer 1981; Ho et al. 1969; Holden et al. 2017; Marcus and Berger 1984; McMenamin et al. 1982). It is critical to recognize that the age of the fossils is related to when the asphalt reached the surface, not the age of the enclosing geological formation. This has proved a challenge to researchers as established principles of superposition do not apply at Rancho La Brea. Therefore, the geological context of the discovery is most critical to retain scientific value.

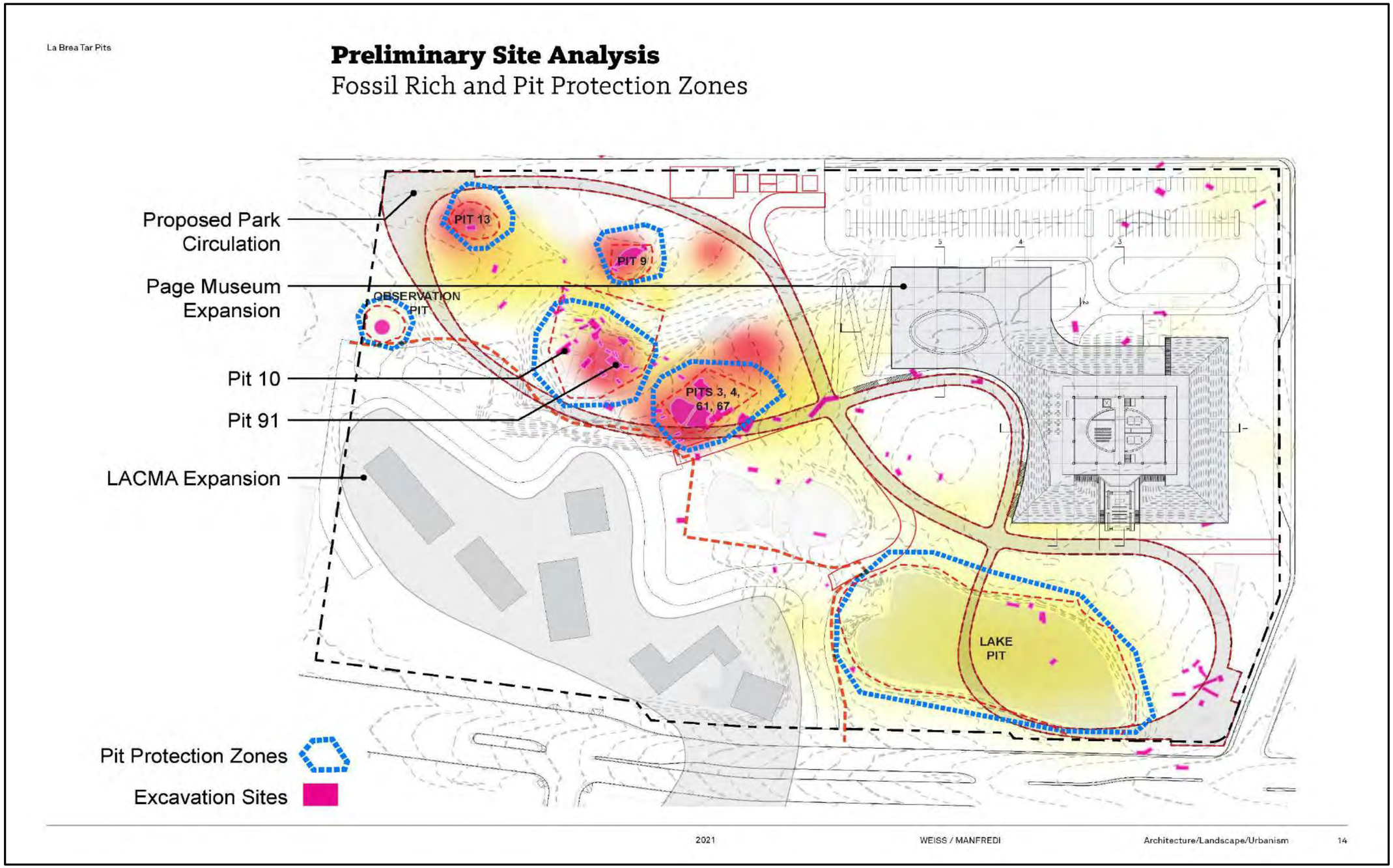

Figure 5. Conceptual site plan with excavation/pit sites and fossil heat map.

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7.2.2 Previous Excavations at La Brea Tar Pits

Records of bones being discovered at Rancho La Brea date to the 1800s; however, these bones were widely regarded as modern domesticated and wild animals that had fallen into the asphalt "traps" (Seaman 1914), and it was not until 1875 that the first extinct organism, a *Smilodon* (saber-toothed cat), was reported (Denton 1875). The first scientific excavations at La Brea Tar Pits site began much later when Orcutt assessed the feasibility of the site for oil extraction in 1901 and discovered more fossils of extinct taxa (Stock and Harris 2007). By 1906, Orcutt had amassed a collection of fossil material and gave it to Dr. John C. Merriam of the University of California, who requested permission from the Hancock family to conduct paleontological investigations. By 1913, the Hancock family granted the County exclusive privilege to excavate the site for 2 years, during which hundreds of thousands of bones were discovered among the various exploration pits (see Figure 5) (Stock and Harris 2007). By May 1915, the Hancock family donated approximately 23 acres of Rancho La Brea to the County; this land ultimately became Hancock Park. Today, excavations continue under the direction of the Page Museum, which houses this world-renowned collection.

After the initial excavations that occurred between 1913 and 1915, little in the way of formal excavation was accomplished until 1969. Intermittent small-scale excavations occurred between 1929 and 1931. In 1969 excavations resumed in one of the exploration pits, dubbed Pit 91, with excavations continuing to the present (Friscia et al. 2008; see Figure 5). Since the reopening of Pit 91, 320 species have been recovered. During the 20072007 field season alone, 3,300 specimens were recovered, including the skulls of saber-toothed cats and dire wolves, ground sloth bones, and the first confirmed juvenile mammoth. As of the 20072007 field season, Pit 91 had been excavated to a depth of 15 feet, with an estimated 3 to 8 feet of asphaltic deposits remaining further below ground. Over the years, excavations at Pit 91 have resulted in the discovery of more than 50,000 fossils (with many more waiting to be prepared and curated in the laboratory at the Page Museum). A few other asphalt pits, such as Pit 3 and Pit 4, have resulted in the discovery of similarly impressive quantities of fossil specimens, but the quantities of fossil specimens recovered from the asphalt pits has varied widely, even among co-located pits or exploration sites (Figure 6). Although the quantities of fossil specimens recovered from asphalt pits are uneven, the distribution of the asphalt pools is not completely random and may be related to the orientation of subsurface faults or fissures that facilitate the movement of petroleum to the surface (see Figure 6). Additionally, the degassing of hydrocarbons during the conversion of petroleum to asphalt, evidenced by surface bubbles within the asphalt pools observed today, may have circulated and redistributed bones and other organic remains within the asphalt chimneys and seeps (Stock and Harris 2007), also potentially affecting the apparent distribution and quantity of fossil specimen.

Several recent construction projects within or immediately adjacent to Hancock Park have yielded numerous significant paleontological resources from the same deposits as those that would be encountered during implementation of the proposed project. ArchaeoPaleo Resource Management, Inc. (2014) provided a thorough review of paleontological resource assessment reports and mitigation monitoring reports from nearby development projects. A detailed description of each project included in their 2014 review is not included in this report; however, the results are summarized in Table 2. Recent projects from within or immediately adjacent to Hancock Park include the LACMA Transportation Project, the Academy Museum of Motion Pictures Project, the New LACMA Building for the Permanent Collection Project, and the One Museum Square Project. From the LACMA Transportation Project, numerous paleontological resources were discovered during monitoring of ground disturbances. In fact, 16 deposits of asphalt (or asphalt-rich sediments) containing abundant fossilized remains were extracted in 23 "landscaping/tree box" crates, as well as several isolated macrofossils (for example, one isolate yielded a nearly complete adult Columbian mammoth nicknamed "Zed") and 327 buckets of matrix containing microfossils.

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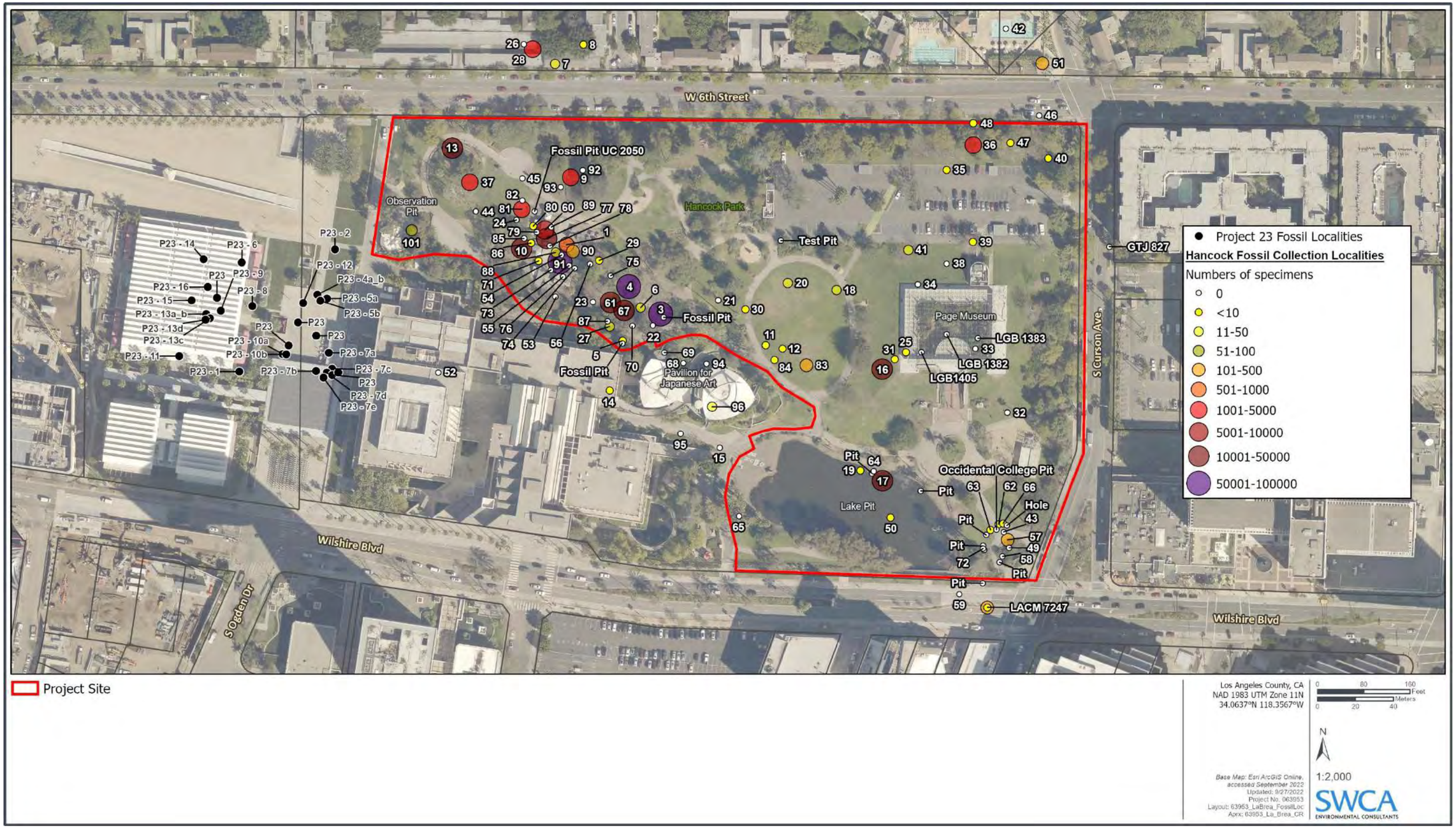

Figure 6. Quantity of fossil specimens recovered from each pit/site; quantities from Project 23 are not provided. Data received from Page Museum staff in 2022.

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The crated deposits are still being processed on the grounds of La Brea Tar Pits (referred to as "Project 23" by the Page Museum), with estimates of the number of fossils contained within ranging from 1 million to 3 million (ArchaeoPaleo Resource Management, Inc. 2014) (see Figure 6). Similar discoveries have been made during ground-disturbing activities at the Academy Museum of Motion Pictures and the New LACMA Building projects, each of which uncovered numerous significant fossil discoveries that were crated in a similar fashion, with each crate possibly containing hundreds to thousands of fossils remaining to be processed.

Table 2. Sample of Completed Local Paleontological Resources Monitoring Projects

Project Name	Year	Distance/Direction from Proposed Project	Monitoring Results
The Grove at Farmers Market	2001	1,000 meters (0.62 mile) north	Pleistocene gopher and plants; blue-green sandy silt
Farmers Market Renovation (also known as The Grove at Farmers Market Phases 2 and 3)	2001–2004	1,000 meters (0.62 mile) north	Pleistocene macrofauna, such as mammoth, horse, and indeterminant mammal; microfauna and flora; streambed soils, some asphalt deposit stringers
Park La Brea Community Center	2004	650 meters (0.40 mile) northeast	No fossils, caliche soils
Palazzo West/Palazzo at Park La Brea	1999–2003	700 meters (0.43 mile) north	Pleistocene macrofauna, such as horse, mammoth, bison, sloth; other vertebrates, such as frog, bird, rabbit, snake, skunk, various rodents; microfauna, such as clam, gastropod; plants; streambed sandstone, siltstone, claystone, some asphaltic deposit stringers
Palazzo East/Palazzo at Park La Brea	1999–2003	1,100 meters (0.68 mile) northeast	Pleistocene macrofauna, such as horse, sloth, camel, bison, and proboscidean/elephant; microfauna, such as ostracod; plants; fluvial alluvium composed of sandstone, siltstone, and claystone
The Villas at Park La Brea	1999–2003	1,100 meters (0.68 mile) east-northeast	No fossils observed; silty clay, caliche
Median Improvements, Wilshire Boulevard from Fairfax Avenue to La Brea Avenue	1996	80 meters (263 feet) south	No fossils observed; deposits too young to contain fossils
Hancock Park Renovation	1989–2003	Adjacent, east and north	Pleistocene macrofauna, such as mammoths; microfauna and flora; streambed soils and asphaltic deposits
Hancock Park Replacement Pipeline Discharge System	2012	245 meters (0.15 mile) east	Indeterminant mammal, large bird, small bird, microfossils; asphaltic deposits
Luxe@375 (apartment construction with subterranean parking)	2012	2,200 meters (1.37 miles) northwest	Pleistocene indeterminant bony fish, toad, frog, pond turtle, rattlesnake, indeterminant reptile, indeterminant bird, various rodents, camel, horse, rabbit, mastodon, ground sloth, bivalve, gastropod, plant (i.e., charcoal)
LACMA Transformation Project	2006–2008	Adjacent, west	"Project 23" – during construction, 16 asphaltic deposits, recovered in 23 trapezoidal/prismatic "tree boxes" holding 383 cubic meters of material contain an array of Pleistocene fossils, including terrestrial macrofauna, such as bison, dire wolf, mammoth, sloth, lynx, saber-toothed cat, horse, bird, turtle; microfossils; and plants resulting in thousands of fossil specimens. Additionally, individual or isolated specimens were jacketed or collected, including a Columbian mammoth.
Academy Museum of Motion Pictures	2019–2020	Adjacent, west	Numerous macrofauna, including saber-toothed cat, dire wolf, bison, ground sloth; and microfauna; plants; fluvial deposits with some asphaltic deposits

Project Name	Year	Distance/Direction from Proposed Project	Monitoring Results
New LACMA Building Project	2016–2017	Adjacent, west and southwest	Gastropods and bivalves from depths of 41 to 65 feet below ground surface; fine-grained sand and silty clay, saturated with asphalt
One Museum Square Project	2018–2019	Adjacent, east	Approximately 20,000 fossil specimens of birds and small mammals

Sources: AECOM (2016a, 2017); ArchaeoPaleo Resource Management, Inc. (2014); Environmental Science Associates (ESA) 2020

7.2.3 Museum Records Search

Since its construction in the 1970s, the Page Museum, included in the Museum of Natural History, has curated most of the fossil specimens excavated from the La Brea Tar Pits. Therefore, SWCA requested a museum records search from the Museum of Natural History to provide additional information pertaining to the paleontological resource potential at the surface and at depth within Hancock Park and its immediate vicinity.

Fossil localities within the project site include fossil locality LACM VP 7298 that produced approximately 10,000 plant, invertebrate, and vertebrate specimens. Additional vertebrate, invertebrate, and plant fossils have been discovered at locality LACM VP 6909 at the surface down to 20 feet below ground surface (bgs) within the project site. Numerous other fossil localities, including Project 23 described above, have been discovered and curated from within the project site.

Outside of the project site, the closest fossil locality is LACM VP 7297, which is located 16 meters (53 feet) southwest of the project site and has yielded approximately 250,000 vertebrate, invertebrate, and botanical specimens from asphaltic sand and clay. Fossil locality LACM VP 7247 was recorded 32 meters (106 feet) away from the project site and yielded an extinct dire wolf and horse from a depth of approximately 2 feet bgs. The presence of Pleistocene fossil taxa at 2 feet bgs suggests that fossils could be present just below the surface throughout most of Hancock Park. Additionally, an antelope fossil was discovered 113 meters (370 feet) from the project site within Pleistocene asphaltic older alluvium at locality LACM VP 4204. Other fossil localities approximately 322 meters (0.2 mile) or less from the project site, such as LACM VP 6345, LACM VP 5481, and LACM VP 1724, have yielded Pleistocene taxa “typical” of asphaltic alluvial sand deposits within the La Brea Tar Pits, including fossil turtle, bird, racoon, saber-toothed cat, dire wolf, coyote, mammoth, horse, tapir, camel, antelope, and bison.

Although not included in the museum records search results by the Museum of Natural History (2022), fossil locality LACM VP 8090, recorded during construction of the One Museum Square Project located approximately 100 meters (330 feet) away from the Page Museum on the eastside of Curson Ave yielded approximately 20,000 small mammal and bird fossils that are currently being processed at the Page Museum today (personal communication from Dr. Regan Dunn [2022]).

Table 3 summarizes the results of the Museum of Natural History (2022) museum records search. Appendix B (confidential) provides the results of the museum records search.

Table 3. Museum of Natural History Fossil Localities within and near the Project Site

Locality Number	Approximate Distance from the Project Site	Formation	Taxa	Approximate Depth Below the Ground Surface
LACM VP 7298	Within Hancock Park	Variably asphaltic silts and silty clays	Approximately 10,000 botanical, invertebrate, and vertebrate specimens	Unrecorded (approximately 25 feet below ground surface based on elevation of Hancock Park)
LACM VP 6909	Within Hancock Park	Asphaltic sands	Vertebrate, invertebrate, and plant fossils	0–20 feet
Project 23 (16 separate fossil deposits)	Within Hancock Park	Pleistocene fluvial deposits and asphaltic sands	Over 1 million fossil specimens including one nearly complete mammoth	Starting at 10 feet
LACM VP 7297	0.01 mile (53 feet/ 16 meters)	Asphaltic sand grading to asphaltic clay	Approximately 250,000 botanical, invertebrate, and vertebrate specimens	Unrecorded (approximately 2 feet to 10 feet below ground surface based on elevation of Hancock Park)
LACM VP 7247	0.02 mile (106 feet/ 32 meters)	Asphalt impregnated silt with lenses of asphaltic sand	Dire wolf (*Canis dirus*); horse (*Equus*)	2 feet
LACM VP 4204	0.07 mile (370 feet/ 113 meters)	Pleistocene asphaltic older alluvium	Antelope (*Antilocapra*)	Unrecorded
LACM VP 6345	0.10 mile (528 feet/ 161 meters)	Asphaltic sands	Bird (Aves); horse (*Equus* cf. *E. occidentalis*)	Unrecorded
LACM VP 5481	0.13 mile (686 feet/ 209 meters)	Asphalt-impregnated Palos Verdes Sand	Mammoth (*Mammuthus*); tapir (*Tapirus*); horse (*Equus*); camelid (*Camelops*, cf. *Hemiauchenia*); bison (*Bison*)	27–28 feet
LACM VP 1724	0.20 mile (1,056 feet/ 322 meters)	Pleistocene asphaltic sands	Pond turtle (*Clemmys marmorata*); bird (Aves); racoon (Procyonidae); sabretooth cat (*Smilodon fatalis*); dire wolf (*Canis dirus*), coyote (*Canis latrans*), pronghorn antelope (*Capromeryx minor*); bison (*Bison*)	8 feet

Source: Museum of Natural History (2022)

7.2.4 Geologic Mapping and Geotechnical Investigations

Local geologic mapping and previous geotechnical investigations of Hancock Park and the surrounding area provide the geological framework that informs the paleontological setting of this world-renowned fossil site; although as noted previously, the fossil deposits follow asphalt pits and are not confined to one particular geologic unit. Geologic mapping by Dibblee and Ehrenspeck (1991) and Yerkes and Graham (1997) indicate that the surface of the project site is mapped as late Pleistocene older alluvium (Qao) (for the purposes of this study, SWCA uses Yerkes and Graham [1997] as the basis for the geologic map shown in **Error! Reference source not found.**). Previous geotechnical investigations of the site summarized by Shannon and Wilson, Inc. (2022) indicate that the surface of the project site is capped by a thin layer of artificial fill that overlies the "native" older alluvium. The presence of artificial fill and/or previously disturbed sediments is evident along the 15-foot-high soil slopes surrounding the base of the

Page Museum but extends across the site in the subsurface. Additionally, regional and local subsurface geological data suggest that the

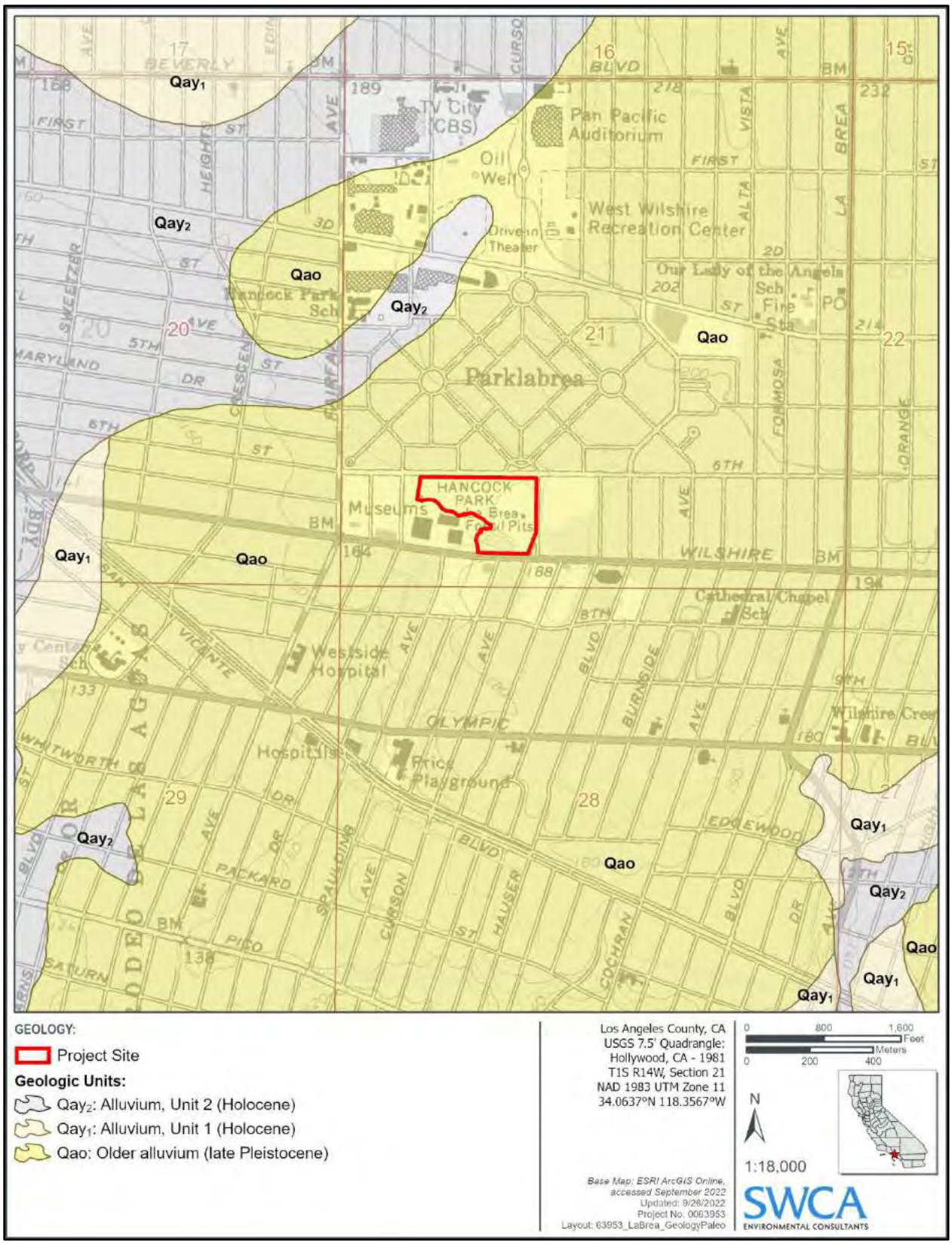

Figure 7. Surficial geologic units within the project site and its vicinity.

early Pleistocene San Pedro Sand and the early Pleistocene to Pliocene Fernando Formation are also present at depth within Hancock Park, despite not being exposed at the surface in the immediately vicinity. Therefore, artificial fill, older alluvium, San Pedro Sand, and Fernando Formation are considered in this analysis and are described in geochronological order (youngest to oldest) below.

7.2.4.1 UNMAPPED RECENT ARTIFICIAL FILL AND REWORKED SEDIMENTS

Based on previous site development, unmapped Recent artificial fill and reworked (i.e., previously disturbed) sediments are present at the surface of the project site from 1- to 3-foot depth or 1- to 8-foot depth, likely partially replacing the uppermost "native" sediments of older alluvium (AECOM 2017; Shannon and Wilson, Inc. 2014, 2022). The presence of artificial fill and reworked sediments across the entirety of the site to varying depths was confirmed during the archaeological testing conducted by SWCA within Hancock Park (Millington et al. 2022).

The artificial fill material consists of silty clay, sandy clay, clayey silt, and silty sand (Shannon and Wilson, Inc. 2022). In general, fill sediments typically consist of reworked and recompacted sediments originating from within a project site during its construction, or they consist of imported sediments delivered from other regions that are delivered and recompacted at a project site. Artificial fill or previously disturbed sediments may contain fossils, but any such fossil from these deposits has been removed from its original stratigraphic, taphonomic, or paleoenvironmental context (provenance), making it scientifically invalid in most instances. Here, artificial fill sediments, at least in part, consist of reworked and compacted sediments originating from Hancock Park, which explains the presence of some fossil fragments recovered from the sediment stratum capping the project site.

It is also important to note that early paleontological investigations prioritized salvage or collection of large fossil specimens or extinct fauna, with little regard for the small-sized fossil fragments or smaller taxa (e.g., rodents, plants, insects, etc.). Asphalt or asphalt-rich sediments containing small fossils may have been discarded or ignored by early investigators and later reworked as fill at the site. Although considered scientifically less valuable or scientifically nonsignificant in *most* circumstances (SVP 2010), fossils from artificial fill and reworked sediments originating from within Hancock Park may still provide scientifically important information due to level of fossil preservation that allows radiocarbon dating of specimens from the site to help elucidate the changing environment during the late Pleistocene and Holocene of Southern California. Therefore, Recent artificial fill and reworked sediments originating from Hancock Park have a high potential to produce significant paleontological resources and are immediately underlain by "native" geologic units that also have a high potential for scientifically significant fossils.

7.2.4.2 LATE PLEISTOCENE OLDER ALLUVIUM (QAO)

Yerkes and Graham (1997) map late Pleistocene older alluvium (Qao) at the surface of the project site (see **Error! Reference source not found.**); however, the uppermost strata of older alluvium likely have been partially replaced by artificial fill/reworked sediments to 1- to 3-foot depth or 1- to 8-foot depth within Hancock Park (see above). Older alluvium consists of slightly to moderately consolidated to moderately to well consolidated (stiff to very stiff) clays with some dense silt and silty sand deposits (Campbell et al. 2014; Dibblee and Ehrenspeck 1991; Shannon and Wilson, Inc. 2022; Yerkes and Graham 1997). These deposits have subsequently been uplifted and variably dissected at the surface (Campbell et al. 2014; Dibblee and Ehrenspeck 1991; Yerkes and Graham 1997). The thickness of older alluvium varies across the Los Angeles Basin (Woodring et al. 1946; Yerkes et al. 1965). For example, deposits of sands, clay, gravel, and angular rubble are approximately 40 to 190 feet thick (only a subset of that thickness is classified as older alluvium) within the Salt Lake Oil Field immediately north of and

adjacent to Hancock Park (Stock and Harris 2007); however, most asphalt or asphalt-saturated alluvial sediments that have

yielded Rancholabrean fossils are from 13 to 20 feet bgs (Shannon and Wilson, Inc. 2022), but possibly range from near the surface to approximately 40 feet bgs (AECOM 2016b).

The older alluvium within Hancock Park has been equivalated or correlated to various informal or formal late Pleistocene geologic units by previous researchers. For example, Grant and Sheppard (1939) suggest that the local older alluvium represents marginal deposits of the Hollywood alluvial fan that radiated off the southern border of the Santa Monica Mountains. Conversely, Woodring et al. (1946) equate the "Palos Verdes Sand," an informal unit of nonmarine, alluvial deposits overlying marine terraces exposed in the Palos Verdes Hills/San Pedro area to the west (i.e., also referred to the "Upper San Pedro Series" by Arnold and Arnold [1902]), as comparable to older alluvium observed at Hancock Park. Based on the work of Woodring et al. (1946), the stratigraphy of asphalt-saturated deposits has been interpreted by Woodard and Marcus (1973, 1976) and Shaw and Quinn (1986), who divide the "Palos Verdes Sand" into three unnamed members, the latter of which contains three additional unnamed submembers based on lithology, the types of fossils and inferred paleoenvironment, and the thickness of asphalt pipes. AECOM (2016b) and Shannon and Wilson, Inc. (2014, 2022) refer to the older alluvium as the "Lakewood Formation," which extends to 12 to 16 feet bgs, with a maximum thickness of approximately 40 feet. For the sake of simplicity and congruence with geologic mapping, SWCA retains the geologic designations of Quinn (1991), Dibblee and Ehrenspeck (1991), Yerkes and Graham (1997), and Campbell et al. (2014), who refer to it simply as old alluvial fan deposits or older alluvium that originated from a northwestern source during the late Pleistocene (similarly to the interpretations of Grant and Sheppard [1939]) that overlies the San Pedro Sand and was subsequently uplifted during the early Holocene (Stock and Harris 2007).

Since the onset of geologic investigations into the petroleum reservoirs within the Los Angeles Basin, geologists have reviewed the structural deformation of the Pleistocene strata overlying the Miocene and Pliocene marine rocks containing petroleum. Given the northwest-southeast trend of fossiliferous sites within Hancock Park, the asphalt springs may originate from a subsurface fault along West 6th Street (Stock and Harris 2007). Accounts by Eaton (1928) point out that the early Pleistocene strata are deeply eroded and sloped, suggesting the same tectonic forces that caused considerable folding and faulting of the deeper Miocene and Pliocene marine rocks within the subsurface of the Los Angeles Basin were still active during the early Pleistocene, as evidenced by similar deformed marine and nonmarine deposits from the early Pleistocene. Horizontal beds of late Pleistocene older alluvium unconformably overlie the deformed beds of early Pleistocene (i.e., San Pedro Sand) and older strata (Stock and Harris 2007). The stratigraphic succession and orientation of the Pleistocene sediments may be relevant for understanding the paleoenvironmental and tectonic changes that occurred between the early and late Pleistocene that resulted in the development of asphalt pools at the surface, trapping or miring organisms, and the subsequent burial of organic remains by alluvial or fluvial processes (i.e., alluvial fans and stream channels of the Los Angeles and San Gabriel Rivers) at the surface during the late Pleistocene and early Holocene. Despite the near horizontal stratigraphy of older alluvium, geotechnical investigations indicate that asphalt is present within the older alluvium, seeping to the surface via fissures, fractures, and chimneys crosscutting the stratigraphy and concentrating in sandy layers (AECOM 2016b; Shannon and Wilson, Inc. 2022).

In general, equivocal non-asphaltic older alluvial deposits within Southern California have yielded similar taxa from sporadic fossil localities; however, the level of fossil preservation of both micro-fossils and macro-fossils is far less at these localities (Jefferson 1991a, 1991b; McDonald and Jefferson 2008; Miller 1971; Reynolds and Reynolds 1991; Springer et al. 2009), demonstrating the unique state of preservation at the La Brea Tar Pits. Therefore, late Pleistocene older alluvium has a high potential for producing significant paleontological resources.

7.2.4.3 EARLY PLEISTOCENE SAN PEDRO SAND

Although the early Pleistocene San Pedro Sand is not mapped at the surface within the project site, it is noted in geotechnical investigations as underlying the late Pleistocene older alluvium at depth ranges of approximately 17 to 50 feet bgs within Hancock Park (AECOM 2016b). However, other geotechnical investigations summarized by Shannon and Wilson, Inc. (2022) indicate that the San Pedro Sand may extend to depths of 65 to 94 feet bgs, indicating variation in the thickness of the older alluvium and San Pedro Sand overlying "bedrock" Fernando Formation (see below). The San Pedro Sand consists of yellow to light brown and gray, cross-bedded to massive, poorly consolidated marine pebble gravel, sand, and silty sand (Blake 1991; Dibblee et al. 2010; Dibblee and Minch 2007). The pebbles are derived mostly from Miocene hard siliceous shale and limestone. Previous and recent geotechnical investigations indicate that some asphalt is present within the matrix of the San Pedro Sand to varying degrees (AECOM 2016b; Shannon and Wilson, Inc. 2022).

During early investigations, Pleistocene-aged marine deposits in the San Pedro area were broken up into two distinct horizons, the Upper and Lower San Pedro Series, distinguished by a prominent unconformity (Arnold and Arnold 1902). The Lower San Pedro Series consists largely of gray sandstone, and Arnold and Arnold (1902) noted that these sands were deposited in a nearshore environment. The Lower San Pedro Series has been the main focus of research and is currently referred to as the San Pedro Sand (Woodring et al. 1946). The Upper San Pedro Series, consisting of a bed of lime-hardened gravel overlain by a thick layer of fine-grained sand (Arnold and Arnold 1902), is now known as the "Palos Verdes Sand" in the Palos Verdes/San Pedro geographic areas (Woodring et al. 1946), and throughout the Los Angeles Basin, it may be equivalated to late Pleistocene older alluvium, as discussed above.

The abundance of fossil specimens known from the San Pedro Sand is one of the major reasons for the importance of this unit. Fossils recovered from the San Pedro Sand include: foraminifera, bryozoans, bivalves, gastropods, scaphopods, polyplacophorans, crabs, sea urchins, sharks, rays, bony fish, turtle, cormorants, ducks, sea eagles, quail, gulls, geese, whales, bison, camels, horses, saber-toothed cats, ground sloths, elephants, and rodents (Fitch 1967; Howard 1948; Jordan and Hannibal 1923; Miller 1930; Oldroyd 1924; Woodring et al. 1946). Therefore, early Pleistocene San Pedro Sand has a high potential for producing significant paleontological resources, even without the subsequent asphalt deposits.

7.2.4.4 EARLY PLEISTOCENE TO PLIOCENE FERNANDO FORMATION

Although not mapped at the surface within the project site or its immediate vicinity, early Pleistocene to Pliocene Fernando Formation is mapped at the surface near downtown Los Angeles (Campbell et al. 2014; Dibblee and Ehrenspeck 1991) and is present at depth throughout the Los Angeles Basin. Previous geotechnical investigations summarized by AECOM (2016b) and Shannon and Wilson, Inc. (2022) indicate that the Fernando Formation is present in the subsurface at depths as shallow as 65 feet bgs and may extend to depths of 120 feet bgs. The Fernando Formation consists of light olive brown and light yellowish brown to dark yellowish brown, clayey siltstone, fine- to medium-grained sandstone, and pebbly conglomerate of marine origin, which is massive, highly weathered, and oxidized and becoming darker in color, more massive, unoxidized, and more lithified with depth (Campbell et al. 2014; Dibblee and Ehrenspeck 1991; Lamar 1970; Shannon and Wilson, Inc. 2022). The Fernando Formation has yielded marine and nonmarine fossils and is generally regarded as having the potential to yield fossils. It is also a significant petroleum reservoir for the Los Angeles Basin, with petroleum seeping through fractures to the surface. Fossil localities from surface exposures from this unit have yielded foraminifera, sponges, corals, brachiopods, bryozoans, scaphopods, gastropods, bivalves, cephalopods, fiddler crabs, sea urchins, sharks, bony fish, birds, unidentifiable mammals, and plants (Clarke et al. 1980; Groves 1992; Huddleston and Takeuchi 2006; Morris 1976; Paleobiology Database 2022; Schoellhamer et al. 1981; University of California Museum of Paleontology 2022; Woodring 1938). Therefore, the early

Pleistocene and Pliocene Fernando Formation has a high potential to yield significant paleontological resources.

7.2.5 Paleontological Site Visit

To supplement SWCA's review of existing conditions to inform the impact assessment and proposed avoidance and minimization measures, SWCA's Lead Paleontologist, Mathew Carson, M.S., verified information and data with the Page Museum curators, collections managers, and preparators during site visits in September 2022. An additional site visit was conducted by SWCA's Principal Paleontologist Russell Shapiro, Ph.D. in October 2022. The focus of the site visits was to confirm the latest paleontological data, as well as to discuss mitigation strategies from adjacent projects within and immediately adjacent to the La Brea Tar Pits/Hancock Park. The Page Museum staff provided SWCA with raw data regarding the number of fossil specimens recovered from each pit or excavation site within Hancock Park (see Figure 6), as well as confirmed that the published field and laboratory procedures used on adjacent projects, such as Academy Museum of Motion Pictures Project (ArchaeoPaleo Resource Management, Inc. 2014) or the Westside Subway Extension Project (Los Angeles County Metropolitan Transportation Authority 2011), may either be outdated or may not capture fully the most recent or preferred protocols for the salvage and processing of fossils observed in asphaltum. These standard procedures include:

- George C. Page Museum of La Brea Discoveries. 2011. *Paleontological methods and mitigation of fossils in vicinity of Hancock Park*. 16 p.
- George C. Page Museum of La Brea Discoveries. 2011. *Techniques for excavation, preparation and curation of fossils from the Project 23 salvage at Rancho La Brea: A Manual for the Research and Collections Staff of the George C. Page Museum*. 34 p.
- Los Angeles County Metropolitan Transportation Authority. 2011. *Westside Subway Extension Project. Wilshire/Fairfax Station Construction. Paleontological Resources Extraction*. 31 p.

Based on results of the discussion with the Page Museum staff, SWCA uses these procedures as more general guidelines (as opposed to definitive standard operating procedures) to inform the analysis, define paleontological resource impacts, and determine appropriate avoidance and minimization measures.

8 IMPACT ASSESSMENT

SWCA conducted this assessment to analyze the potential for adverse impacts to significant paleontological resources resulting from the project's construction. In summary, the La Brea Tar Pits represents a world-renowned fossil site that has yielded millions of significant fossils. At the time of this paleontological resources study, the project is still in the conceptual stages, and the full extent and depth of ground-disturbing activities is unknown. Nonetheless, a review of the existing conditions at the site indicates that the entirety of Hancock Park contains a veneer of artificial fill overlying older alluvium that is subsequently underlain by the San Pedro Sand and Fernando Formation at greater depths.

Asphalt deposits seeping to the surface through the artificial fill from the underlying geologic units may contain fossils. The thickness of fill and disturbed sediments, which may contain reworked but scientifically important paleontological resources, likely varies across the site (see Millington and Dietler [2023]), extending to depths of 8 feet bgs in some areas, or as shallow as 3 feet bgs in others. Generally, older alluvium, San Pedro Sand, and Fernando Formation have high paleontological potential throughout their extents within the Los Angeles Basin, and within Hancock Park, artificial fill or previously disturbed also have a high paleontological potential. Regardless of the site's stratigraphy, asphalt pools, seeps, and

chimneys have yielded a substantial proportion of the fossils recovered from Hancock Park, particularly in the uppermost 40 feet of sediments. Therefore, significant paleontological resources may be impacted by construction or implementation of the project regardless of depth, since ground-disturbing activities associated with the construction of the project have the potential to impact asphalt seeps containing aggregates of fossils.

Based on the results of this assessment, the preliminary conceptual site design, and the estimated depth of ground disturbances, all ground-disturbing activities may result in adverse direct or indirect impacts to significant paleontological resources. Any fossils encountered during ground disturbances would be at risk for damage or destruction from construction activities, which would constitute an impact under CEQA.

9 CONCLUSIONS AND MITIGATION RECOMMENDATIONS

This analysis included a review of asphalt pit and fossil locality data from multiple sources, including published scientific literature; online fossil locality database results; previous paleontological resources assessments; museum records search results from the Museum of Natural History; regional and local geologic maps; and subsurface geotechnical/borehole data. Based on the results of this assessment, SWCA determined that the entirety of Hancock Park contains a veneer of artificial fill overlying older alluvium that is subsequently underlain by the San Pedro Sand and Fernando Formation at greater depths. Recent artificial fill and previously disturbed sediments originating from within Hancock Park, older alluvium, San Pedro Sand, and Fernando Formation all have a high potential for scientifically important fossils. These deposits may also be saturated with asphaltum that may contain an abundance of fossil specimens, especially from 13 feet to 20 feet bgs but possibly to depths of approximately 40 feet bgs.

Any fossils encountered during ground-disturbing activities could be at risk for damage or destruction from such activities, which could constitute a significant impact under CEQA, depending on the nature of the fossil encountered. The implementation of appropriate feasible mitigation measures prior to and during ground-disturbing activities would ensure that fossils, if encountered, are assessed for significance and, if significant, salvaged to the extent feasible for laboratory analysis (and eventual) curation within the Page Museum.

Feasible mitigation measures would include (but is not limited to) preparation and implementation of a Paleontological Resources Management Plan (PRMP) by a Qualified Professional Paleontologist (Project Paleontologist). Because the engineering, design, and grading plans for the project have not been finalized, it is not feasible and impractical to prepare a PRMP at this time. After finalization of the engineering, design, and grading plans, preparation and implementation of the PRMP by a Project Paleontologist, as well as other appropriate mitigation measures outlined below, would reduce adverse impacts to less-than-significant levels, pursuant to CEQA.

SWCA recommends the following mitigation measures, which have been developed in accordance with and incorporate the performance standards of the SVP (1995, 2010), state and local regulations, and best practices in mitigation paleontology (Murphey et al. 2019).

1. **Retain a Qualified Professional Paleontologist (Project Paleontologist):** Prior to the start of construction and/or ground-disturbing activities, a Qualified Professional Paleontologist (Project Paleontologist) shall be retained who meets or exceeds the professional standards defined by the SVP (2010), and who has specific experience overseeing mitigation projects in Pleistocene deposits of the Los Angeles Basin. The SVP (2010:10) defines a qualified professional paleontologist as: “a practicing scientist who is recognized in the paleontological community as a professional and can demonstrate familiarity and proficiency with paleontology in a stratigraphic context.” The Project Paleontologist shall have a graduate degree in paleontology or geology,

and/or a publication record in peer reviewed journals; have demonstrated competence in field techniques, preparation, identification, curation, and reporting; have at least two full years of professional experience as assistant to a qualified professional paleontologist with administration and project management experience (supported by a list of projects and referral contacts); have proficiency in recognizing fossils in the field and in determining their significance; have expertise in local geology, stratigraphy, and biostratigraphy; and have experience collecting vertebrate fossils in the field (SVP 2010). The Project Paleontologist and Page Museum curators and collections managers shall meet regularly over the life of the implementation of the project to address any outstanding questions or concerns that arise during mitigation efforts to ensure effective communication and coordination. The Project Paleontologist shall oversee all regulatory compliance measures, shall oversee mitigation protocols related to paleontological resources, and shall be a point of contact for the Page Museum curators and County officials. A professional resume or curriculum vitae of the Project Paleontologist shall be submitted for review to the curators of the Page Museum (on behalf of the Museum of Natural History, as the County departmental unit) for approval prior to the start of preconstruction ground-disturbing activities.

2. **Prepare a Paleontological Resources Management Plan:** After finalization of the engineering, design, and grading plans for the proposed project and prior to the start of preconstruction ground-disturbing activities, a Paleontological Resources Management Plan (PRMP) shall be prepared by the Project Paleontologist and submitted to the Page Museum curators, who shall review and approve the final PRMP on behalf of the County and Museum of Natural History. The PRMP shall define the processes and procedures for paleontological monitoring and fossil excavation based on the nature of ground-disturbing activities required for project. The PRMP shall:

    a. Incorporate the results of this paleontological resources technical report (Carson et al. 2022), the final geotechnical investigation, and the final engineering/grading plans for the project.

    b. Require all construction personnel to attend a Worker Environmental Awareness Program (WEAP) training to be presented by the Project Paleontologist, or their designee.

    c. Define the processes and procedures for coordinating and communicating with (including but not limited to) the contractors, consultants, County officials, and Museum of Natural History (specially, the Page Museum curators and collections managers), when construction activities would be halted due to discovery and subsequent salvage efforts during ground-disturbing activities, and when regularly scheduled meetings between the Project Paleontologist and the Page Museum curators and collections managers would be required.

    d. Outline a procedure whereby mechanical excavation is conducted to remove any non-fossil-bearing sediments or soils subject to environmental soil remediation, such that adequate time is afforded to identify fossil localities and to conduct scientific salvage operations to a feasible extent (see Millington and Dietler 2023); the timing of scientific fossil salvage operations during initial grading should be given special considerations in the PRMP such that delays to earthwork activities are minimized while allowing paleontological material to be salvaged at an acceptable level that retains the scientific integrity of the discoveries.

    e. Require full-time paleontological monitoring by qualified paleontological monitors who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist; qualified paleontological monitors shall have the authority to temporarily halt construction activities to record and salvage fossil discoveries as they are unearthed to allow for potentially significant fossils to be collected with their scientific integrity intact to the extent feasible and practical.

f. Discuss unanticipated fossil discovery and communication protocols if paleontological resources are discovered by non-paleontology staff working on the project in instances where paleontological monitors are documenting or recording paleontological resources discovered elsewhere within the project site.

g. Discuss feasible monitoring procedures for each of the different ground-disturbing activities, including but not limited to active observation or inspection of sediments during active ground disturbances, whether they be trenching, grading, excavating, drilling, or some other activity that disturbs sediments; inspection of sedimentary spoils spiles or cuttings, as well as backfill originating from Hancock Park that may contain asphaltum or fossil material; and/or matrix screening of spoils for small or microfossils as needed.

h. Define fossil salvaging procedures, including but not limited to outlining the treebox method for asphaltum bearing large accumulations of fossils, salvaging of isolated fossils, matrix screening in the field for microfossils, and chain-of-custody procedures for transferring the fossil discoveries to the Page Museum curators or collection managers as they are exhumed from the project site. Because of the unique conditions of the La Brea Tar Pits and the chemical considerations of working with asphaltum fossil deposits, any paleontological resource discoveries shall remain on-site with the Page Museum. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities.

i. Require the Project Paleontologist to prepare a report of the findings of the monitoring efforts within 90 days after construction is completed.

3. **Conduct Worker Training.** The Project Paleontologist shall develop and present a WEAP training to educate the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of an unanticipated fossil discovery. This training program shall be given to the crew before ground-disturbing work commences and shall include handouts to be given to new workers as needed.

4. **Monitor for Paleontological Resources:** Full-time monitoring shall be required during all ground-disturbing activities (including artificial fill or previously disturbed sediments), regardless of depth. Additionally, special considerations shall be given to the project design elements and geotechnical and soils remediation or hazard reduction recommendations, including but not limited to the paleontological screening of tar sands prior to disposal or treatment. Procedures and protocols for paleontological monitoring and fossil salvage shall be outlined in the PRMP. Monitoring shall:

a. Be conducted by a qualified paleontological monitor who meets the standards of the SVP (2010) and shall be supervised by the Project Paleontologist, who shall coordinate with the Page Museum curators and collections managers and County officials. The Project Paleontologist may periodically inspect construction activities to recommend adjusting the level of monitoring in response to subsurface conditions; however, modifications, such as increasing, reducing, or ceasing of paleontological monitoring, or any changes of the implementation of the PRMP, should be approved by Page Museum curators and the County Museum of Natural History.

b. Include inspection of exposed sedimentary units during active excavations, grading, tar sand removal, and any other ground-disturbing activity that has the potential to impact sediments capable of preserving significant fossils. The Page Museum curators (or their representatives) and the paleontological monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, shall the fossils be determined significant or likely significant, professionally and efficiently

recover the fossil specimens and collect associated data while minimizing delays. Data collection procedures may require the support of construction contractors to carefully and efficiently collect field data and extract the fossils to allow construction to continue.

c. Require grading and earthwork contractors to follow the guidance of Page Museum staff or the Project Paleontologist regarding the collection and/or extraction of paleontological resources. The paleontological monitor shall record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be directly retained by the Page Museum for later analysis, laboratory preparation, and eventual curation if deemed significant or important by the Page Museum curators or collection managers.

5. **Prepare a Paleontological Resources Monitoring Report:** Upon conclusion of ground-disturbing activities, the Project Paleontologist overseeing the implementation of the PRMP, including paleontological monitoring and fossil salvaging, shall prepare a final monitoring report that documents the paleontological monitoring efforts for the project and describes any paleontological resources discoveries observed and/or recorded during the life of the project. The final monitoring report and any associated data pertinent to the salvaged fossil specimen(s) shall be submitted to the Los Angeles County Museum of Natural History within 90 days after construction is completed.

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APPENDIX A

Key Personnel Resumes

MATHEW CARSON, M.S., LEAD PALEONTOLOGIST

Mr. Carson is a cultural and paleontological resources project manager who maintains a comprehensive understanding of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), as well as other regulations pertaining to cultural and paleontological resources. He provides paleontological expertise on projects spanning transportation, energy, mining, public works, transmission lines, education, and development throughout California. Additionally, Mr. Carson exceeds the qualifications of a Qualified Professional Paleontologist according to the guidelines of the Society of Vertebrate Paleontology and is listed as a Principal Investigator on SWCA's Bureau of Land Management California Paleontological Resources Use Permit. He has authored numerous paleontological assessments, as well as sections of NEPA/CEQA environmental documents. He has successfully managed cultural and paleontological projects from their initial planning to their final construction.

YEARS OF EXPERIENCE

8.5

EXPERTISE

Project management

Vertebrate and invertebrate paleontology, micropaleontology, and paleobotany

CEQA/NEPA compliance for cultural and paleontological resources

Paleontological technical studies, mitigation plans, construction monitoring, salvages, final reports

EDUCATION

M.S., Geology (Paleontology); Bowling Green State University, Ohio; 2013

B.S., Geology (Paleobiology); Bowling Green State University, Ohio; 2009

PERMITS

U.S. Bureau of Land Management California Paleontological Resource Use Permit (CA-22-08P), Principal Investigator

MEMBERSHIPS

Member, Paleontological Society

Member, Society of Vertebrate Paleontology

SELECTED PROJECT EXPERIENCE (∗ denotes project experience prior to SWCA)

Paleontological Resources Monitoring and Mitigation Program for the 3rd and Fairfax Mixed-Use Development Project; Holland Partner Group; Los Angeles, California. The proposed project is a mixed-use development consisting of residential units and retail commercial space. *Role: Senior Paleontologist and Project Manager. Managed the overall project, prepared the paleontological mitigation and monitoring plan, and provided paleontological technical oversight during monitoring.*

Paleontological Resources Monitoring and Mitigation Program for the 3rd and Pacific Mixed-Use Development Project; Holland Partner Group; Long Beach, California. The proposed project is a mixed-use development consisting of residential units and retail commercial space. *Role: Senior Paleontologist and Project Manager. Managed the overall project, prepared the paleontological mitigation and monitoring plan, and provided paleontological technical oversight during monitoring.*

City of Chino Hills Technical Studies and EIR for General Plan Update; EcoTierra Consulting Inc.; San Bernardino County, California. Due to adoption of the 6th Cycle Housing Element, the proposed project consists of a program-level review of the City of Chino Hills, as well as a project-level review of nine specific sites, to update the City of Chino Hills 2015 General Plan. *Role: Senior Paleontologist and Task Lead: Managed the paleontology task oversaw paleontological surveying and prepared final report..*

Tapia Ranch Project; Private Developer and PlaceWorks; Los Angeles County, California. The proposed project would include 405-unit single-family residential lots and associated public works facilities. Approximately 74 percent of the 1,165-acre On-Site/In-Tract part of the project site (861.4 acres) would remain in its current undeveloped natural condition. *Role: Senior Paleontologist/Technical Lead. Conducted a paleontological resources assessment.*

*Prima Deshecha Landfill Landslide Remediation Project - Phase D; County of Orange Integrated Waste Management Department; City of San Juan Capistrano, California. Project consisted of mass grading efforts to remediate landslides. The landfill is administered by the County of Orange Integrated Waste Management Department. *Role: Senior Paleontologist/Project Manager. Oversaw paleontological monitoring efforts, assessed the significance of fossil discoveries, and provided weekly reports to the County of Orange. Efforts resulted in the documentation and management of nearly 100 fossil sites of varying significance, including two highly significant articulated, nearly complete baleen whale fossils excavated over two months during project earthwork activities. Prepared the final Paleontological Monitoring Report and facilitated curation with John D. Cooper Center.*

Arroyo Seco Low Flow Diversion Project Cultural and Paleontological Support; City of Los Angeles Department of Public Works, Bureau of Engineering (LADPW BOE); Los Angeles County, California. The LADPW BOE is constructing several low-flow diversion (LFD) systems along the Arroyo Seco that will capture and divert dry weather flows from storm drains and divert them to sanitary sewers for treatment. *Role: Senior Paleontologist. Conducted a programmatic review of the paleontological resource potential, prepared the paleontological mitigation and monitoring plan, and provided paleontological technical oversight during monitoring.*

Los Angeles River Low Flow Diversion Project Cultural and Paleontological Support; LADPW BOE; Los Angeles County, California. The LADPW BOE is constructing several LFD systems along the Los Angeles River that will capture and divert dry weather flows from storm drains and divert them to sanitary sewers for treatment. *Role: Senior Paleontologist. Conducted a programmatic review of the paleontological resource potential, prepared the paleontological mitigation and monitoring plan, and provided paleontological technical oversight during monitoring.*

West Los Angeles Sewer Maintenance Yard Project; LADPW BOE; Los Angeles County, California. SWCA provided services under an on-call cultural resources contract. Tasks included preparation of a cultural and paleontological resources assessment reports. Work was conducted in compliance with CEQA, NEPA, and Section 106. *Role: Senior Paleontologist. Conducted a project-level review of the paleontological resource potential and prepared the technical report.*

7th Street Body Shop Replacement Project; LADPW BOE; Los Angeles County, California. SWCA provided services under an on-call cultural resources contract. Tasks included preparation of a cultural and paleontological resources assessment report. Work was conducted in compliance with CEQA, NEPA, and Section 106. *Role: Senior Paleontologist. Conducted a project-level review of the paleontological resource potential and prepared the technical report.*

Holy Cross Road Extension Project; Archdiocese of Los Angeles; Los Angeles County, California. Archdiocese of Los Angeles propose to expand their Holy Cross Cemetery onto two parcels in the Baldwin Hills area of unincorporated Los Angeles County. *Role: Senior Paleontologist and Task Lead. Tasks included preparation of a paleontological resources assessment report.*

Judson Transmission Pipeline Project; Eastern Municipal Water District (EMWD); City of Moreno Valley; Riverside County, California. SWCA provided biological, cultural, and paleontological support for CEQA compliance on behalf of the EMWD. Tasks included preparation of biological, cultural, and paleontological resources assessment reports. Work was conducted in compliance with CEQA, and other state and local regulations. *Role: Senior Paleontologist. Conducted a project-level review of the paleontological resource potential and prepared the technical report.*

*Climate Action Plan Project; Metropolitan Water District of Southern California; Multiple Counties in California. The project included the preparation of the Program Environmental Impact Report (PEIR) for the Climate Action Plan for Metropolitan Water District of Southern California. *Role: Senior Paleontologist. Mr. Carson prepared a paleontological resources assessment focused on regional paleontological studies, regional and local geologic maps, primary literature, online fossil locality databases, and the regulatory framework surrounding paleontological resources in various government jurisdictions within California.*

*High Park/Ponte Vista Residential Development Project; iStar Financial, Inc.; County of Los Angeles, California. The project, located on State Route 213, between Agajanian Drive and Fitness Drive in the San Pedro Port District, entailed the demolition of former U.S. Navy facilities and redevelopment with approximately 1,135 housing units on a 61.5-acre lot, with significant excavation operations consisting of cut/fill operations, mass grading, and sidewall cuts for retaining wall development. *Role: Paleontologist. Oversaw construction monitoring for paleontological resources.*

*Whiskey Hotel Project; Private Developer; City of Los Angeles, California. The Whiskey Hotel Project consists of construction of a new hotel located in the City of Los Angeles, California. *Role: Senior Paleontologist/Project Manager. Provided overall project management and paleontological oversight during the project's construction.*

*Echo Hotel Project; Private Developer; City of Los Angeles, California. The Echo Hotel Project, located in the city of Los Angeles, California, proposes to combine nine contiguous lots, demolish the existing commercial building, reroute an alley, and construct an eight-story hotel, with an attached restaurant, meeting space, fitness facility, and aboveground and subterranean parking. *Role: Senior Paleontologist/Project Manager. Prepared a paleontological resources assessment technical memorandum for the project.*

RUSSELL SHAPIRO, PH.D., PRINCIPAL INVESTIGATOR, PALEONTOLOGY

Dr. Shapiro is a principal investigator in SWCA's Pasadena office, supporting paleontological resource assessments and evaluations, field surveys and construction monitoring, preparation of technical reports, and peer or senior review for technical reports and mitigation plans, as well as researches and drafts paleontology sections for the environmental impact reports/statements for California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA) compliance throughout California and the western United States. As a paleontology principal investigator who exceeds the definition of a Qualified Professional Paleontologist as defined by Society of Vertebrate Paleontology (SVP), Dr. Shapiro has reviewed resource planning documents for several counties in California and was the lead on the Bureau of Land Management's (BLM's) assessment of fossil resources of Northern California.

In his academic role as Professor of Geology and California State University, Chico, Dr. Shapiro teaches several paleontology courses, focusing on CEQA and NEPA regulations, field surveys, geographic information system projections, fossil recovery, budgeting, and curation. He also teaches in the annual Field Camp courses, manages the rock preparation laboratory, and maintains the microscopes.

YEARS OF EXPERIENCE

20

EXPERTISE

Project management

Paleontological resources management

CEQA/NEPA compliance

Fossil preparation

EDUCATION

Ph.D., Geological Sciences; University of California, Santa Barbara; 1998

B.S., Geology; Humboldt State University, Arcata, California; 1992

PERMITS AND MEMBERSHIPS

U.S. Fish and Wildlife Cultural Resources Use Permit

U.S. Forest Service Cultural Resources Use Permit

Bureau of Land Management Cultural Resources Use Permit

Wilderness and Remote First Aid (Red Cross Certified)

Geobiology Society; Treasurer

Society for Sedimentary Geology (SEPM); Secretary

Society for Vertebrate Paleontology

SELECTED PROJECT EXPERIENCE (* denotes project experience prior to SWCA)

*N-99414 12.5-kV Distribution Facility Goodsprings-Sandy Valley; NV Energy; Clark County, Nevada. Conducted all phases of paleontological resource assessment for a transmission line replacement. These tasks included the desktop analysis of known resources, field survey of the project footprint, and follow-up reporting. *Role: Principal Investigator. Conducted field mapping.*

I-10/Robertson/National Area Circulation Improvement Project; Michael Baker International; Los Angeles County, California. SWCA conducted a cultural resources analysis, which includes a California Historical Resources Information System (CHRIS) records search, an Electronic Database Resources records search, an architectural resources survey and recording, an archaeological resources survey, and writing the Caltrans Archaeological Survey Report (ASR), Historic Property Survey Report (HPSR), and Historical Resources Evaluation Report (HRER). *Role: Principal Investigator. Desktop analysis of the geology and paleontological resources; authored the technical report.*

General Plan Update for City of Corona; City of Corona; Riverside County, California. Co-authored Paleontological Resources Technical Report based on review of geological reports, museum records, and published literature to support the proposed revision to the City's general plan. The revised general plan will guide all paleontological mitigation in the City's jurisdiction. *Role: Principal Investigator, Paleontologist, co-author of final reports.*

*Research on the Jurassic Bedford Canyon Formation; Riverside County, California. This project covers independent research on unique fossil ecosystems preserved in the Santa Ana Mountains in Riverside County. As Research Lead, Dr. Shapiro coordinates paleontologists from the Polish National Museum (Warsaw) and the Natural History Museum of Los Angeles County as well as geochemists from Caltech and the State College of Pennsylvania. The project is ongoing. *Role: Research Lead. Duties include field mapping and collection, fossil and powder preparation, and coordinating between research partners.*

City of Hope Specific Plan and EIR; PlaceWorks; Duarte, Los Angeles County, California. SWCA provided a cultural resources study which included a records search and literature review, Native American coordination, an archaeological resources field survey,

preparation of a cultural resources technical report with evaluations of potential historic properties and an assessment of potential impacts to those properties, and a paleontological resources study. The project area corresponds with the approximately 116-acre City of Hope campus, with approximately 89.5 acres in the city of Duarte and 26.5 acres in the city of Irwindale, Los Angeles County, California. This study was completed in compliance with the CEQA. *Role: Principal Investigator. Reviewed general plan and provided changes for the final draft.*

75 Howard Street; Paramount Group, Inc.; San Francisco, San Francisco City and County, California. SWCA prepared the EIR for the proposed project at 75 Howard Street, which tiered off the Transit Center District Plan and Transit Tower Final EIR. The proposed project at 75 Howard Street consists of the demolition of an existing 91 foot-tall, eight-level parking garage and the construction of a 31-story, 348-foot-tall, residential high-rise tower on the site. SWCA directed technical background studies for aesthetics, archaeology, transportation, noise, air quality, wind, and shadow and prepared and distributed a Notice of Preparation of an EIR and Initial Study, which focused on the environmental topics for which the proposed project would have less-than-significant impacts. *Role: Principal Investigator. Reviewed geological data and museum records to draft the environmental review document.*

Ann Project Paleo Study; SRK Consulting, Inc.; Nye County, Nevada. SWCA was contracted by SRK Consulting to provide a paleontological resources assessment for the Ann Project located in central Nevada. The project is located on lands administered by the U.S. Forest Service and the BLM. The project will involve the construction of a barite mine and jig plant on the site. *Role: Principal Investigator. Conducted pre-survey discussion of local geology and reviewed report.*

City of Corona General Plan Interim Technical Update and Environmental Analysis; PlaceWorks; Corona, Riverside County, California. The City of Corona initiated the process to prepare an interim technical update to its General Plan. The City's General Plan was last comprehensively updated in 2004 along with environmental analysis and is still the City's guiding land use document to the year 2025. The update did not substantially alter the outcomes of the visioning process that founded the 2004 update but ensured that all technical data and policies remain current, relevant, and effective to ensure that the document successfully guides decisions and activities carried out by the City's decision makers and City staff. SWCA provided multi-disciplinary support for this General Plan technical update and environmental analysis. *Role: Principal Investigator. Reviewed general plan and provided changes for the final draft.*

San Bernardino Web-based Countywide General Plan and EIR; PlaceWorks; San Bernardino County, California. SWCA is currently conducting cultural and paleontological resources studies supporting PlaceWorks to prepare a Web-based Countywide Plan and a PEIR for the County of San Bernardino. SWCA is providing Native American consultation support, and conducting records searches for cultural and paleontological resources to summarize the existing conditions and inform a sensitivity analysis for the plan area, which includes a Community Plan Area within unincorporated portions of San Bernardino County. *Role: Principal Investigator. Reviewed general plan and provided changes for the final draft.*

SCAG 2020 RTP/SCS Program Environmental Impact Report (PEIR); Impact Sciences, Inc.; Multiple Counties, California. SWCA was retained by Impact Sciences to provide environmental services in support of the Southern California Association of Governments PEIR for the 2020 Regional Transportation Plan/Sustainable Communities Strategy in accordance with environmental compliance procedures under federal metropolitan planning law and regulations, the CEQA statutes and guidelines, and other relevant federal and state environmental laws and regulations. SWCA is conducting biological, cultural, and paleontological resources studies in support of the PEIR. *Role: Principal Investigator. Reviewed paleontology report.*

SCE Fort Irwin Reliability Project Environmental Assessment; Southern California Edison Company; San Bernardino County, California. SWCA is providing support for this transmission line improvement project located on lands administered by the BLM and Department of Defense as well as private landowners. Services include the development of the BLM Plan of Development (POD), preparation of the Environmental Assessment (EA), and biological, jurisdictional waters, cultural, and paleontological technical studies and reports to support the EA, POD, and environmental permits. *Role: Principal Investigator. Reviewed drafts of technical reports.*

Confidential Transmission Project; Confidential Clients; California. SWCA is providing permitting and licensing support, including preparation of a PEA, for a new 230/70-kV substation, 7 miles of new aboveground 70-kV power line, 3 miles of reconductored 70-kV line, and a 230-kV interconnection in Paso Robles. Services include cultural, biological, and paleontological surveys; PEA preparation; PTC application filing support and noticing; and post-filing CEQA and permitting support. *Role: Principal Investigator. Conducted desktop analysis of geological setting and paleontological resources.*

APPENDIX B

Museum of Natural History Paleontological Records Search

CONFIDENTIAL – NOT FOR PUBLIC RELEASE

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

February 5, 2022

SWCA Environmental Consultants
Attn: Georgia Knauss

re: Paleontological resources for the La Brea Tar Pits Master Plan Project, #00063953

Dear Georgia:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the La Brea Tar Pits Master Plan project area as outlined on the portion of the Hollywood USGS topographic quadrangle map that you sent to me via e-mail on January 31, 2022.

The asphaltic deposits of Rancho La Brea contain perhaps the densest accumulation of vertebrate fossils in the world, and are unique in their occurrence in a major urban area and still being productive after more than 100 years of excavation. In fact, one localized deposit designated as Pit 91, locality LACM 6909, is still being actively excavated. The Rancho La Brea asphalt deposits are also unusual in preserving a substantial portion of the total biota, including an extensive list of fossil plants, insects, and invertebrates in addition to the justly renowned vertebrate fauna. Over 200 species of fossil vertebrates are represented in these deposits, including extinct forms of bison, camel, horse, mammoth, mastodon, ground sloths, dire wolf, lion, condor, eagle, turkey, etc. One of the earliest human skeletal remains from California has also been recovered from these deposits. Numerous holotypes have come from the Rancho La Brea deposits, including the holotype of the sabre-toothed cat, *Smilodon californicus* (now known as *Smilodon fatalis*), designated as the California state fossil. The Rancho La Brea paleobiota documents climatic change in the Los Angeles Basin during the latest Pleistocene and earliest Holocene, including the last "ice age". It is so significant that this deposit served as the basis for designating the late Pleistocene as the North American Land Mammal Age called the Rancholabrean.

There are numerous fossil localities documents within Hancock Park, of which some of the most fossiliferous are listed in the table below:

Locality Number	Location	Formation	Taxa	Depth/Elevation
LACM VP 7298	The Page Museum (collected during construction of the museum building)	Variably asphaltic silts & silty clays	Botanical; Invertebrate & Vertebrate; estimated around 10,000 specimens	159 ft above mean sea level
LACM VP 6909	Rancho La Brea. Pit # 91 at Hancock Park.	Asphaltic sands	Abundant vertebrate, invertebrate, and plant fossils	Surface – 20 feet bgs
Numerous	Los Angeles County Museum of Art,	Pleistocene fluvial deposits and	16 asphaltic fossil deposits preserving an estimated over one	Starting at 10 feet bgs

	Project 23	asphaltic sands	million specimens including one nearly complete mammoth

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

The asphaltic deposits extend in the subsurface beyond the bounds of Hancock Park, with some of the closest localities listed in the following table.

Locality Number	Location	Formation	Taxa	Depth
LACM VP 4204	SW corner of Wilshire Boulevard & Spaulding Avenue	Older alluvium (asphaltic)	Antelope (*Antilocapra*)	Unknown
LACM VP 5481	Museum Square South; SW of Wilshire Blvd. and Masselin Ave.	Palos Verdes Sand (Member C; 0.5 to 1 meter thick bed of asphalt- impregnated gravelly medium grained sandstone)	Mammoth (*Mammuthus*), tapir (*Tapirus*); horse (*Equus*); camelid (*Camelops*, cf. *Hemiauchenia*); bison (*Bison*)	8.5 m bgs
LACM VP 6345	Parcel bounded by Wilshire Blvd. to the south, Orange Grove Avenue on the west, Ogden Avenue on the east & the May Company parking structure on the north	Asphaltic sands	Bird (Aves); horse (*Equus* cf. *E. occidentalis)*	Unknown
LACM VP 7247	Westbound lane of Wilshire Boulevard just west of Curson Street	Brown asphalt impregnated silt with lenses of coarse asphaltic sand	Dire wolf (*Canis dirus*), horse (*Equus*)	Approx. 2 feet bgs
LACM VP 7297	SE corner of 6th St and S Curson Ave	Medium to coarse grained asphaltic sand grading to asphaltic clay	Botanical; Invertebrate & Vertebrate; estimated around 250,000 specimens	173-180 ft above man sea level
LACM VP 1724	Near intersection of Hauser & Wilshire Blvd	Pleistocene, asphaltic sands	Pond turtle (*Clemmys marmorata),* bird (Aves), racoon (Procyonidae), sabretooth cat (*Smilodon fatalis)*, dire wolf (*Canis dirus)*, coyote (*Canis latrans)*, pronghorn antelope (*Capromeryx minor)*, and bison (*Bison)*	8 feet bgs

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,

Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

APPENDIX G

Methane Survey Report

METHANE SURVEY REPORT
LA BREA TAR PITS SITE MASTER PLAN
5801 WILSHIRE BOULEVARD
LOS ANGELES, CALIFORNIA

Prepared For: **LOS ANGELES COUNTY MUSEUM OF NATURAL HISTORY FOUNDATION**
900 EXPOSITION BOULEVARD
LOS ANGELES, CALIFORNIA 90007

Prepared By: **LEIGHTON CONSULTING, INC.**
17781 COWAN
IRVINE, CALIFORNIA 92614

Project No. 10890.004

January 12, 2023

Leighton Consulting, Inc.
A Leighton Group Company

January 12, 2023

Project No. 10890.004

Los Angeles County Museum of Natural History Foundation
900 Exposition Boulevard
Los Angeles, California 90007

Attention: Ms. Dawn McDivitt, Chief Deputy Director

Subject: Methane Survey Report La Brea Tar Pits Master Plan
5801 Wilshire Boulevard, Los Angeles, California

References: Los Angeles Department of Building and Safety, 2020, Site Testing Standards for Methane, Document No. P/BC 2020-101, dated January 1, 2020.

INTRODUCTION

Leighton Consulting, Inc. (Leighton) is pleased to present this Methane Survey Report for the proposed La Brea Tar Pits Master Plan project located at 5801 Wilshire Boulevard, Los Angeles, California (Site – Figure 1).

Although the property is located within the boundary of the City of Los Angeles, the property is owned by the County and is governed by County codes and regulations. The County of Los Angeles requires that a methane survey be conducted prior to issuance of permits for new buildings or enclosed structures, additions, or conversions of a building or structure to habitable or occupiable at the Site in accordance with Sections 110.3, 110.4, and 110.5 of Title 26 of the Los Angeles County Code. Los Angeles County does not have a specific set of requirements for methane testing protocols to determine the necessary level of mitigation; therefore, they rely upon Site Testing Standards for Methane described in the City of Los Angeles Department of Building and Safety (LADBS) January 1, 2020 Information Bulletin Public – Building Code (IB/P/BC) 2020-101 to assess methane conditions at the Site.

SITE DESCRIPTION AND PROJECT INFORMATION

The La Brea Tar Pits property (Site) is located at 5801 Wilshire Boulevard within the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902). The Site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to the Los Angeles County Museum of Art (LACMA); both LACMA and the Foundation are responsible for managing separate and distinct portions of the 23-acre Hancock Park, with the Foundation responsible for the 13-acre project Site and LACMA responsible for the remainder of Hancock Park to the west of the Site boundaries. LACMA's facilities are not included in this project.

It is our understanding that the proposed La Brea Tar Pits Master Plan will consist of the renovation of the existing George C. Page Museum which is approximately 63,200 square feet (sf) in size, construction of a new two-story 40,000 sf museum building northwest of the George C. Page Museum, and other renovations and upgrades to the Lake Pit, the entrance to the property at Wilshire Boulevard and South Curson Avenue, the entrance at West 6th Street, the tar pits (Pits 3, 4, 9, 13, 61, 67, and 91, and Project 23), pedestrian paths and recreation areas, parking, and landscaping.

The existing George C. Page Museum building was constructed with a methane mitigation system beneath the foundation that has been tested on a regular basis. Methane has been detected at concentrations exceeding 50,000 parts per million by volume (ppmv) in previous monitoring events. It is anticipated that any renovations to this museum structure will keep the existing mitigation system intact.

The property on which the existing and planned museum buildings are located is 13 acres. The area of investigation required of very large properties, such as this one, may be calculated as the area of the proposed building footprint plus the area within 100 feet of the building perimeter. In this case, we assume the construction area of the new two-story 40,000 sf museum building, plus 100 feet around the perimeter, totaling approximately 160,000 sf, to be the project area requiring investigation.

LADBS Site Testing Standards for Methane require a minimum of two shallow soil gas probes per project area, set at a depth of at least 4 feet below ground surface or at a rate of one probe per 10,000 sf of project area. Additionally, deeper soil gas probe sets are required to be installed at a rate of one set per 20,000 sf of project area with the probes set at 5, 10, and 20 feet below the deepest slab/foundation or a minimum of 12 inches above the ground water table.

While the exact depth of construction and the finish grade of the new museum building has not been established, the depth of excavation may extend to approximately 6 to 10 feet below ground surface (bgs). Since shallow groundwater and asphalt sands have been encountered at the Site at a depth of approximately 6 feet bgs, only 16 shallow probes were installed at depths of 5 feet bgs or shallower during this investigation.

OBJECTIVE

The objective of our methane assessment was to evaluate the concentrations of methane in subsurface soil gas at the Site to determine necessary mitigation requirements for the proposed new construction.

SUMMARY OF WORK COMPLETED

Soil Gas Probe Installation

Leighton engaged Millennium Environmental, Inc. to install soil gas probes in 16 borings (MB-1 to MB-16) using direct push drilling equipment (Figure 1).

Soil gas probes were placed at depths between 4 and 5 feet bgs in each soil boring location. Due to shallow groundwater encountered between 6 and 8 feet bgs in previous investigations and the presence of asphalt sands and clays deeper probes were not able to be installed. The soil gas probes consisted of inert ¼-inch nylaflow tubing fitted with a porous airstone at the terminus, which were set within one foot of sand, one foot of dry bentonite above, followed by hydrated bentonite to six inches below the ground surface. The surface end of the probe was fitted with a gas-tight leurlock to prevent infiltration of water or air. Soil gas probes were allowed to equilibrate for a minimum of 2 hours prior to sampling.

Soil gas sampling points were abandoned upon completion of the second soil gas sampling event. Probe abandonment consisted of pulling the tubing from the ground or cutting the tubing as deep as possible from each location if the tubing could not be removed. Each location was sealed with hydrated bentonite and the surface was restored to its original condition.

Boring locations were accurately measured to a fixed reference point, noted on field maps, and surveyed using a Trimble Geo7X Mobile Global Positioning System (GPS) unit.

Soil Gas Probe Sampling

Soil gas samples collected from the probes were tested on October 18 and 19, 2022. The soil gas samples were analyzed in the field utilizing an RKI Eagle (Landtec equivalent) with a methane detection limit of 5 ppmv. Soil gas pressure readings were obtained from each soil gas probe using a magnahelic gauge capable of measuring 0.01 inches of water prior to testing. Barometric pressure readings were noted prior to sampling the probes and were observed to be steady during the sampling events.

RESULTS

Methane was detected at concentrations ranging from 5 ppmv to 49,000 ppmv in soil gas samples collected on October 18, 2022. Methane was detected at concentrations ranging from 15 ppmv to 50,000 ppmv in soil gas samples collected on October 19, 2022. Soil gas samples were not collected from five locations (MB-3, MD-4, MB-6, MB-11, and MB-12) due to no flow conditions encountered within clay units.

Pressure readings from the individual soil probes were measured at 0.0 inches of water, indicating that there was no significant soil gas pressure observed during this investigation.

A completed Certificate of Compliance for Methane Test Data (Form 1, Part 1) has been stamped by a Registered State of California Professional Geologist and is attached at the end of this report. A table showing the test results is included in the Certificate of Compliance for Methane Test Data (Form 1, Part 2).

CONCLUSIONS AND RECOMMENDATIONS

Methane was detected in soil gas at a maximum concentration of 50,000 ppmv during this methane survey. No measureable soil gas pressures above 0.1 inches of water were detected.

Based on the results of our methane survey, the Site would be classified as Site Design Level V. Sites within Site Design Level V are required to install an active mitigation system. The active mitigation system should include features such as an impervious membrane, a sub-slab venting system (including pressure sensors below the impervious membrane and a mechanical extraction system), a gas detection system, and an alarm system. Other miscellaneous items that should be installed include trench dams, conduit or cable seal fittings, and additional vent risers. De-watering may be required based on the depth of final construction which has no yet been determined.

It should be noted that if planned construction activities do impact the existing methane mitigation system beneath the current George C. Page Museum, the repair mitigation system will meet Site Design Level V active mitigation requirements.

This report should be submitted to Los Angeles County Department of Building and Safety with your development plans that include the appropriate mitigation for review and approval.

CLOSING

If you have any questions regarding this report, please do not hesitate to contact this office. The undersigned can be reached by phone at (949) 681-4287.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

Brynn McCulloch, PG 8798
Principal Geologist

Attachments: Figure 1 – Site Plan
Form 1 – Certificate of Compliance for Methane Test Data
Table 1A – Mitigation Requirements for Methane Zone

Distribution: (1) Addressee

LEGEND

Approximate Proposed Museum Area

MB-16 Approximate Soil Boring Location

SITE PLAN

The La Brea Tar Pits Master Plan
New Museum Building
5801 Wilshire Boulevard
Los Angeles, California

Project No.	10890.004
Scale	NTS
Engr./Geol.	BFM
Drafted By	BFM
Date	January 2023

Leighton

Figure 1

FORM 1 - CERTIFICATE OF COMPLIANCE FOR METHANE TEST DATA

Part 1: Certification Sheet

Site Address: 5801 Wilshire Boulevard, Los Angeles, CA

Legal Description: Tract: _____ Lot: _____ Block: _____

Building Use: Proposed museum building

Architect's, Engineer's or Geologist's Stamp:

PROFESSIONAL GEOLOGIST
BRYNN F. McCULLOCH
No. 8798
STATE OF CALIFORNIA

Name of Architect, Engineer, or Geologist:
Brynn McCulloch
Mailing Address:
17781 Cowan, Irvine, CA 92614
Telephone:949-681-4287

Name of Testing Laboratory:
Leighton Consulting, Inc.
City Test Lab License #: TA 10069
Telephone:949-250-1421

I hereby certify that I have tested the above site for the purpose of methane mitigation and that all procedures were conducted by a City of Los Angeles licensed testing agency in conformity with the requirements of the LADBS Information Bulletin P/BC 2020-101. Where the inspection and testing of all or part of the work above is delegated, full responsibility shall be assumed by the architect, engineer or geologist whose signature is affixed thereon.

Signed: _____ date 11/15/2022

Required Data:

- Project is in the (**Methane Zone**) or (Methane Buffer Zone).
- Depth of ground water observed during testing: 6 feet below the Impervious Membrane.
- Depth of Historical High Ground Water Table Elevation*: 6 feet below the Impervious Membrane.
- Design Methane Concentration**: 50,000 parts per million in volume (ppmv).
- Design Methane Pressure***: 0.0 inches of water column.
- Site Design Level: (Level I, Level II, Level III, Level IV, **Level V**) with <2 inches of water column.

De-watering:

- De-watering (**is**) (is not) required per Section 7104.3.7.
- Pump discharge rate _____ cubic feet per minute per reference geology or soil report: _____ dated _____.

Additional Investigation:

- Additional investigation (was) (**was not**) conducted. See report.

Latest Grading on Site:

- Date of last grading on site (**was**) (was not) more than 30 days before Site Testing.
- See report for explanation of the effect on soil gas survey results by grading operations.

Notes:

* Historical High Ground Water Table Elevation shall mean the highest recorded elevation of ground water table based on historical records and field investigations as determined by the engineer for the methane mitigation system.

** Design Methane Concentration shall mean the highest recorded measured methane concentration from either Shallow Soil Gas Test or any Gas Probe Set on the site.

*** Design Methane Pressure shall mean the highest total pressure measured from any Gas Probe Set on the site.

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities. For efficient handling of information internally and in the internet, conversion to this new format of code related and administrative information bulletins including MGD and RGA that were previously issued will allow flexibility and timely distribution of information to the public.

FORM 1 (CONTINUED) - CERTIFICATE OF COMPLIANCE FOR METHANE TEST DATA

Part 2: Test Data - Shallow Soil Gas Test and Gas Probe Test

Site Address: 5801 Wilshire Boulevard, Los Angeles, CA
Description of Gas Analysis Instrument(s):
Instrument Name and Model: RKI Eagle Instrument Accuracy: 5 ppmv.
City of Los Angeles Testing License #: TA 10069

Date	Time	Probe Set #	Concentration (ppmv)	Pressure (inches water column)	Probe Depth (feet bgs)	Description / Probe Location
10/18/2022	0719	MB-1	90	0.00	5	Parking lot NW
10/18/2022	0725	MB-2	65	0.00	4.5	Parking lot NW
10/18/2022	0733	MB-3	No flow	0.00	5	Parking lot SW
10/18/2022	0737	MB-4	No flow	0.00	5	Parking Lot SW
10/18/2022	0742	MB-5	4,875	0.00	4	Parking lot NE
10/18/2022	0750	MB-6	No flow	0.00	5	Parking lot SE
10/18/2022	0757	MB-7	49,000	0.00	5	Parking lot SE
10/18/2022	0800	MB-8	15	0.00	4	Parking lot NE
10/18/2022	0806	MB-9	95	0.00	5	Grassy area NE
10/18/2022	0816	MB-10	5	0.00	5	Grassy area NE
10/18/2022	0820	MB-11	No flow	0.00	5	Grassy area NW
10/18/2022	0833	MB-12	No flow	0.00	4	Grassy area NW
10/18/2022	0840	MB-13	5,000	0.00	4	Grassy area SW
10/18/2022	0844	MB-14	420	0.00	4.5	Grassy area SW
10/18/2022	0850	MB-15	250	0.00	4	Grassy area SE
10/18/2022	0903	MB-16	300	0.00	4	Grassy area SE
10/19/2022	0720	MB-1	85	0.00	5	Parking lot NW
10/19/2022	0730	MB-2	70	0.00	4.5	Parking lot NW
10/19/2022	0735	MB-3	No flow	0.00	5	Parking lot SW
10/19/2022	0740	MB-4	No flow	0.00	5	Parking Lot SW
10/19/2022	0750	MB-5	5,050	0.00	4	Parking lot NE
10/19/2022	0755	MB-6	No flow	0.00	5	Parking lot SE
10/19/2022	0803	MB-7	50,000	0.00	5	Parking lot SE
10/19/2022	0810	MB-8	25	0.00	4	Parking lot NE

TABLE 1 - DATA COLLECTION EQUIPMENT

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities. For efficient handling of information internally and in the internet, conversion to this new format of code related and administrative information bulletins including MGD and RGA that were previously issued will allow flexibility and timely distribution of information to the public.

FORM 1 (CONTINUED) - CERTIFICATE OF COMPLIANCE FOR METHANE TEST DATA

Part 2: Test Data - Shallow Soil Gas Test and Gas Probe Test

Site Address: 5801 Wilshire Boulevard, Los Angeles, CA
Description of Gas Analysis Instrument(s):
Instrument Name and Model: RKI Eagle Instrument Accuracy: 5 ppmv.
City of Los Angeles Testing License #: TA 10069

Date	Time	Probe Set #	Concentration (ppmv)	Pressure (inches water column)	Probe Depth (feet bgs)	Description / Probe Location
10/19/2022	0815	MB-9	100	0.00	5	Grassy area NE
10/19/2022	0825	MB-10	15	0.00	5	Grassy area NE
10/19/2022	0830	MB-11	No flow	0.00	5	Grassy area NW
10/19/2022	0835	MB-12	No flow	0.00	4	Grassy area NW
10/19/2022	0843	MB-13	6,450	0.00	4	Grassy area SW
10/19/2022	0850	MB-14	590	0.00	4.5	Grassy area SW
10/19/2022	0855	MB-15	310	0.00	4	Grassy area SE
10/19/2022	0905	MB-16	200	0.00	4	Grassy area SE

TABLE 1 - DATA COLLECTION EQUIPMENT

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities. For efficient handling of information internally and in the internet, conversion to this new format of code related and administrative information bulletins including MGD and RGA that were previously issued will allow flexibility and timely distribution of information to the public.

TABLE 1A. MITIGATION REQUIREMENTS FOR METHANE ZONE*

Site Design Level			LEVEL I		LEVEL II		LEVEL III		LEVEL IV		LEVEL V
Design Methane Concentration (ppmv)			0-100		101-1,000		1,001-5,000		5,001-12,500		>12,500
Design Methane Pressure (inches of water pressure)			≤2	>2	≤2	>2	≤2	>2	≤2	>2	All Pressures
PASSIVE SYSTEM	De-watering System [1]		X	X	X	X	X	X	X	X	X
PASSIVE SYSTEM	Sub-Slab Vent System	Perforated Horizontal Pipes	X	X	X	X	X	X	X	X	X
PASSIVE SYSTEM	Sub-Slab Vent System	Gravel Blanket Thickness Under Impervious Membrane	2"	2"	2"	3"	2"	3"	2"	4"	4"
PASSIVE SYSTEM	Sub-Slab Vent System	Gravel Thickness Surrounding Perforated Horizontal Pipes	2"	2"	2"	3"	2"	3"	2"	4"	4"
PASSIVE SYSTEM	Sub-Slab Vent System	Vent Risers	X	X	X	X	X	X	X	X	X
PASSIVE SYSTEM	Impervious Membrane		X	X	X	X	X	X	X	X	X
ACTIVE SYSTEM	Sub-Slab System	Pressure Sensors Below Impervious Membrane								X	X
ACTIVE SYSTEM	Sub-Slab System	Mechanical Extraction System [2]								X	X
ACTIVE SYSTEM	Lowest Occupied Space System	Gas Detection System [3]		X		X	X	X	X	X	X
ACTIVE SYSTEM	Lowest Occupied Space System	Mechanical Ventilation [3, 4, 5]		X		X	X	X	X	X	X
ACTIVE SYSTEM	Lowest Occupied Space System	Alarm System		X		X	X	X	X	X	X
ACTIVE SYSTEM	Control Panel			X		X	X	X	X	X	X
MISC. SYSTEM	Trench Dam		X	X	X	X	X	X	X	X	X
MISC. SYSTEM	Conduit or Cable Seal Fitting		X	X	X	X	X	X	X	X	X
MISC. SYSTEM	Additional Vent Risers [5]										X

X = Indicates a Required Mitigation Component

* Table 1A-Mitigation Requirements for Methane Zone and Table 1B-Mitigation Requirements for Methane Buffer Zone are based on Table 71 and Chapter 71 of the Los Angeles Building Code.

1. De-watering is not required when the maximum Historical High Ground Water Table Elevation, or projected post-construction ground water level, is more than 12 inches below the bottom of the Perforated Horizontal Pipes.
2. The Mechanical Extraction System shall be capable of providing an equivalent of a complete change of air every 20 minutes of the total volume of the Gravel Blanket.
3. The mechanical ventilation system shall be capable of providing an equivalent of one complete change of the lowest occupied space every 15 minutes.
4. Vent openings to comply with Item IV.B.4 on sheet 1 may be used in lieu of mechanical ventilation.
5. The total quantity of installed Vent Risers shall be increased to double the rate for the Passive System.

APPENDIX H

Low Impact Development and Hydrology Report

700 South Flower Street, Suite 2100 Los Angeles, CA 90017 213.418.0201 kpff.com

LOW IMPACT DEVELOPMENT (LID) & HYDROLOGY REPORT

La Brea Tar Pits Design and Renovation

5801 Wilshire Boulevard Los Angeles, California 90036

KPFF Job # 1900236

June 2023

OWNER:

Natural History Museum of Los Angeles County
5801 Wilshire Boulevard Los Angeles, California 90036

PREPARED BY:

KPFF Consulting Engineers
700 South Flower Street, Suite 2100
Los Angeles, CA 90017
(213) 418-0201

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Exhibits

Exhibit 1 Existing Hydrology
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Exhibit 4 Low Impact Development (LID)
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Appendices

Appendix A Vicinity Map and Rainfall Depth
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Appendix D Existing Hydrology Calculations
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Appendix F Alternate 4 Proposed Hydrology Calculations

References

County of Los Angeles Department of Public Works Low Impact Development Standards Manual dated February 2014

County of Los Angeles Department of Public Works Hydrology Manual dated January 2006

I. Project Description

The project consists of enhancing the existing La Brea Tar Pits site for the Natural History Museum of Los Angeles County. This redesign is comprised of a new pedestrian path that connects the entire site, an expansion of the existing George C. Page Museum (referred to as Page Museum hereafter), new entry canopies and pavilion plazas on Wilshire Boulevard and Sixth Street, landscape and infrastructure improvements, and a new community lawn. An alternative to the originally proposed Page Museum expansion is being evaluated that would reduce the contact with the Page Museum and enlarge the central lawn and parking lot. The total project site is approximately 15.1 acres or 58,192 square feet. The overall permeability of the site will be reduced in the proposed condition, however the site will remain over 50% permeable.

II. Purpose and Scope

Although the project is located within the limits of the City of Los Angeles (LA), the site is owned by LA County and therefore LA County is the Authority Having Jurisdiction (AHJ) for all work within the property limits. Any work in the public right of way would be subject to City of LA permitting requirements and review.

The proposed project is currently in schematic design. Due to the early nature of this design, modifications to the site plan, building footprint, and drainage calculations are anticipated between this study and the final permitted version. As a requirement of the permitting process, the project will be required to provide a current Low Impact Development (LID) and Hydrology report for County review and approval in order to validate that the final design conforms to all stormwater requirements. The purpose of this report is to evaluate the potential impacts to stormwater quality and quantity as a result of the proposed project and to demonstrate the feasibility of integrating adequate mitigation measures.

III. Drainage Concept

A. Existing Drainage

Currently, the existing project site is 68.1% pervious. For the purposes of analyzing hydrology in this study, the streets adjacent have been included in the studied area; therefore, the overall permeability of the existing hydrology study area is 59.3%. There are a few different drainage patterns on the site. In general, the site is highest on the southeast corner at the intersection of Wilshire Boulevard and Curson Avenue and slopes to the northwest of the project site towards Sixth Street and Ogden Drive. The north edge of the site slopes towards Sixth Street where runoff flows to the street gutter and ultimately to existing curb inlets located in the street. Similarly, east of the Page Museum, the landscaping slopes east towards Curson Avenue where the runoff drains north to Sixth Street. A portion of the roof runoff generated by the Page Museum also discharges directly to Curson. Within the central core of the site, area drains and catch basins collect surface runoff and discharge to an existing natural channel running through the site referred to as Oil Creek. Oil Creek ultimately drains to an existing 30-inch storm drain that connects south into a City of LA mainline located in Wilshire Boulevard. A small portion of the southeast corner of the site drains directly to Wilshire Boulevard where it is collected by existing curb inlets. Lastly, the project site includes Tar Lake, where the naturally occurring groundwater level is visible as surface water. The runoff from the southern portion of the project site drains into the Lake Pit.

Refer to Exhibit 1 – Existing Hydrology for the existing drainage area map.

B. Proposed Drainage

The proposed development is divided into four drainage management areas, corresponding with the four outfalls described above. In the proposed condition, three of the drainage management areas include biofiltration planters designed in accordance with Low Impact Development requirements (refer to "Low Impact Development" section, below):

- Drainage Area 1, which consists of runoff from the northwest portion of the site and expansion of the Page Museum, drains to Biofiltration Planter 1 and overflows to Oil Creek.
- Drainage Area 2, which consists of runoff from the parking lot and the Page Museum and the area to the east of it, drains to Biofiltration Planter 2 and overflows to Sixth Street.
- Drainage Area 3, which consists of the southern portion of the site, drains to Biofiltration Planter 3 and overflows to Tar Lake.

Drainage Area 4 consists of runoff that drains to Wilshire Blvd. Because the proposed grading intends to convey all onsite drainage to onsite stormwater management systems prior to discharging offsite, the proposed area that drains to Wilshire is comprised entirely of public right-of-way and therefore Low Impact Development stormwater management will not be required.

Refer to Exhibit 2 – Proposed Hydrology for the proposed drainage area map.

IV. Low Impact Development (LID)

The LID standards provide guidance for the implementation of stormwater quality control measures to reduce the volume of stormwater runoff and potential pollutants. These stormwater quality control measures are designed to receive the first flush event, which are the small and frequent storm events and the initial volume of stormwater runoff of the larger storm events.

A. Methodology

Calculation results are based on the Los Angeles County Department of Public Works' *Low Impact Development Standards Manual* dated February 2014. Calculations were done using the Los Angeles County approved Hydrocalc software program. HydroCalc uses the modified rational method as outlined in the Los Angeles County Public Works Department Hydrology Manual. The input requirements for HydroCalc include the drainage area, soil type, percent imperviousness, length of flow path, slope of flow path, and rainfall isohyet. HydroCalc can provide results for a range of storm events. Soil type information and rain fall depth were taken from the Los Angeles Department of Public Works Hydrology Maps. Methods for calculating Low Impact Development (LID) flow rates and volumes are based on the 85th percentile storm event, which is 1.1 inch, 24-hour storm event.

Refer to Appendix A for both soil classification Map and 85th Percentile rain fall depth.

B. Structural Best Management Practices (BMPs)

Due to the nature of the site's tar sands as well as the presence of high groundwater, infiltration is not feasible for the project. Additionally, due to the need for drought tolerant plant species, we anticipate that the irrigation demand will not be high enough to meet the 96-hour drawdown requirement for a Capture & Reuse system. Therefore, we anticipate using biofiltration to meet the LID mitigation requirements for the project.

A biofiltration planter is a shallow vegetated planter that is designed to receive and detain stormwater runoff from the building and site, filter the runoff, and eventually discharge the filtered runoff to the public storm drain system. Planters are sized to treat 150% of the required 85th percentile storm, mitigated stormwater volume. In order to protect the amended soil within the planters from tar infiltration as well as prevent high ground water from flooding the planters, the project is proposing closed bottom planters with an underdrain.

As discussed previously in this report, the onsite portion of the project site is divided into 3 drainage management areas which each include a biofiltration planter sized for the tributary area. The table below summarizes the site LID calculation.

LID Summary					
Drainage Area	**% Impervious**	**Area (ac)**	**SWQDv (cu-ft)**	**Planter Area Required (sf)**	**Planter Area Provided (sf)**
DA-1	32.96	7.07	15,271.93	4,038.00	6,495.00
DA-2	75.37	4.06	16,952.81	3,619.00	6,379.00
DA-3	30.87	2.30	4,816.95	1,048.00	10,130.00

Refer to Exhibit 4 – Low Impact Development (LID) for the drainage area map and BMP locations and Appendix B for LID calculations.

C. Non-Structural BMPs

In addition to the structural BMPs proposed, the project will incorporate the following non-structural BMPs.

1. Open Paved Areas and Planter Areas

a. Regular sweeping of all open and planter areas, at a minimum, on a weekly basis in order to prevent dispersal of pollutants that may collect on those surfaces.

b. Regular pruning of the trees and shrubs in the planter areas to avoid formation of dried leaves and twigs, which are normally blown by the wind during windy days. These dried leaves are likely to clog the surface inlets of the drainage system when rain comes, which would result in flooding of the surrounding area due to reduced flow capacities of the inlets.

c. Trash and recycling containers shall be used such that, if they are to be located outside or apart from the principal structure, are fully enclosed and watertight in order to prevent contact of storm water with waste matter, which can be a potential source of bacteria and other pollutants in runoff. These containers shall be emptied and the wastes disposed of properly on a regular basis.

2. Education and Training

Annual training of employees on property management and proper methods of handling and disposal of waste shall be provided. Employees should understand the on-site BMPs and their maintenance requirements.

3. Landscape Management

Landscaping shall be maintained using minimum or no pesticides.

4. Litter Control

An adequate number of trash receptacles will be provided and inspected regularly. Leaky receptacles will be prepared or replaced. Receptacles shall be covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post “no hazardous materials” signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site.

5. Housekeeping of Loading Docks

Loaded and unloaded items shall be moved indoors as soon as possible.

6. Catch Basin Inspection

Stormwater pollution prevention information shall be provided. Owner shall be made aware that the following is to be followed: “Property owner shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create potential discharge to storm drains.” Catch basins shall be inspected regularly.

7. Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction

Trash and waste will be handled and stored for pickup adjacent to the loading dock. This limits the potential introduction of pollutants into the site. Trash and waste pickup will occur regularly.

8. Use Efficient Irrigation Systems & Landscaping Design

Landscape is generally designed to provide an efficient and continuous irrigation system. Landscape areas are designed to include plants that are friendly to the climate of Los Angeles.

9. Storm Drain Stencil Signage

Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language to prevent dumping of improper materials into the urban runoff conveyance system.

10. Monitoring and Maintenance

a. All BMPs shall be operated, monitored, and maintained for the life of the project and at a minimum, all structural BMPs shall be inspected, cleaned-out, and where necessary, repaired, at the following minimum frequencies: 1) prior to October 15th each year; 2) during each month between October 15th and April 15th of each year and, 3) at least twice during the dry season (between April 16 and October 14 of every year).

b. Debris and other water pollutants removed from structural BMPs during cleanout shall be contained and disposed of in a proper manner.

c. The drainage system and the associated structures and BMPs shall be maintained according to manufacturer's specification to ensure maximum pollutant removal efficiencies.

V. Hydrology

A. Methodology

The following hydrology calculations follow the LA County Hydrology Manual methodology with respect to return period. Because one of the purposes of this report is to identify impacts to existing or planned storm drain systems and because a portion of the downstream storm drain system includes the conveyance capacity of existing streets, the 25-year rain event was used for analysis. The flows and volumes are calculated based on the modified rational method outlined by the Los Angeles County Public Works Department Hydrology Manual using the Los Angeles County approved Hydrocalc software. Hydrocalc uses the 50-year rainfall depth as an input and then automatically calculates the 25-year depth.

The proposed flows and volumes are then evaluated with respect to the existing flows and volumes and the delta is reviewed with respect to the planned storm drain infrastructure.

Refer to Appendix A for both soil classification Map and 50-Year rain fall depth.

B. Hydrology Results

The proposed condition will decrease the overall permeability of the project. When looking at the hydrology study area, which includes both the project site and a portion of the adjacent streets, the overall permeability decreases from 59.3% to 51.9%. (Note: the permeability for the hydrology study section of this report is lower than the permeability shown in the LID section, since LID is focusing on the project parcel area only, and the hydrology study is looking at an expanded area that includes a portion of the public right-of-way.)

When considering Drainage Area 1, the peak flow that is conveyed to the creek will decrease from 21.19 cfs to 14.94 cfs, which is a reduction in peak flow of 6.22 cfs. The total volume of runoff will decrease from 73,087 cu-ft to 52,244 cu-ft, which is a net decrease of 20,843 cu-ft.

In Drainage Area 2, where the runoff is conveyed from Curson Avenue to Sixth Street, the peak flow of stormwater runoff increases from 5.36 cfs to 7.49 cfs, which is an increase of 2.13 cfs. The total volume of runoff will increase from 43,826 cu-ft to 79,015 cu-ft for a net increase of 35,189 cu-ft. According to the City of Los Angeles Bureau of Engineering Manual, Part G – Storm Drain

Design (Manual), dated June 1973, the permeability of individual sites is not calculated based on existing conditions but is instead based on the City's Master Plan of Zoning. In the Manual, large-scale developed sites have an assumed impermeability of at least 50%, with many of the adjacent parcels falling into a category where 100% impermeability is assumed. Although the proposed project will result in an increase in impermeability, the proposed impermeability is only 40.5%, which is still less than the assumed value used for the design of the downstream infrastructure. (Note: in this case, it is appropriate to use the permeability of the project site only for the purposes of comparison and not the permeability of the larger study area that includes the public streets. Per the City's manual, street area is analyzed separately from the private properties.) As such, the proposed runoff is not anticipated to exceed the capacity of the existing storm drain conveyance system.

In Drainage Area 3, the peak flow that is conveyed to Tar Lake will increase from 9.65 cfs in the existing condition to 10.78 cfs in the proposed condition, which is an increase of 1.13 cfs. The total volume of runoff increases from 17,673 cu-ft to 21,893 cu-ft, which is a net increase of 4,310 cu-ft. Due to the natural detention capabilities of the lake, much of this increase in flow is anticipated to be retained by the lake. It is also our understanding that the Natural History Museum has an agreement with the City of Los Angeles to discharge a portion of the lake water to the sanitary sewer system, due to the water quality impact of the tar. We understand that the flow of discharge to the sewer system is metered and monitored to avoid downstream impacts to the sewer system. Because of this, it is unlikely that the increase in total runoff volume from the 25-year storm will cause the lake to overflow. However, because of the observed seasonal fluctuation in the water elevation, it is difficult to quantify the total retention capacity of the lake. As a conservative approach, therefore, we have considered the impact to downstream systems if the full increase in runoff volume were to overflow the lake. In this condition, the runoff would ultimately discharge to Wilshire Blvd. Since Drainage Area 4 also drains to Wilshire, the combined impact is discussed below.

In Drainage Area 4, the peak flow that is conveyed directly to Wilshire Blvd decreases from 1.61 cfs in the existing condition to 1.35 cfs in the proposed condition, which is a decrease of 0.26 cfs. The volume will decrease from 11,350 cu-ft to 9,567 cu-ft for a net decrease of 1,784 cu-ft. When combined with the maximum increase from Drainage Area 3, the total maximum increase in peak flow would be 12.13 cfs and the total maximum increase in runoff volume would be 31,550 cu-ft. As previously discussed, the conveyance capacity of Wilshire Blvd is designed per the City of LA's Manual based on an assumed permeability for the project site. Since the proposed permeability is less than the standard assumed permeability, the downstream system should have adequate capacity to accommodate the additional flow.

The 25-year existing and proposed peak flows and runoff volumes for the site are summarized in the table below.

Hydrology Summary			
Drainage Area	**Existing**	**Proposed**	**Delta**
DA-1			
Area (ac)	8.59	7.07	(1.52)
% Permeability	58.56	67.04	8.48
Peak Flow (cfs)	21.19	14.97	(6.22)
Volume (cu-ft)	73,086.58	52,243.53	(20,843.05)
DA-2			
Area (ac)	4.51	5.69	1.18
% Permeability	49.00	17.57	(31.43)
Peak Flow (cfs)	5.36	7.49	2.13
Volume (cu-ft)	43,826.33	79,014.93	35,188.60
DA-3			
Area (ac)	3.59	4.01	0.42
% Permeability	85.79	81.55	(4.24)
Peak Flow (cfs)	9.65	10.78	1.13
Volume (cu-ft)	17,673.44	21,982.98	4,309.54
DA-4			
Area (ac)	0.7	0.59	(0.11)
% Permeability	0	0	-
Peak Flow (cfs)	1.61	1.35	(0.26)
Volume (cu-ft)	11,350.44	9,566.80	(1,783.64)

Refer to Appendix D for Existing Hydrology Calculations and Appendix F for Proposed Hydrology Calculations.

VI. Alternate 4

An alternative to the proposed plan (referred to as Alternate 4) is being evaluated for the purposes of the Environmental Impact Report (EIR), which considers an alternate geometry to the building addition. The differences in Alternative 4 and the proposed site plan are as follows: reducing the expansion of the Page Museum to reduce the visual and physical impacts, which would decrease the proposed building footprint, expanding the parking lot, and expanding the central lawn, which would preserve a larger portion of the existing berm on the west side of the Page Museum. The overall permeability of the site in Alternate 4 is 52.5% compared with 59.5% permeability in the base analysis. When looking at the overall hydrology study area, which includes a portion of the adjacent streets, Alternate 4 has an overall permeability of 50.7%, compared to 51.9% permeability in the base analysis.

A. Low Impact Development (LID)

The drainage area limits follow the same final discharge location as the base analysis plan, with slightly altered interior limits. Following the same methodology as the proposed plan, the Alternate 4 site will be able to accommodate Low Impact Development Strategies. See table below for the summary of results.

LID Summary - Alternate 4					
Drainage Area	**% Impervious**	**Area (ac)**	**SWQDv (cu-ft)**	**Planter Area Required (sf)**	**Planter Area Provided (sf)**
DA-1	34.96	6.75	15,224.39	3,248.00	6,495.00
DA-2	80.87	6.01	26,664.89	5,689.00	6,580.00
DA-3	31.17	2.31	4,870.41	1,060.00	10,130.00

Refer to Exhibit 5 – Alternate 4 Low Impact Development (LID) for the drainage area map and BMP locations and Appendix C for Alternate 4 LID calculations.

B. Hydrology

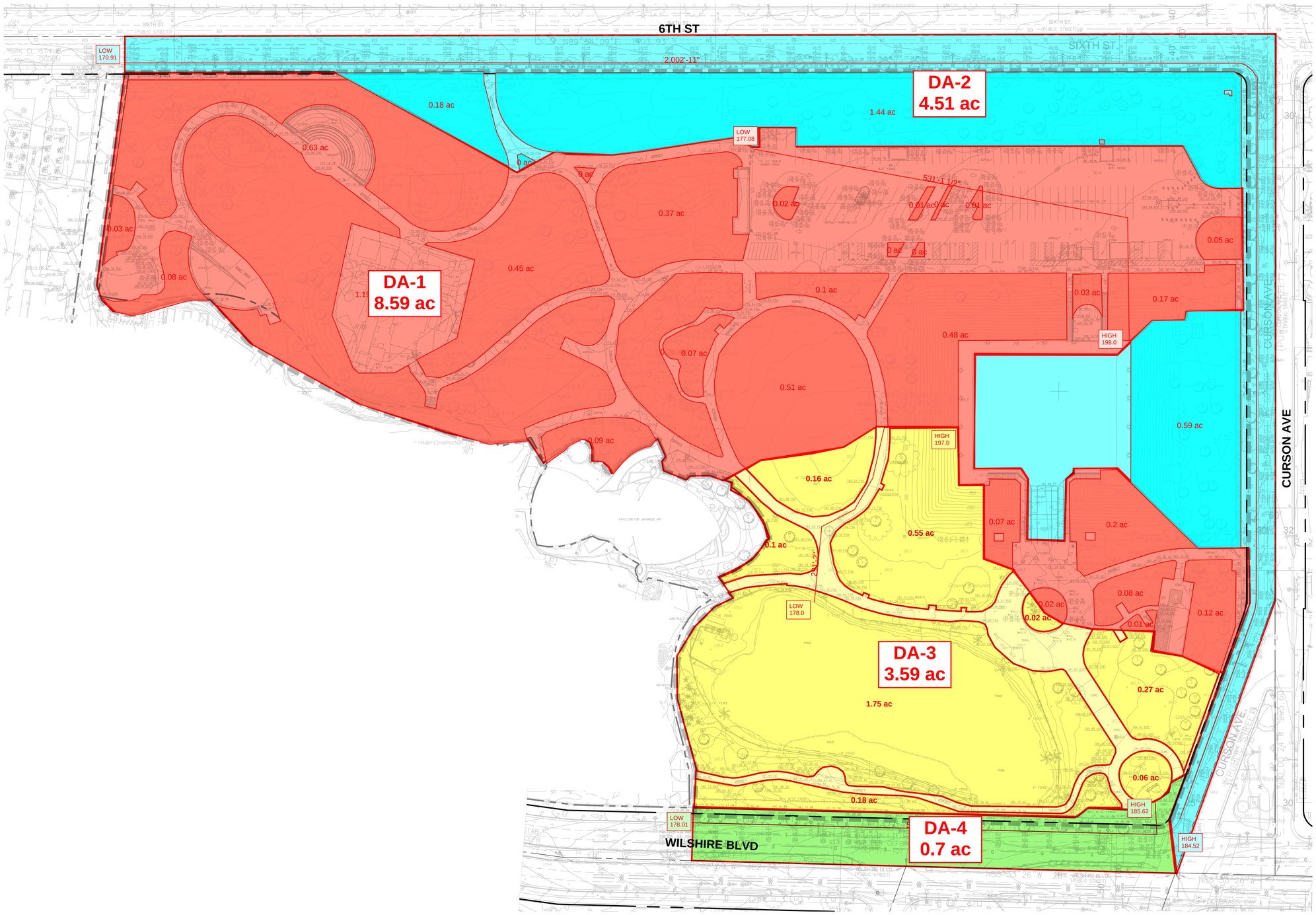
The methodology for hydrologic analysis is the same for Alternate 4 as described above for the base analysis. Because the permeability is slightly less in Alternate 4 than in the base analysis site plan, the peak flows and runoff volumes are slightly increased. However, the overall permeability is still higher than the assumed permeability used in the City's street design, therefore the additional flow is not anticipated to exceed the capacity of the existing storm drain systems.

The 25-year existing and proposed peak flows and runoff volumes for the Alternate 4 site are summarized in the table below.

Hydrology Summary – Alternate 4			
Drainage Area	**Existing**	**Alternate 4**	**Delta**
DA-1			
Area (ac)	8.59	6.75	(1.84)
% Permeability	58.56	65.04	6.48
Peak Flow (cfs)	21.19	14.30	(6.89)
Volume (cu-ft)	73,086.58	51,662.05	(21,424.53)
DA-2			
Area (ac)	4.51	6.01	1.50
% Permeability	49.00	19.13	(29.87)
Peak Flow (cfs)	5.36	7.88	2.53
Volume (cu-ft)	43,826.33	82,216.47	38,390.14
DA-3			
Area (ac)	3.59	4.01	0.42
% Permeability	85.79	81.55	(4.24)
Peak Flow (cfs)	9.65	10.78	1.13
Volume (cu-ft)	17,673.44	21,982.98	4,309.54
DA-4			
Area (ac)	0.7	0.59	(0.11)
% Permeability	0	0	-
Peak Flow (cfs)	1.61	1.35	(0.26)
Volume (cu-ft)	11,350.44	9,566.80	(1,783.64)

Refer to Exhibit 3 – Alternate 4 Proposed Hydrology for the drainage area map, Appendix D for Existing Hydrology Calculations, and Appendix F for Alternate 4 Proposed Hydrology calculations.

Exhibits



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REVISIONS

DATE	△	ISSUED FOR

DATE	06.14.2023
PROJECT NUMBER	1900236
DESIGNED BY	JB
DRAWN BY	TA
CHECKED BY	KS
SCALE	AS SPECIFIED

KEY MAP

PROJECT DESCRIPTION

LA BREA TAR PITS DESIGN MASTER PLAN

5801 WILSHIRE BOULEVARD
LOS ANGELES, CA 90036

DRAWING TITLE

EXISTING HYDROLOGY EXHIBIT

SHEET NUMBER (EXHIBIT NUMBER)

EXHB-01

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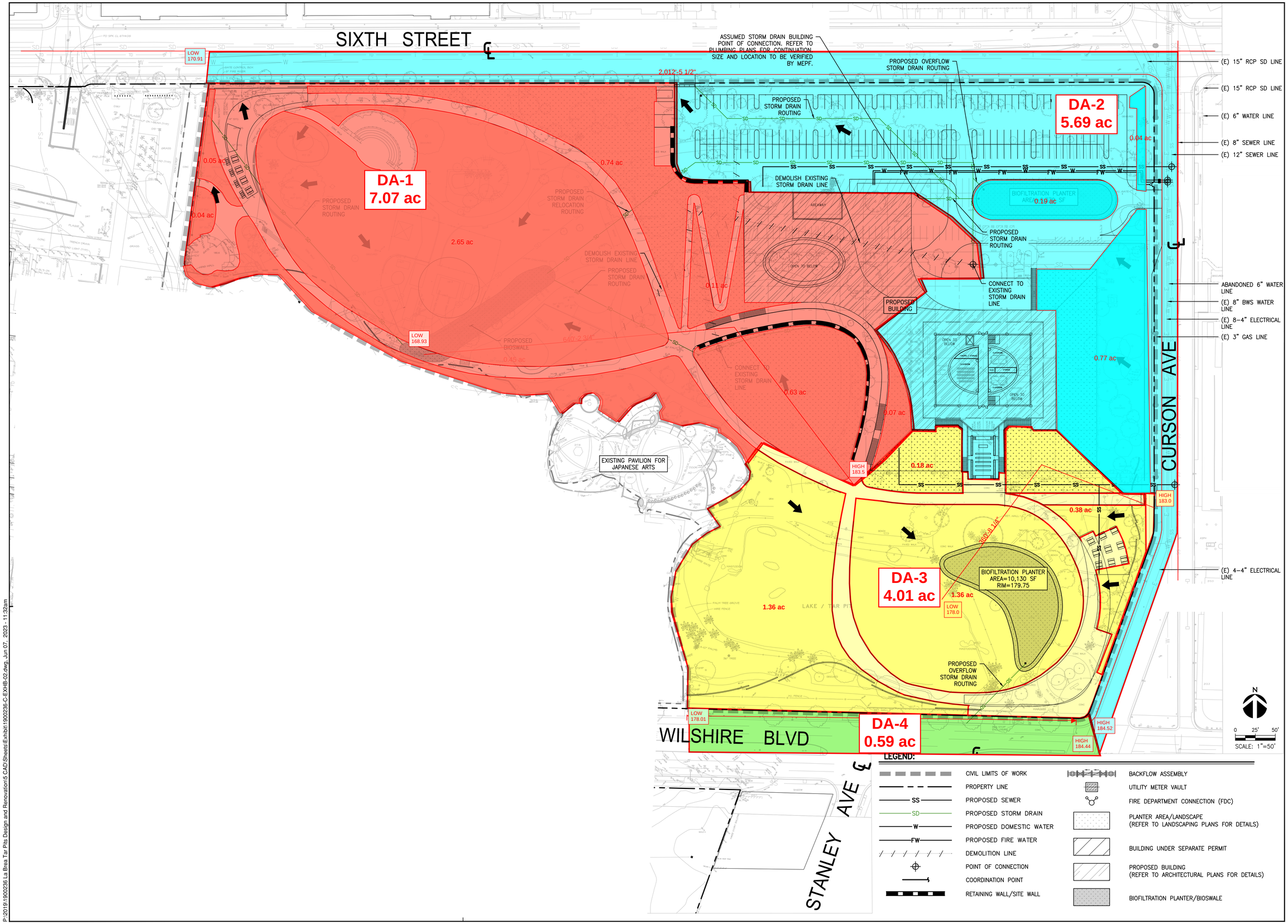

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CHECKED BY	KS
SCALE	AS SPECIFIED

KEY MAP

PROJECT DESCRIPTION

LA BREA TAR PITS DESIGN MASTER PLAN

5801 WILSHIRE BOULEVARD
LOS ANGELES, CA 90036

DRAWING TITLE

PROPOSED HYDROLOGY EXHIBIT

SHEET NUMBER (EXHIBIT NUMBER)

EXHB-02

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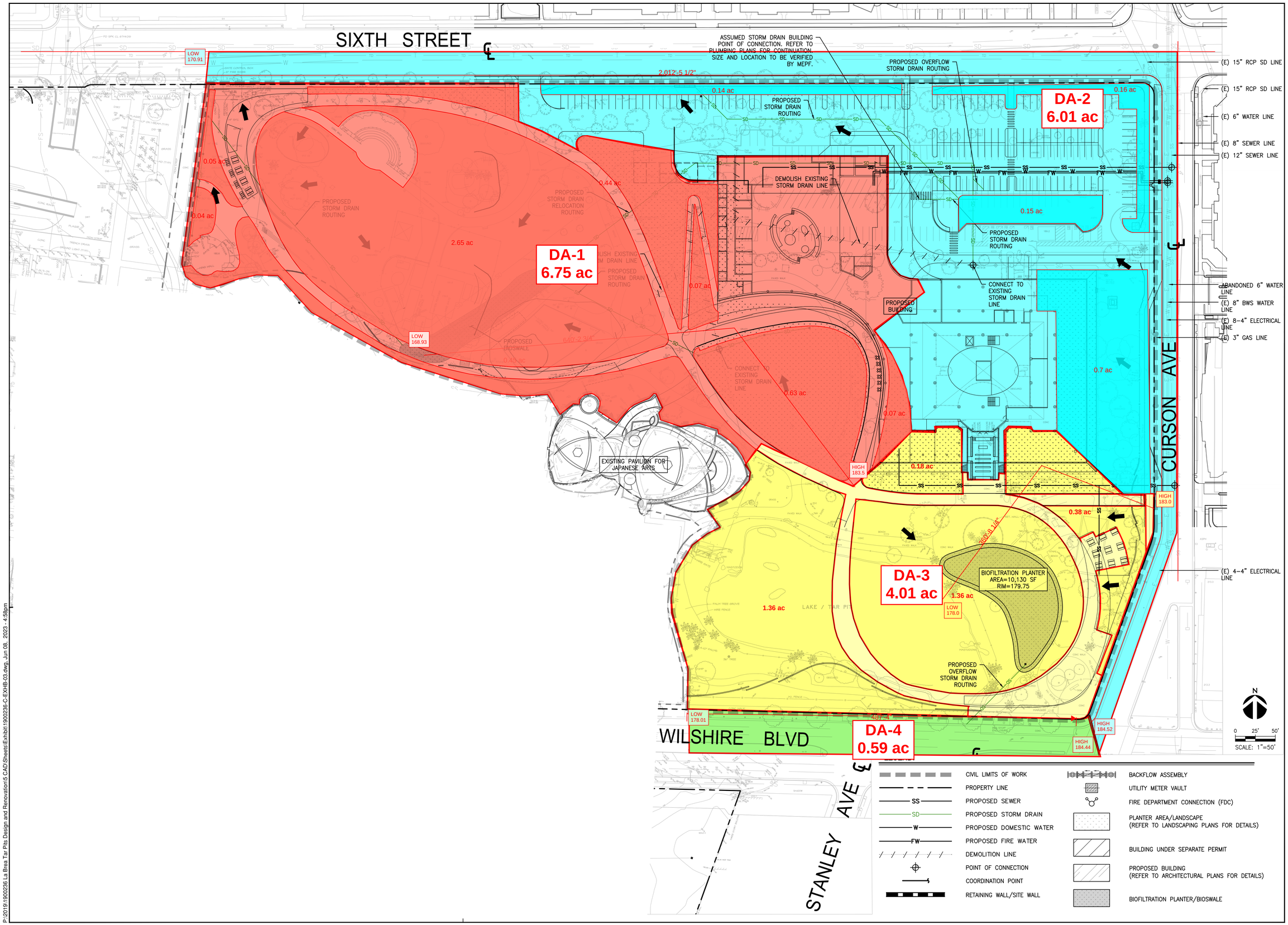

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DATE	06.14.2023
PROJECT NUMBER	1900236
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CHECKED BY	KS
SCALE	AS SPECIFIED

KEY MAP

PROJECT DESCRIPTION

LA BREA TAR PITS DESIGN MASTER PLAN

5801 WILSHIRE BOULEVARD
LOS ANGELES, CA 90036

DRAWING TITLE

ALTERNATIVE 4
HYDROLOGY EXHIBIT

SHEET NUMBER (EXHIBIT NUMBER)

EXHB-03

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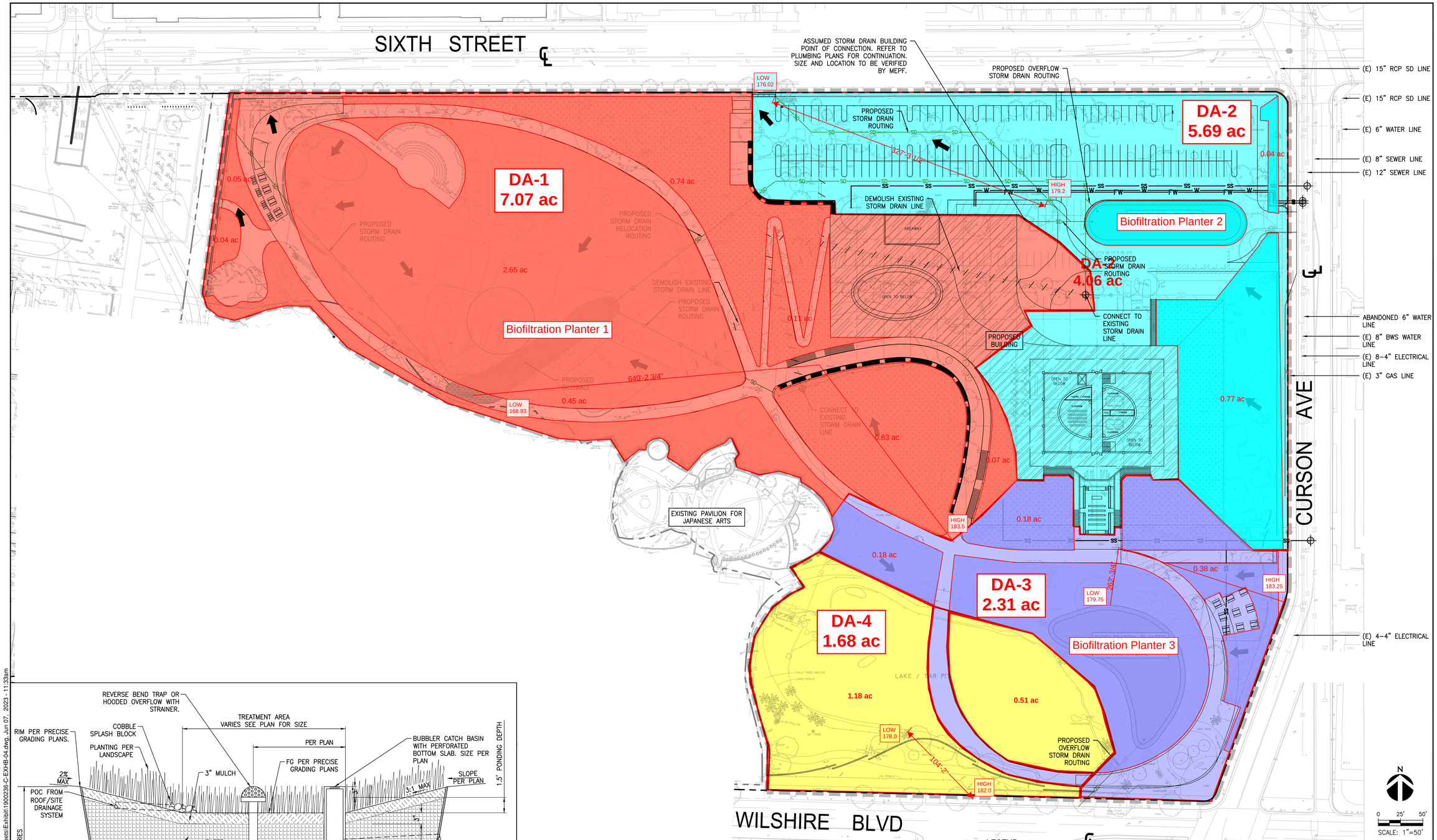

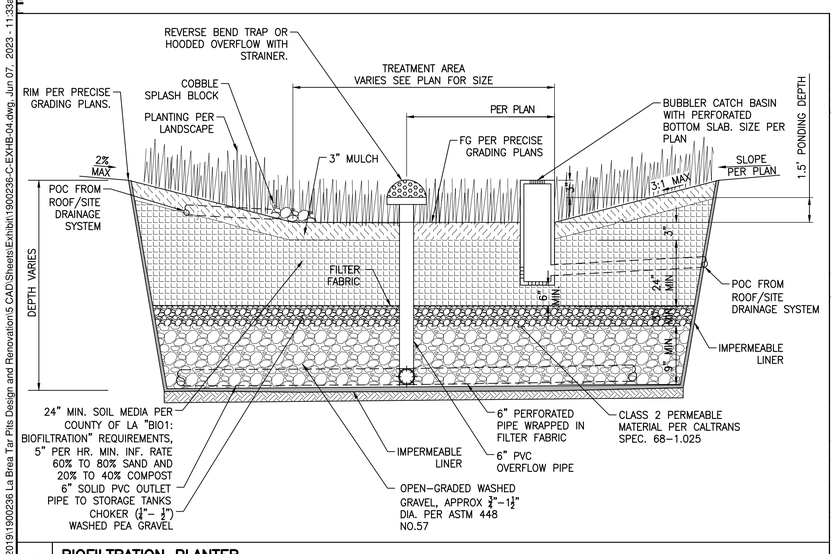

– BIOFILTRATION PLANTER

N.T.S.

LEGEND:

CIVIL LIMITS OF WORK	BACKFLOW ASSEMBLY
PROPERTY LINE	UTILITY METER VAULT
SS — PROPOSED SEWER	FIRE DEPARTMENT CONNECTION (FDC)
SD — PROPOSED STORM DRAIN	PLANTER AREA/LANDSCAPE (REFER TO LANDSCAPING PLANS FOR DETAILS)
W — PROPOSED DOMESTIC WATER	BUILDING UNDER SEPARATE PERMIT
FW — PROPOSED FIRE WATER	PROPOSED BUILDING (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
DEMOLITION LINE	BIOFILTRATION PLANTER/BIOSWALE
POINT OF CONNECTION	
COORDINATION POINT	
RETAINING WALL/SITE WALL	

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SCALE	AS SPECIFIED

KEY MAP

PROJECT DESCRIPTION

LA BREA TAR PITS DESIGN MASTER PLAN

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LOS ANGELES, CA 90036

DRAWING TITLE

LOW IMPACT DEVELOPMENT (LID) EXHIBIT

SHEET NUMBER (EXHIBIT NUMBER)

EXHB-04

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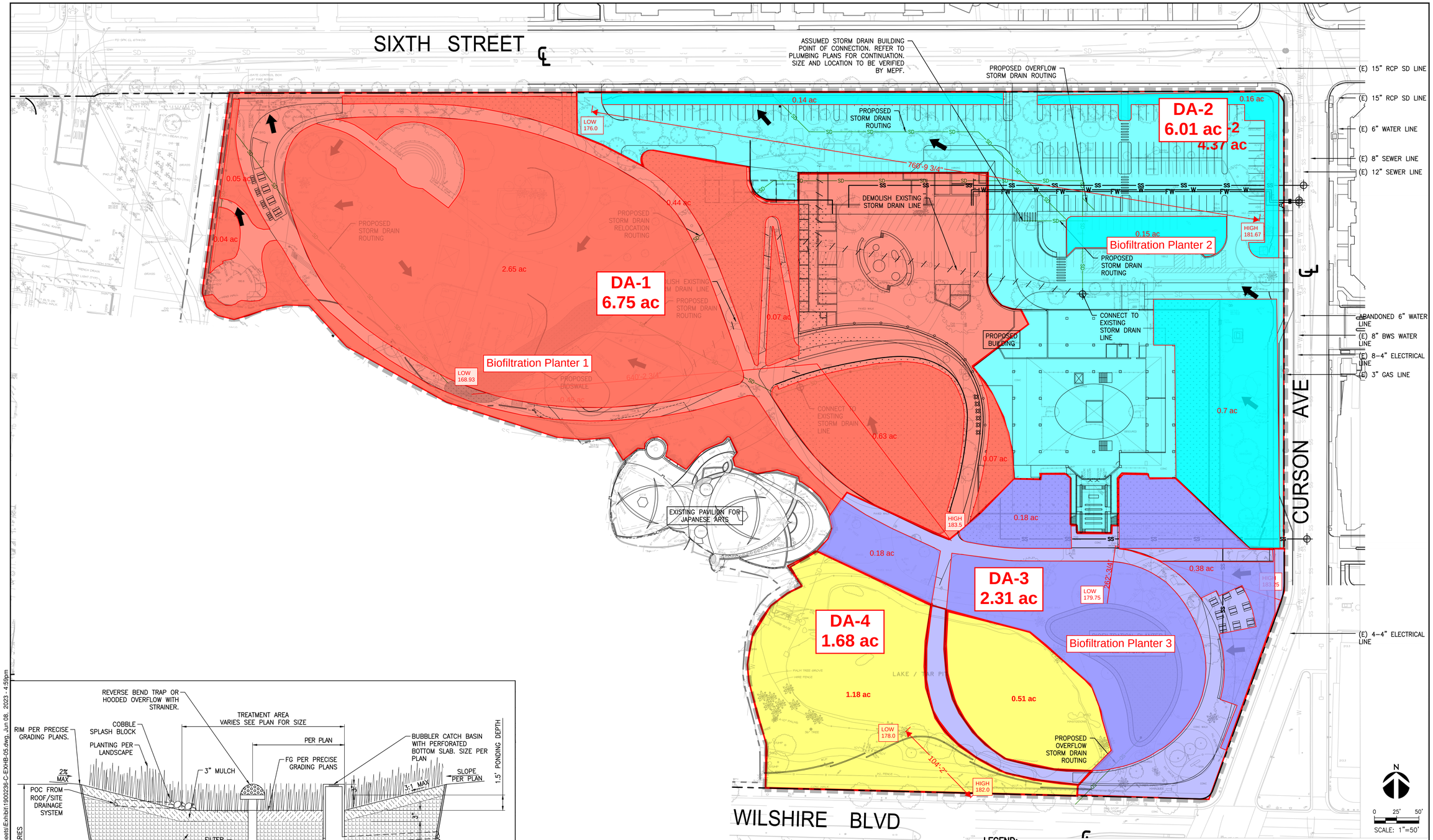

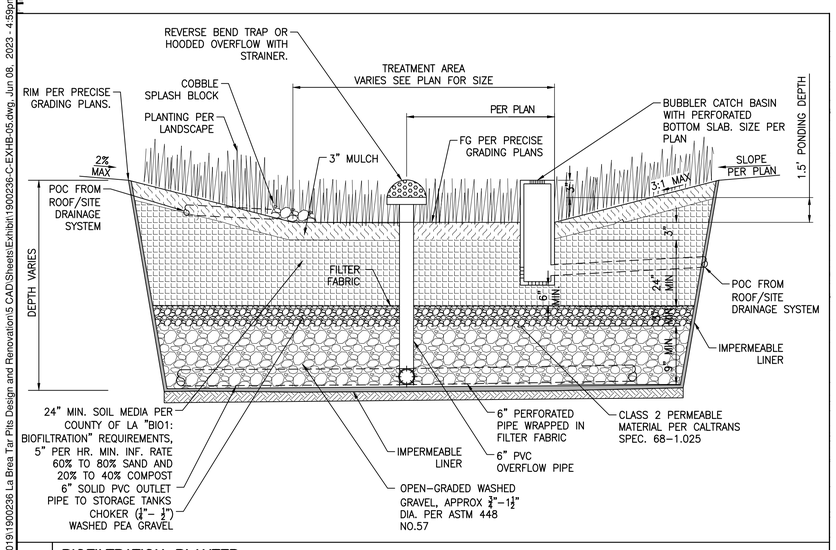

– BIOFILTRATION PLANTER

LEGEND:

CIVIL LIMITS OF WORK	BACKFLOW ASSEMBLY
PROPERTY LINE	UTILITY METER VAULT
SS — PROPOSED SEWER	FIRE DEPARTMENT CONNECTION (FDC)
SD — PROPOSED STORM DRAIN	PLANTER AREA/LANDSCAPE (REFER TO LANDSCAPING PLANS FOR DETAILS)
W — PROPOSED DOMESTIC WATER	BUILDING UNDER SEPARATE PERMIT
FW — PROPOSED FIRE WATER	PROPOSED BUILDING (REFER TO ARCHITECTURAL PLANS FOR DETAILS)
DEMOLITION LINE	BIOFILTRATION PLANTER/BIOSWALE
POINT OF CONNECTION	
COORDINATION POINT	
RETAINING WALL/SITE WALL	

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SCALE	AS SPECIFIED

KEY MAP

PROJECT DESCRIPTION

LA BREA TAR PITS DESIGN MASTER PLAN

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LOS ANGELES, CA 90036

DRAWING TITLE

ALTERNATIVE 4 LOW IMPACT DEVELOPMENT (LID) EXHIBIT

SHEET NUMBER (EXHIBIT NUMBER)

EXHB-05

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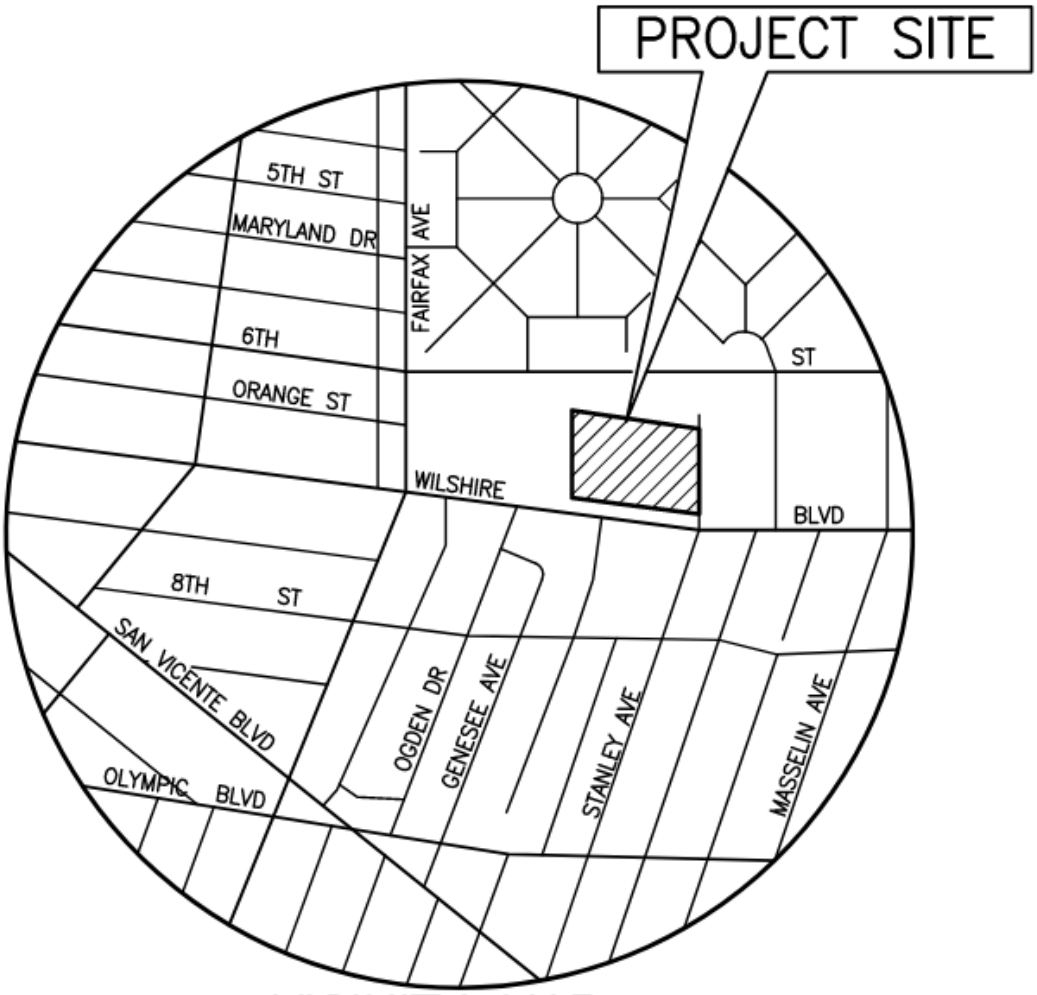
Appendices

Appendix A

Vicinity Map and Rainfall Depth



VICINITY MAP

NOT TO SCALE

THOMAS GUIDE **[LOS ANGELES]** EDITION

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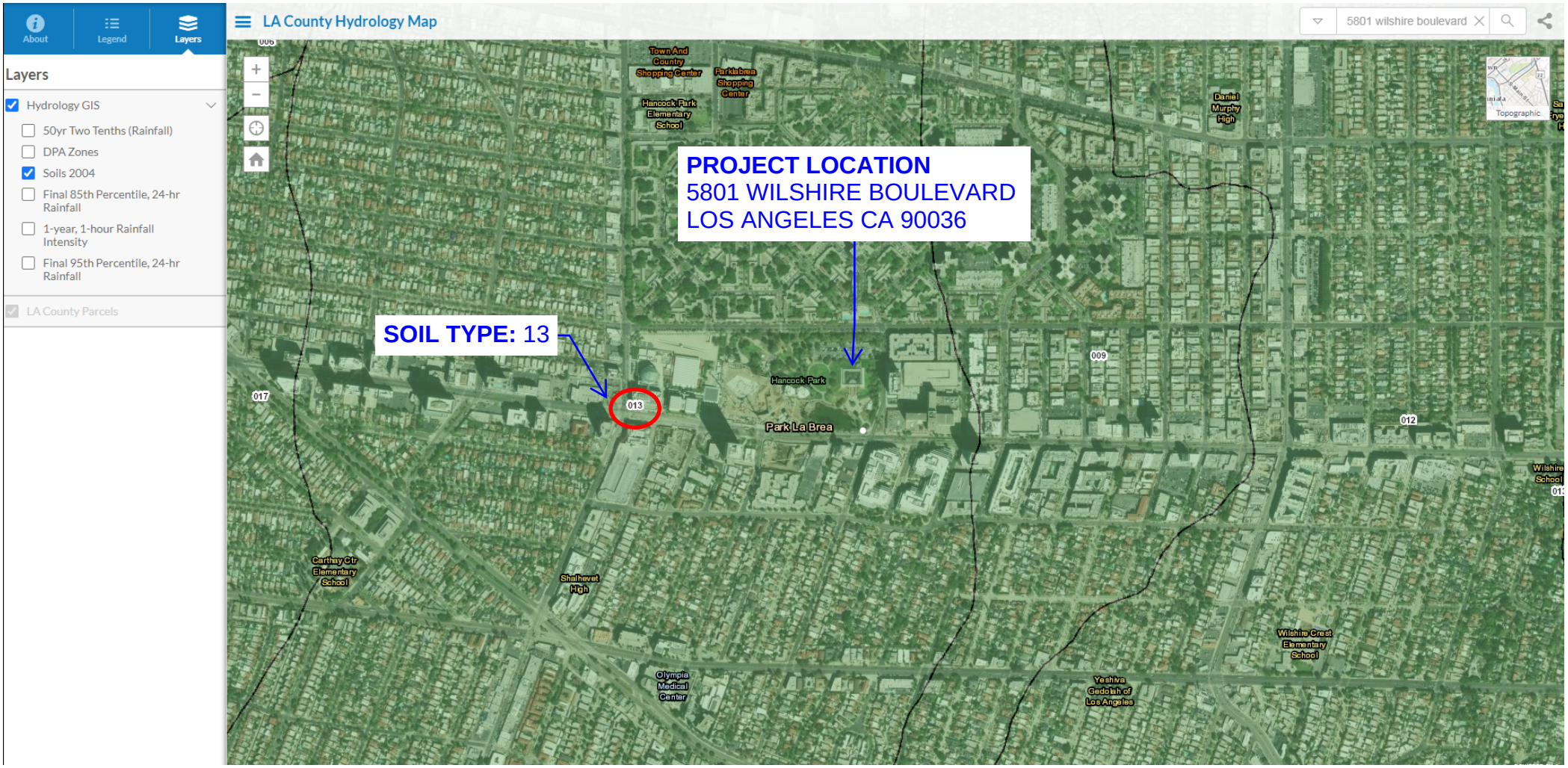
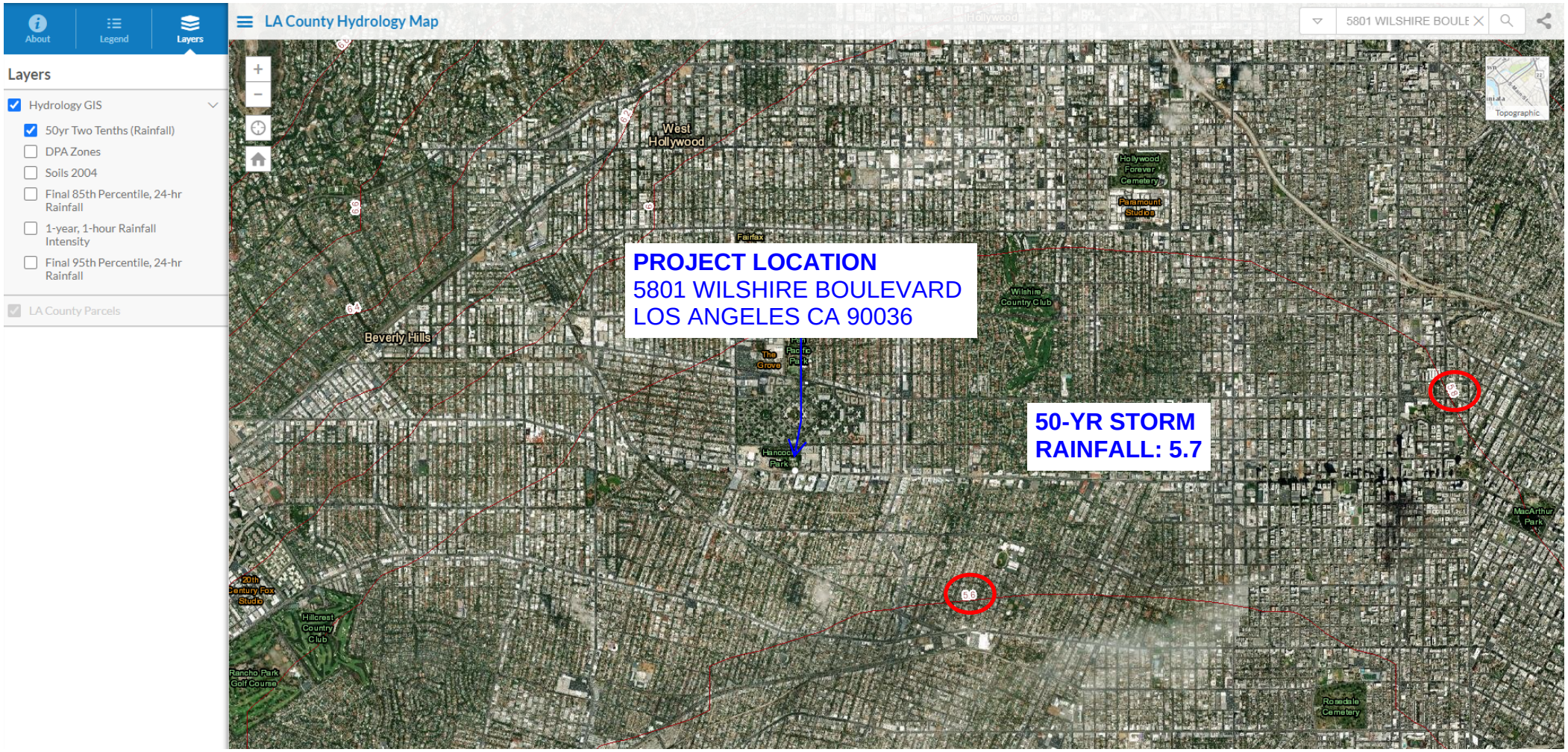

About
Legend
Layers
LA County Hydrology Map
5801 wilshire boulevard
Layers
Hydrology GIS
50yr Two Tenths (Rainfall)
DPA Zones
Soils 2004
Final 85th Percentile, 24-hr Rainfall
1-year, 1-hour Rainfall Intensity
Final 95th Percentile, 24-hr Rainfall
LA County Parcels
PROJECT LOCATION
5801 WILSHIRE BOULEVARD
LOS ANGELES CA 90036
SOIL TYPE: 13
013
017
009
012
Hancock Park
Park La Brea
Town And Country Shopping Center
Parklabrea Shopping Center
Hancock Park Elementary School
Daniel Murphy High
Carthay Ctr Elementary School
Shalhevet High
Olympia Medical Center
Yeshiva Gedolah of Los Angeles
Wilshire Crest Elementary School
Wilshire School
Topographic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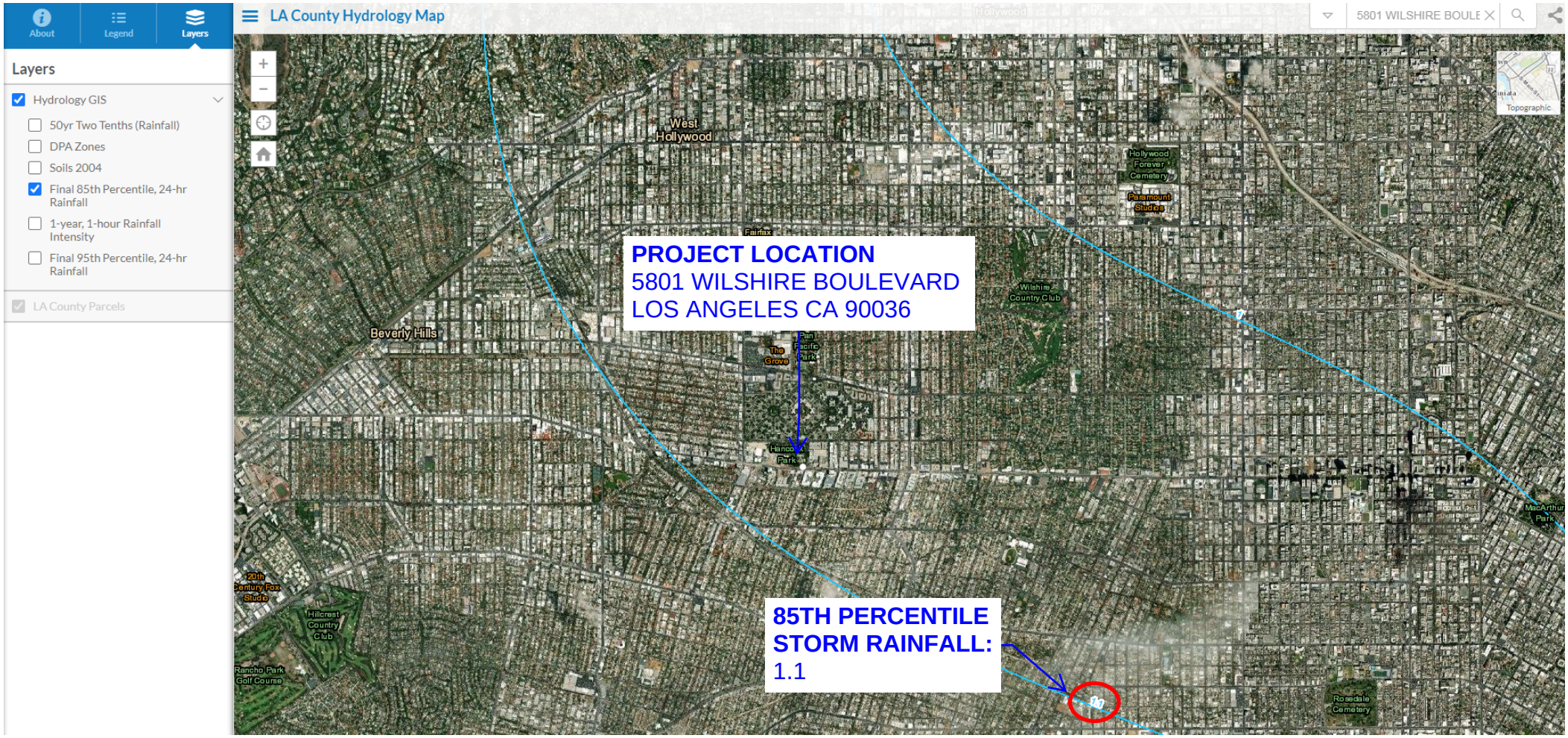
Layers
LA County Hydrology Map
5801 WILSHIRE BOULE
Layers
Hydrology GIS
50yr Two Tenths (Rainfall)
DPA Zones
Soils 2004
Final 85th Percentile, 24-hr Rainfall
1-year, 1-hour Rainfall Intensity
Final 95th Percentile, 24-hr Rainfall
LA County Parcels
PROJECT LOCATION
5801 WILSHIRE BOULEVARD
LOS ANGELES CA 90036
50-YR STORM
RAINFALL: 5.7
West Hollywood
Beverly Hills
Fairfax
Hollywood Forever Cemetery
Paramount Studios
Wilshire Country Club
The Grove
Hancock Park
MacArthur Park
Hillcrest Country Club
Rancho Park Golf Course
Rosedale Cemetery
Topographic


About
Legend
Layers
LA County Hydrology Map
5801 WILSHIRE BOULE
Layers
Hydrology GIS
50yr Two Tenths (Rainfall)
DPA Zones
Soils 2004
Final 85th Percentile, 24-hr Rainfall
1-year, 1-hour Rainfall Intensity
Final 95th Percentile, 24-hr Rainfall
LA County Parcels
West Hollywood
Beverly Hills
Hollywood Forever Cemetery
Paramount Studios
Wilshire Country Club
The Grove
Pan Pacific Park
Hancock Park
20th Century Fox Studio
Hillcrest Country Club
Rancho Park Golf Course
Rosedale Cemetery
MacArthur Park
Topographic
PROJECT LOCATION
5801 WILSHIRE BOULEVARD
LOS ANGELES CA 90036
85TH PERCENTILE
STORM RAINFALL:
1.1

Appendix B

LID Calculations

PROPOSED LID

Peak Flow Hydrologic Analysis

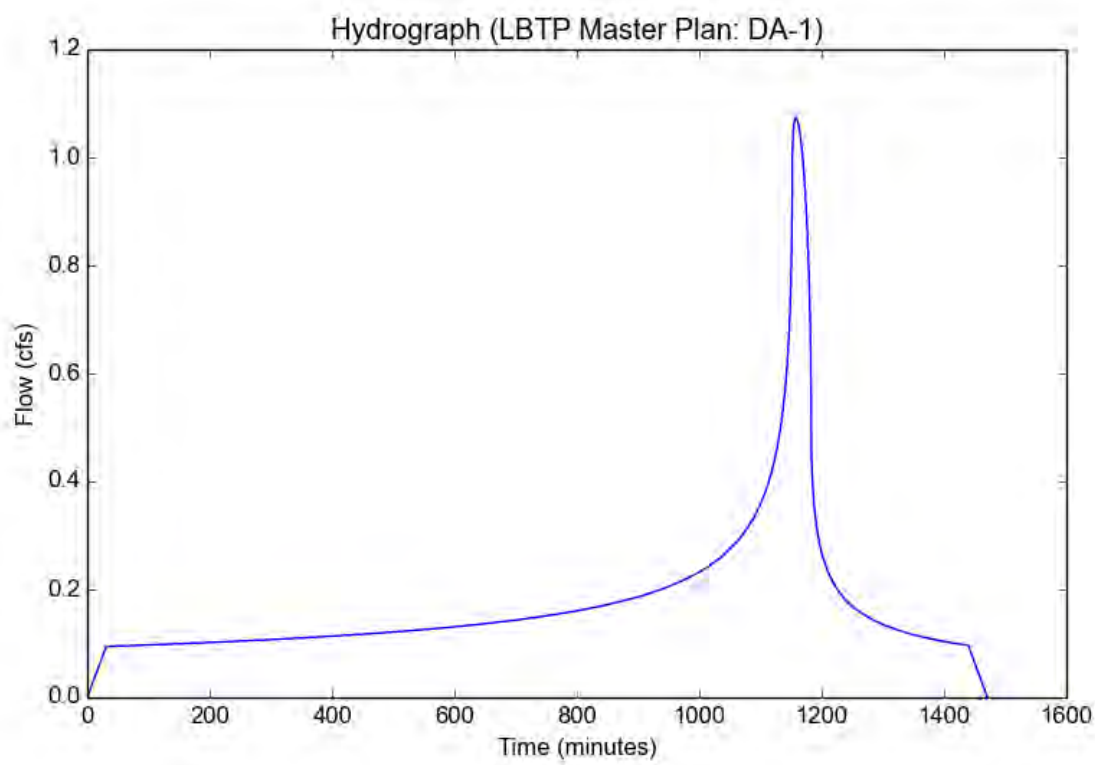
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan
Subarea ID	DA-1
Area (ac)	7.07
Flow Path Length (ft)	640.23
Flow Path Slope (vft/hft)	0.022757447
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.329561528
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.4176
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.3636
Time of Concentration (min)	31.0
Clear Peak Flow Rate (cfs)	1.0737
Burned Peak Flow Rate (cfs)	1.0737
24-Hr Clear Runoff Volume (ac-ft)	0.3506
24-Hr Clear Runoff Volume (cu-ft)	15271.9274



PROPOSED LID

Peak Flow Hydrologic Analysis

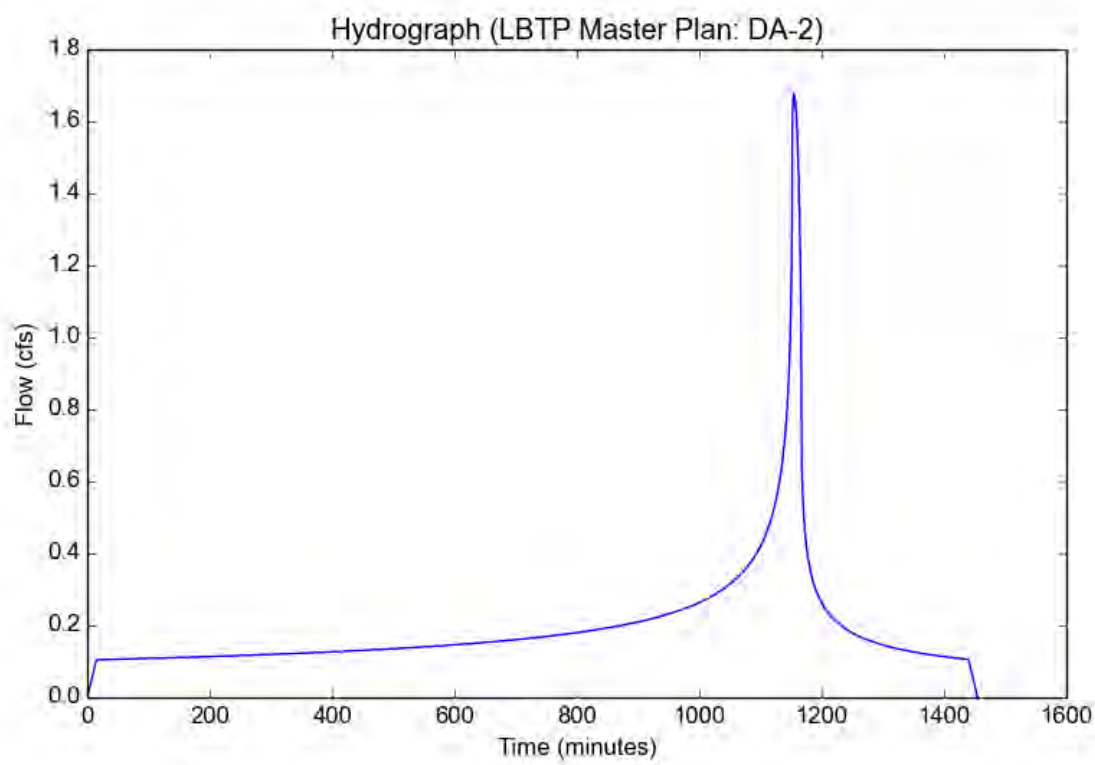
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan
Subarea ID	DA-2
Area (ac)	4.06
Flow Path Length (ft)	327.29
Flow Path Slope (vft/hft)	0.009716154
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.753694581
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.5874
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.703
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	1.6765
Burned Peak Flow Rate (cfs)	1.6765
24-Hr Clear Runoff Volume (ac-ft)	0.3892
24-Hr Clear Runoff Volume (cu-ft)	16952.8082



PROPOSED LID

Peak Flow Hydrologic Analysis

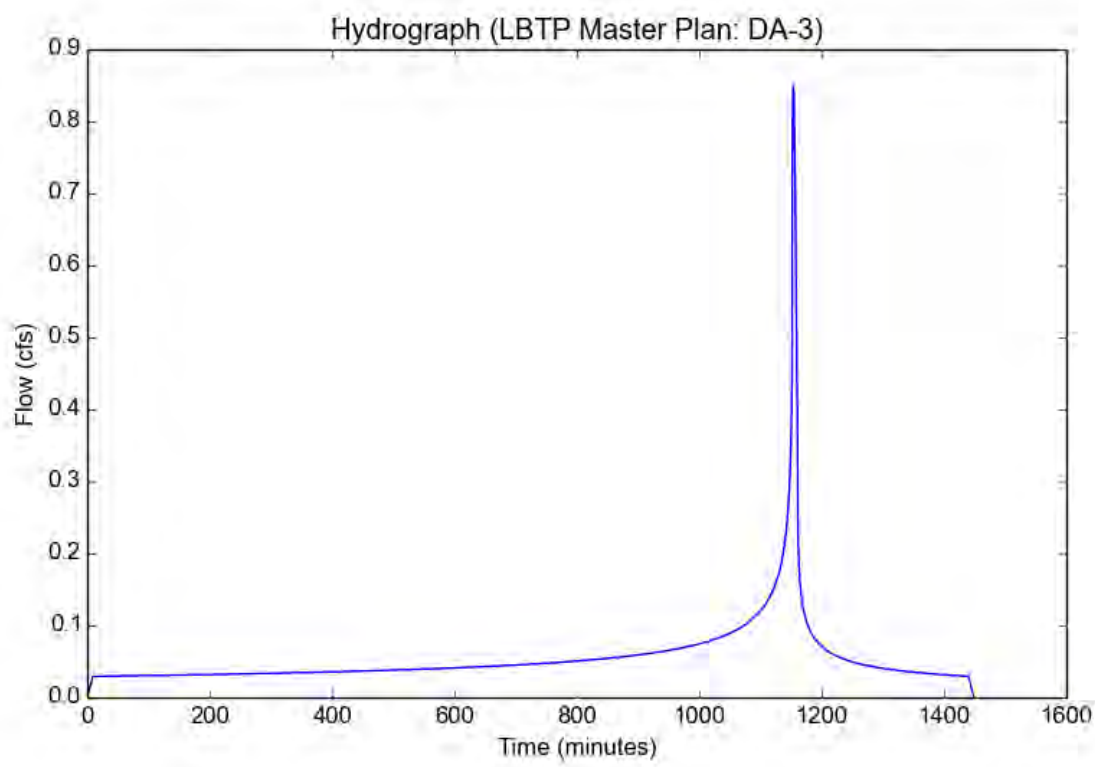
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan
Subarea ID	DA-3
Area (ac)	2.3
Flow Path Length (ft)	262.06
Flow Path Slope (vft/hft)	0.263
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.308695652
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.7468
Undeveloped Runoff Coefficient (Cu)	0.3129
Developed Runoff Coefficient (Cd)	0.4941
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	0.8487
Burned Peak Flow Rate (cfs)	0.8487
24-Hr Clear Runoff Volume (ac-ft)	0.1106
24-Hr Clear Runoff Volume (cu-ft)	4816.9533



PROPOSED LID

Peak Flow Hydrologic Analysis

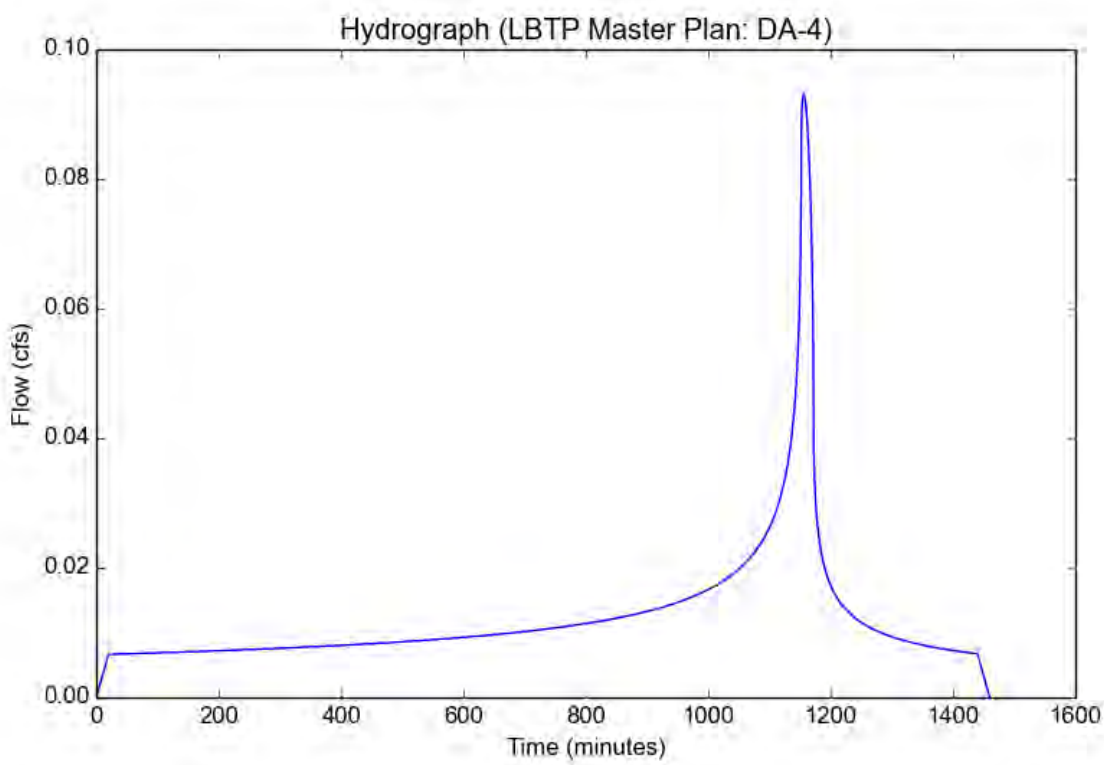
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan
Subarea ID	DA-4
Area (ac)	1.68
Flow Path Length (ft)	104.167
Flow Path Slope (vft/hft)	0.038399877
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.01
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.5131
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	20.0
Clear Peak Flow Rate (cfs)	0.0931
Burned Peak Flow Rate (cfs)	0.0931
24-Hr Clear Runoff Volume (ac-ft)	0.0247
24-Hr Clear Runoff Volume (cu-ft)	1077.7591



PROPOSED LID

Biofiltration Planter 1	DA-1		
[1]	85th Percentile Rainfall Depth (in)		1.10
[2]	Design Rainfall Depth (in)	[1] * 1.5	1.65
[3]	Clear Peak Flow Rate (cfs)	From Hydrocalc (Qpm)	1.07
[4]	24-Hr Clear Runoff Volume (cu-ft)	From Hydrocalc (=1.5 SWQDv)	15,272
[5]	$K_{sat,media}$ (in/hr)		5
[6]	FS		2
[7]	$K_{sat,design}$ (in/hr)	[5] / [6]	2.5
[8]	Proposed Planter Area (sf)		6,495
[9]	Proposed Planter Flow Rate (cfs)	[7]/12 in*[8]/60min*1/60sec	0.376
[10]	Proposed Total Storage Volume Required (cu-ft)	Use Hydrocalc CSV file to calculate area under hydrograph and above Planter Flow Rate	1,463
[11]	Proposed Additional Storage Volume Required (cu-ft)		0
[12]	d_{p_max}, Max. Ponding Depth (ft)		1
[13]	Proposed d_p, Calculated Ponding Depth (ft)	Use Hydrocalc CSV file to calculate peak depth. Roughly = [10]/[8]	0.23
[14]	Drawdown Time (hr)	[13]*12 in/ft /[7]	1.08
[15]	**A_{min} (sq. ft) (minimum area required)**	Iterate [8] until [13] = [12]	**4,038**

PROPOSED LID

Biofiltration Planter 2	DA-2		
[1]	85th Percentile Rainfall Depth (in)		1.10
[2]	Design Rainfall Depth (in)	[1] * 1.5	1.65
[3]	Clear Peak Flow Rate (cfs)	From Hydrocalc (Qpm)	1.68
[4]	24-Hr Clear Runoff Volume (cu-ft)	From Hydrocalc (=1.5 SWQDv)	16,953
[5]	$K_{sat,media}$ (in/hr)		5
[6]	FS		2
[7]	$K_{sat,design}$ (in/hr)	[5] / [6]	2.5
[8]	Proposed Planter Area (sf)		6,379
[9]	Proposed Planter Flow Rate (cfs)	[7]/12 in*[8]/60min*1/60sec	0.369
[10]	Proposed Total Storage Volume Required (cu-ft)	Use Hydrocalc CSV file to calculate area under hydrograph and above Planter Flow Rate	1,903
[11]	Proposed Additional Storage Volume Required (cu-ft)		0
[12]	d_{p_max}, Max. Ponding Depth (ft)		1
[13]	Proposed d_p, Calculated Ponding Depth (ft)	Use Hydrocalc CSV file to calculate peak depth. Roughly = [10]/[8]	0.30
[14]	Drawdown Time (hr)	[13]*12 in/ft /[7]	1.43
[15]	**A_{min} (sq. ft) (minimum area required)**	Iterate [8] until [13] = [12]	**3,619**

PROPOSED LID

Biofiltration Planter 3	DA-3		
[1]	85th Percentile Rainfall Depth (in)		1.10
[2]	Design Rainfall Depth (in)	[1] * 1.5	1.65
[3]	Clear Peak Flow Rate (cfs)	From Hydrocalc (Qpm)	0.85
[4]	24-Hr Clear Runoff Volume (cu-ft)	From Hydrocalc (=1.5 SWQDv)	4,817
[5]	$K_{sat,media}$ (in/hr)		5
[6]	FS		2
[7]	$K_{sat,design}$ (in/hr)	[5] /[6]	2.5
[8]	Proposed Planter Area (sf)		10,130
[9]	Proposed Planter Flow Rate (cfs)	[7]/12 in*[8]/60min*1/60sec	0.586
[10]	Proposed Total Storage Volume Required (cu-ft)	Use Hydrocalc CSV file to calculate area under hydrograph and above Planter Flow Rate	69
[11]	Proposed Additional Storage Volume Required (cu-ft)		0
[12]	d_{p_max}, Max. Ponding Depth (ft)		1
[13]	Proposed d_p, Calculated Ponding Depth (ft)	Use Hydrocalc CSV file to calculate peak depth. Roughly = [10]/[8]	0.01
[14]	Drawdown Time (hr)	[13]*12 in/ft /[7]	0.03
[15]	**A_{min} (sq. ft) (minimum area required)**	Iterate [8] until [13] = [12]	**1,048**

Appendix C

Alternate 4 LID Calculations

ALTERNATE 4 LID

Peak Flow Hydrologic Analysis

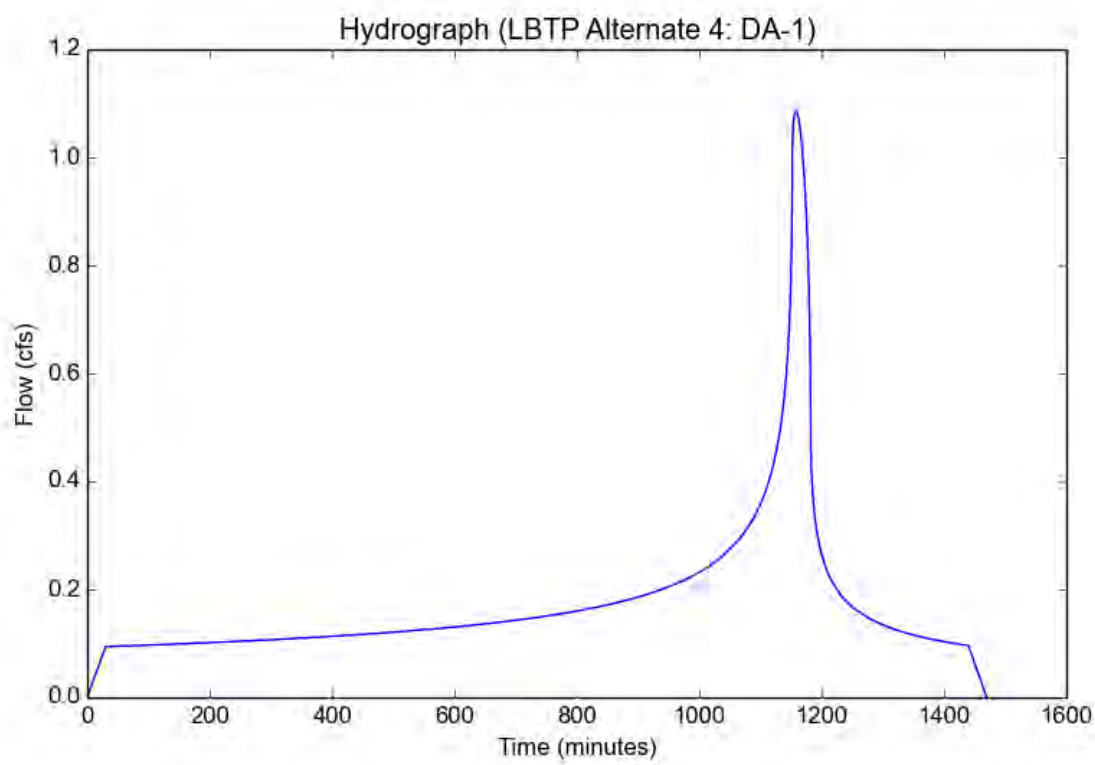
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4
Subarea ID	DA-1
Area (ac)	6.75
Flow Path Length (ft)	640.23
Flow Path Slope (vft/hft)	0.022757447
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.34962963
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.4241
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.3797
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	1.0869
Burned Peak Flow Rate (cfs)	1.0869
24-Hr Clear Runoff Volume (ac-ft)	0.3495
24-Hr Clear Runoff Volume (cu-ft)	15224.3948



ALTERNATE 4 LID

Peak Flow Hydrologic Analysis

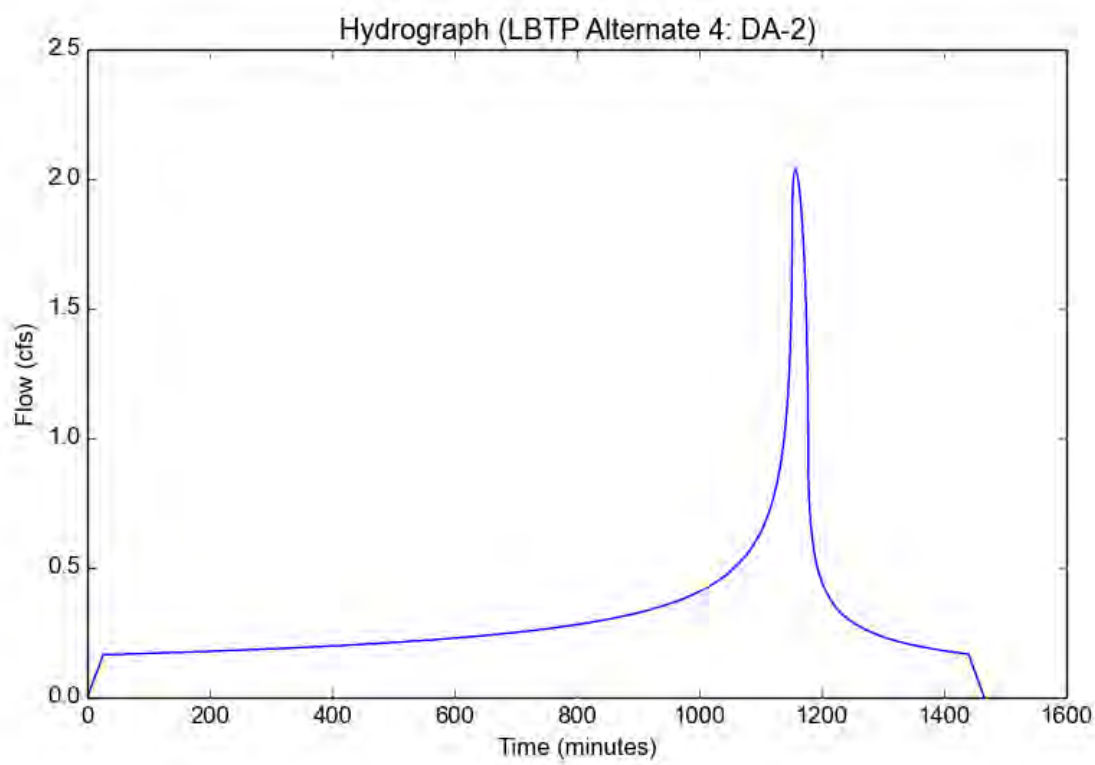
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4
Subarea ID	DA-2
Area (ac)	6.01
Flow Path Length (ft)	760.81
Flow Path Slope (vft/hft)	0.007452583
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.808652246
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.4536
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.7469
Time of Concentration (min)	26.0
Clear Peak Flow Rate (cfs)	2.0362
Burned Peak Flow Rate (cfs)	2.0362
24-Hr Clear Runoff Volume (ac-ft)	0.6121
24-Hr Clear Runoff Volume (cu-ft)	26664.8893



ALTERNATE 4 LID

Peak Flow Hydrologic Analysis

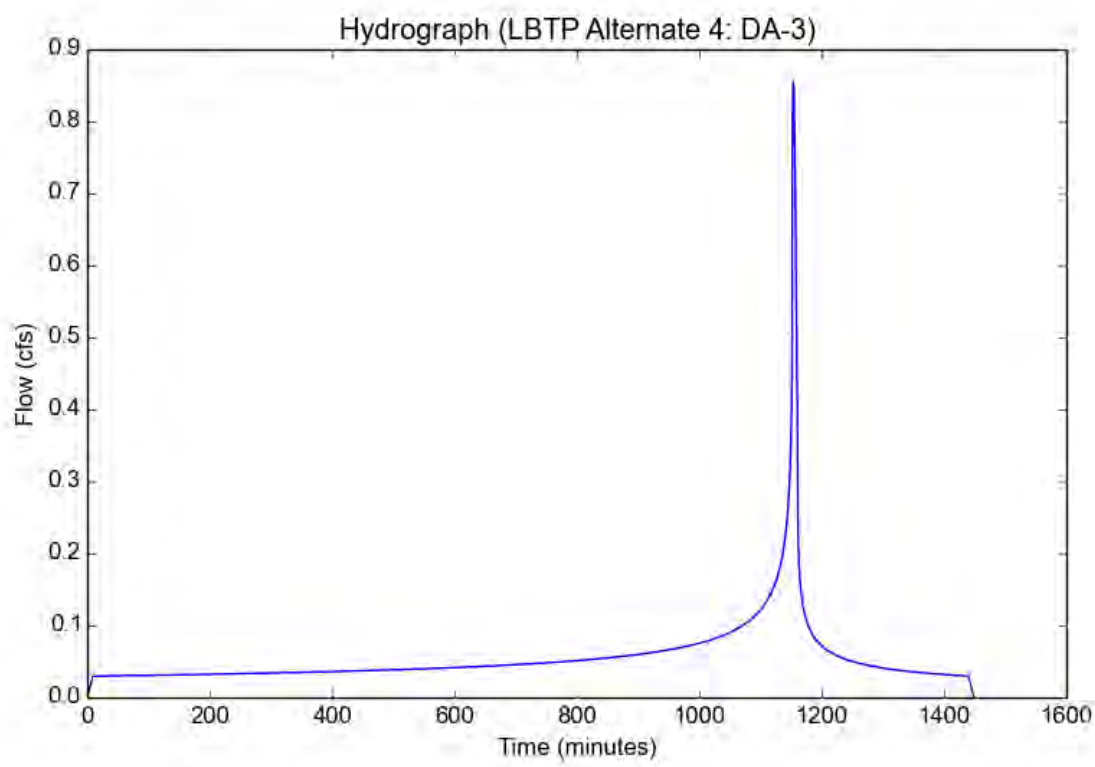
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4
Subarea ID	DA-3
Area (ac)	2.31
Flow Path Length (ft)	262.06
Flow Path Slope (vft/hft)	0.263
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.311688312
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.7468
Undeveloped Runoff Coefficient (Cu)	0.3129
Developed Runoff Coefficient (Cd)	0.4959
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	0.8555
Burned Peak Flow Rate (cfs)	0.8555
24-Hr Clear Runoff Volume (ac-ft)	0.1118
24-Hr Clear Runoff Volume (cu-ft)	4870.4134



ALTERNATE 4 LID

Peak Flow Hydrologic Analysis

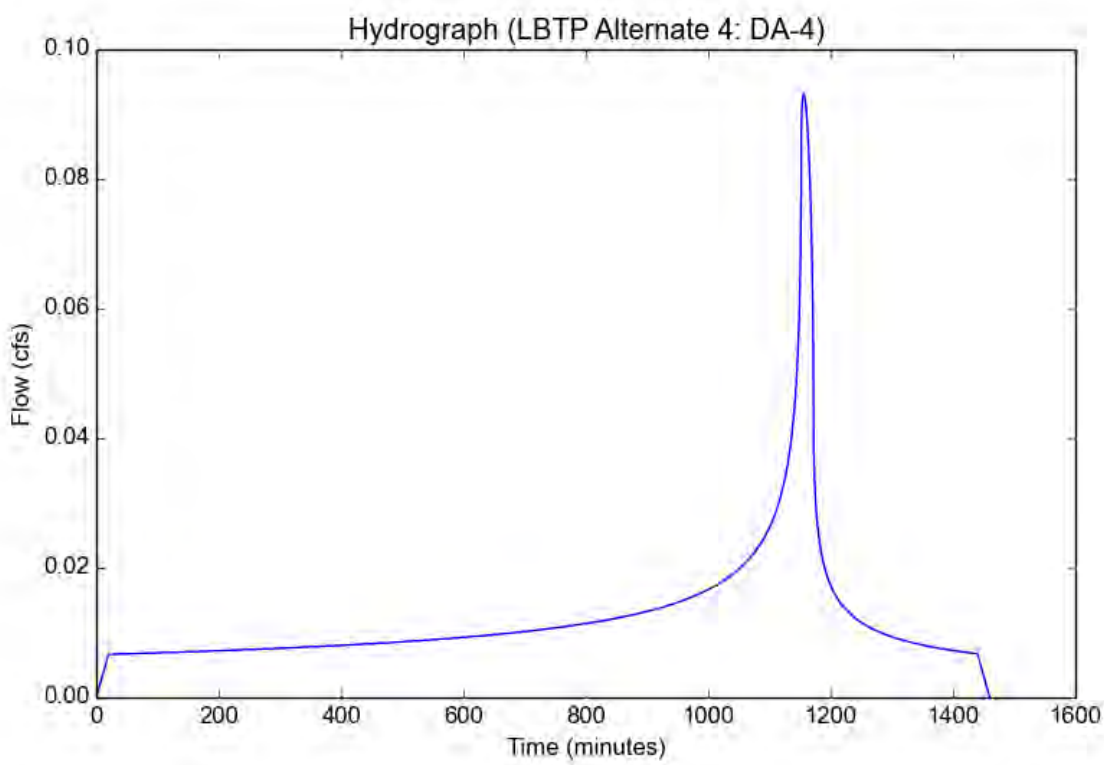
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4
Subarea ID	DA-4
Area (ac)	1.68
Flow Path Length (ft)	104.167
Flow Path Slope (vft/hft)	0.038399877
85th Percentile Rainfall Depth (in)	1.65
Percent Impervious	0.01
Soil Type	13
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.65
Peak Intensity (in/hr)	0.5131
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	20.0
Clear Peak Flow Rate (cfs)	0.0931
Burned Peak Flow Rate (cfs)	0.0931
24-Hr Clear Runoff Volume (ac-ft)	0.0247
24-Hr Clear Runoff Volume (cu-ft)	1077.7591



ALTERNATE 4 LID

Biofiltration Planter 1	DA-1		
[1]	85th Percentile Rainfall Depth (in)		1.10
[2]	Design Rainfall Depth (in)	[1] * 1.5	1.65
[3]	Clear Peak Flow Rate (cfs)	From Hydrocalc (Qpm)	1.09
[4]	24-Hr Clear Runoff Volume (cu-ft)	From Hydrocalc (=1.5 SWQDv)	15,224
[5]	$K_{sat,media}$ (in/hr)		5
[6]	FS		2
[7]	$K_{sat,design}$ (in/hr)	[5] / [6]	2.5
[8]	Proposed Planter Area (sf)		6,495
[9]	Proposed Planter Flow Rate (cfs)	[7]/12 in*[8]/60min*1/60sec	0.376
[10]	Proposed Total Storage Volume Required (cu-ft)	Use Hydrocalc CSV file to calculate area under hydrograph and above Planter Flow Rate	1,455
[11]	Proposed Additional Storage Volume Required (cu-ft)		0
[12]	d_{p_max}, Max. Ponding Depth (ft)		1
[13]	Proposed d_p, Calculated Ponding Depth (ft)	Use Hydrocalc CSV file to calculate peak depth. Roughly = [10]/[8]	0.22
[14]	Drawdown Time (hr)	[13]*12 in/ft /[7]	1.08
[15]	**A_{min} (sq. ft) (minimum area required)**	Iterate [8] until [13] = [12]	**3,248**

ALTERNATE 4 LID

Biofiltration Planter 2	DA-2		
[1]	85th Percentile Rainfall Depth (in)		1.10
[2]	Design Rainfall Depth (in)	[1] * 1.5	1.65
[3]	Clear Peak Flow Rate (cfs)	From Hydrocalc (Qpm)	2.04
[4]	24-Hr Clear Runoff Volume (cu-ft)	From Hydrocalc (=1.5 SWQDv)	26,665
[5]	$K_{sat,media}$ (in/hr)		5
[6]	FS		2
[7]	$K_{sat,design}$ (in/hr)	[5] / [6]	2.5
[8]	Proposed Planter Area (sf)		6,580
[9]	Proposed Planter Flow Rate (cfs)	[7]/12 in*[8]/60min*1/60sec	0.381
[10]	Proposed Total Storage Volume Required (cu-ft)	Use Hydrocalc CSV file to calculate area under hydrograph and above Planter Flow Rate	4,825
[11]	Proposed Additional Storage Volume Required (cu-ft)		0
[12]	d_{p_max}, Max. Ponding Depth (ft)		1
[13]	Proposed d_p, Calculated Ponding Depth (ft)	Use Hydrocalc CSV file to calculate peak depth. Roughly = [10]/[8]	0.73
[14]	Drawdown Time (hr)	[13]*12 in/ft /[7]	3.52
[15]	**A_{min} (sq. ft) (minimum area required)**	Iterate [8] until [13] = [12]	**5,689**

ALTERNATE 4 LID

Biofiltration Planter 3	DA-3		
[1]	85th Percentile Rainfall Depth (in)		1.10
[2]	Design Rainfall Depth (in)	[1] * 1.5	1.65
[3]	Clear Peak Flow Rate (cfs)	From Hydrocalc (Qpm)	0.86
[4]	24-Hr Clear Runoff Volume (cu-ft)	From Hydrocalc (=1.5 SWQDv)	4,870
[5]	$K_{sat,media}$ (in/hr)		5
[6]	FS		2
[7]	$K_{sat,design}$ (in/hr)	[5] /[6]	2.5
[8]	Proposed Planter Area (sf)		10,130
[9]	Proposed Planter Flow Rate (cfs)	[7]/12 in*[8]/60min*1/60sec	0.586
[10]	Proposed Total Storage Volume Required (cu-ft)	Use Hydrocalc CSV file to calculate area under hydrograph and above Planter Flow Rate	72
[11]	Proposed Additional Storage Volume Required (cu-ft)		0
[12]	d_{p_max}, Max. Ponding Depth (ft)		1
[13]	Proposed d_p, Calculated Ponding Depth (ft)	Use Hydrocalc CSV file to calculate peak depth. Roughly = [10]/[8]	0.01
[14]	Drawdown Time (hr)	[13]*12 in/ft /[7]	0.03
[15]	**A_{min} (sq. ft) (minimum area required)**	Iterate [8] until [13] = [12]	**1,060**

Appendix D

Existing Hydrology Calculations

EXISTING HYDROLOGY

Peak Flow Hydrologic Analysis

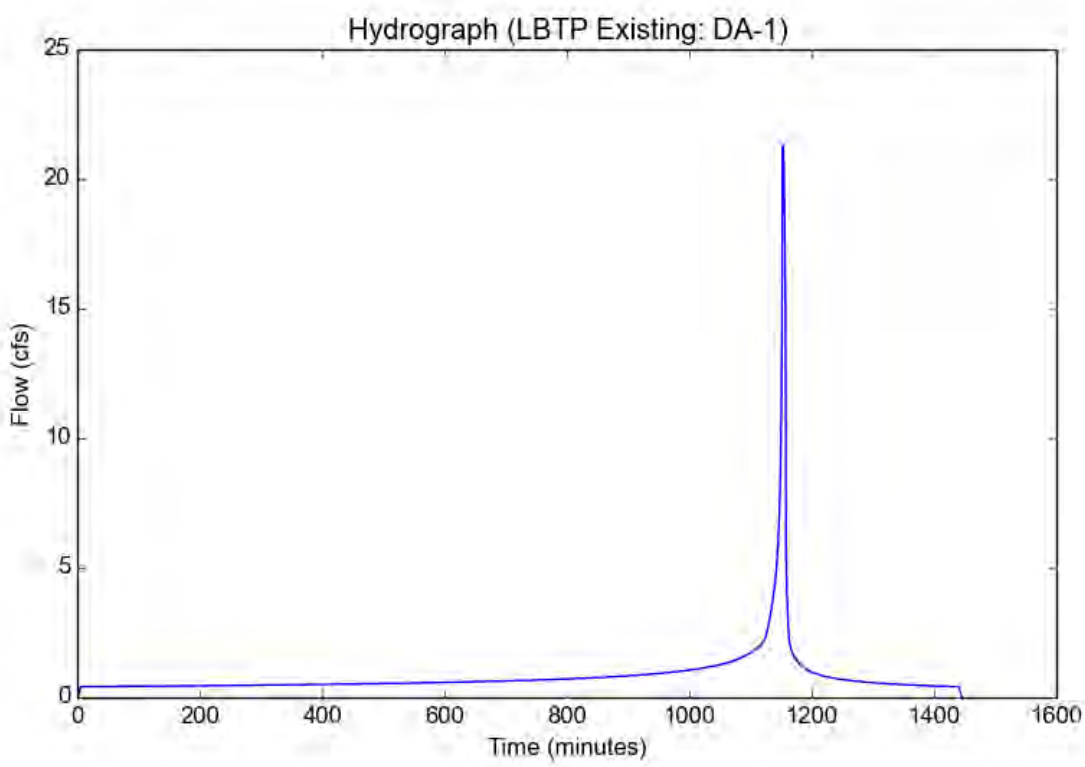
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Existing/Hydrocalc/Hydrocalc Output_LBTP Existing Report.p
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Existing
Subarea ID	DA-1
Area (ac)	8.59
Flow Path Length (ft)	531.1
Flow Path Slope (vft/hft)	0.039389945
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.41443539
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.7407
Undeveloped Runoff Coefficient (Cu)	0.9082
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	21.1882
Burned Peak Flow Rate (cfs)	21.1882
24-Hr Clear Runoff Volume (ac-ft)	1.6778
24-Hr Clear Runoff Volume (cu-ft)	73086.5755



EXISTING HYDROLOGY

Peak Flow Hydrologic Analysis

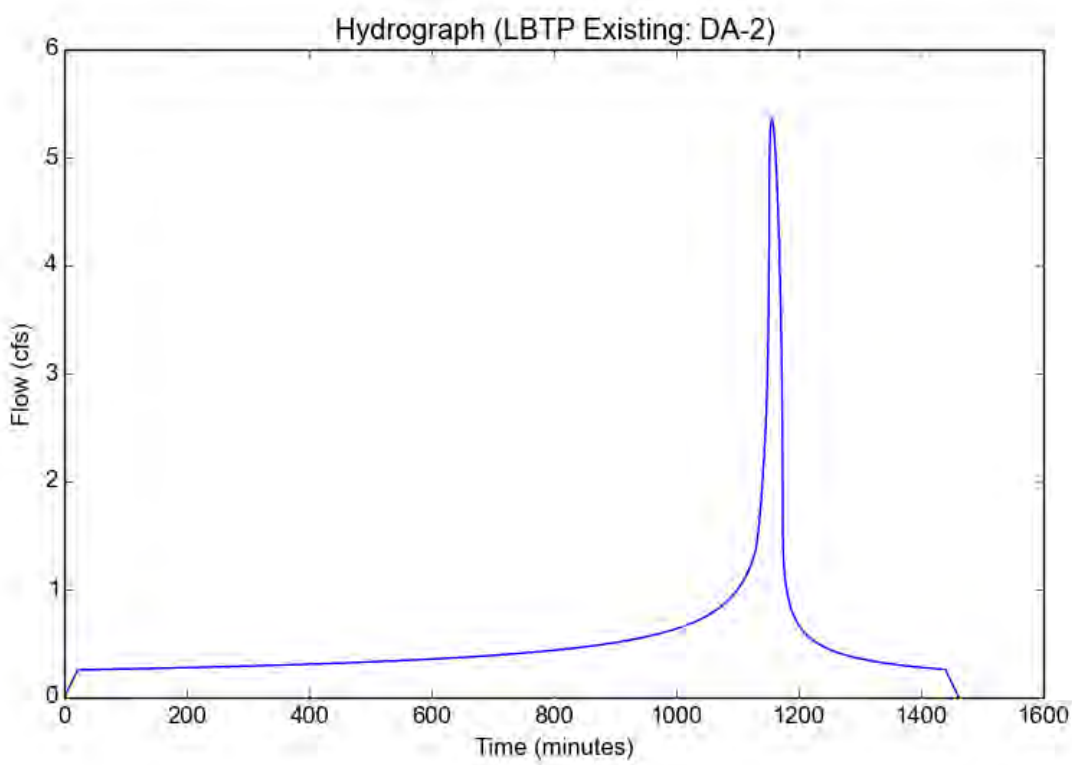
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Existing/Hydrocalc/Hydrocalc Output_LBTP Existing Report.p
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Existing
Subarea ID	DA-2
Area (ac)	4.51
Flow Path Length (ft)	2002.9167
Flow Path Slope (vft/hft)	0.00679509
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.509977827
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	1.4882
Undeveloped Runoff Coefficient (Cu)	0.6924
Developed Runoff Coefficient (Cd)	0.7983
Time of Concentration (min)	22.0
Clear Peak Flow Rate (cfs)	5.3578
Burned Peak Flow Rate (cfs)	5.3578
24-Hr Clear Runoff Volume (ac-ft)	1.0061
24-Hr Clear Runoff Volume (cu-ft)	43826.3335



EXISTING HYDROLOGY

Peak Flow Hydrologic Analysis

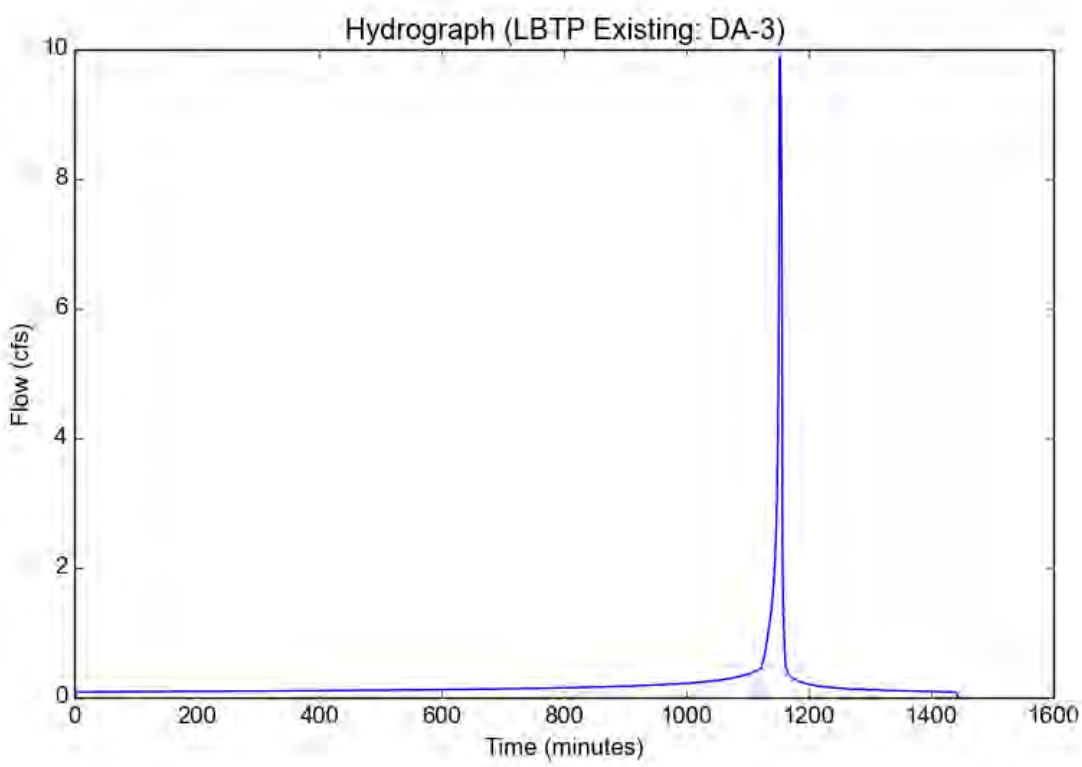
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Existing/Hydrocalc/Hydrocalc Output_LBTP Existing Report.p
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Existing
Subarea ID	DA-3
Area (ac)	3.59
Flow Path Length (ft)	291.167
Flow Path Slope (vft/hft)	0.065254648
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.142061281
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.9859
Undeveloped Runoff Coefficient (Cu)	0.9258
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	9.6474
Burned Peak Flow Rate (cfs)	9.6474
24-Hr Clear Runoff Volume (ac-ft)	0.4057
24-Hr Clear Runoff Volume (cu-ft)	17673.4429



EXISTING HYDROLOGY

Peak Flow Hydrologic Analysis

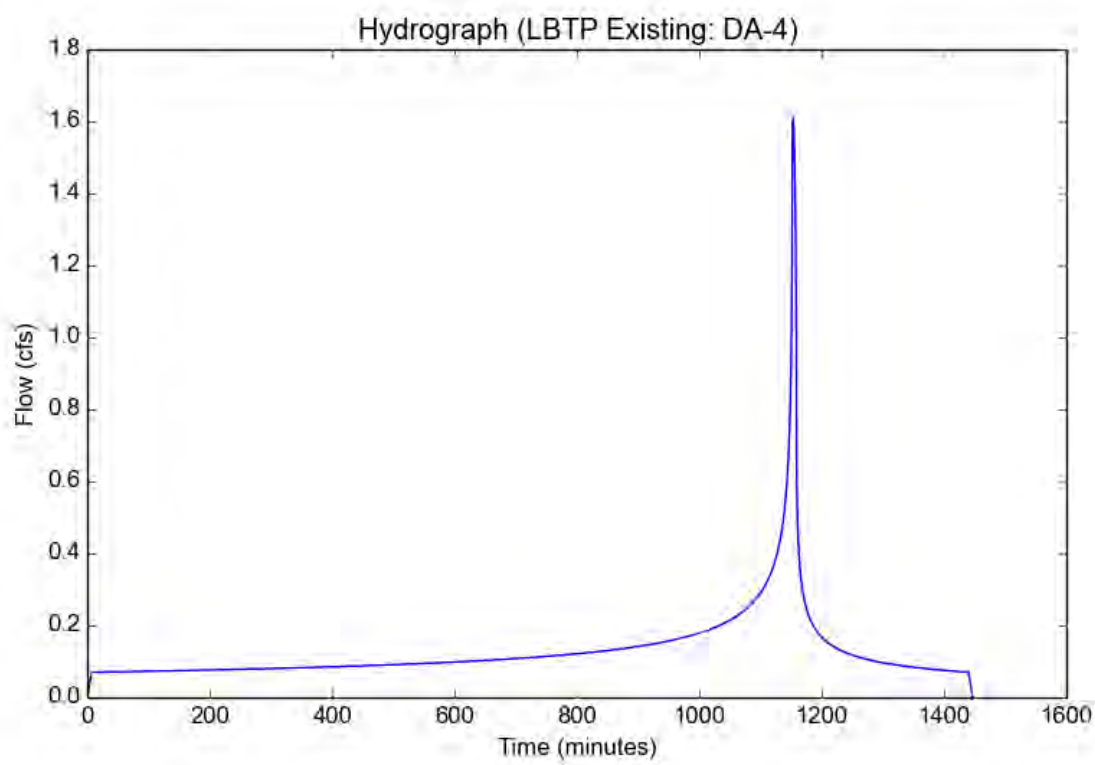
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Existing/Hydrocalc/Hydrocalc Output_LBTP Existing Report.p
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Existing
Subarea ID	DA-4
Area (ac)	0.7
Flow Path Length (ft)	526.14
Flow Path Slope (vft/hft)	0.014463831
50-yr Rainfall Depth (in)	5.7
Percent Impervious	1.0
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.5491
Undeveloped Runoff Coefficient (Cu)	0.8944
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	1.606
Burned Peak Flow Rate (cfs)	1.606
24-Hr Clear Runoff Volume (ac-ft)	0.2606
24-Hr Clear Runoff Volume (cu-ft)	11350.4398



Appendix E

Proposed Hydrology Calculations

PROPOSED HYDROLOGY

Peak Flow Hydrologic Analysis

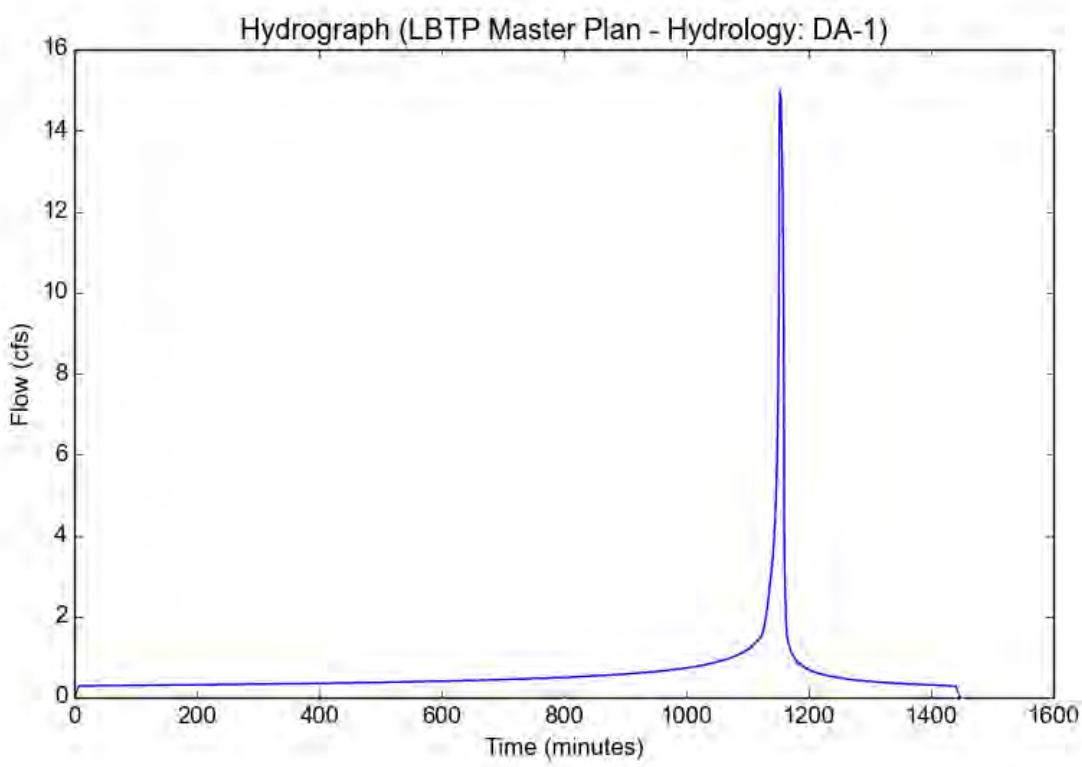
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan - Hydrology
Subarea ID	DA-1
Area (ac)	7.07
Flow Path Length (ft)	640.23
Flow Path Slope (vft/hft)	0.022757447
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.329561528
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.3941
Undeveloped Runoff Coefficient (Cu)	0.877
Developed Runoff Coefficient (Cd)	0.8846
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	14.9724
Burned Peak Flow Rate (cfs)	14.9724
24-Hr Clear Runoff Volume (ac-ft)	1.1993
24-Hr Clear Runoff Volume (cu-ft)	52243.5266



PROPOSED HYDROLOGY

Peak Flow Hydrologic Analysis

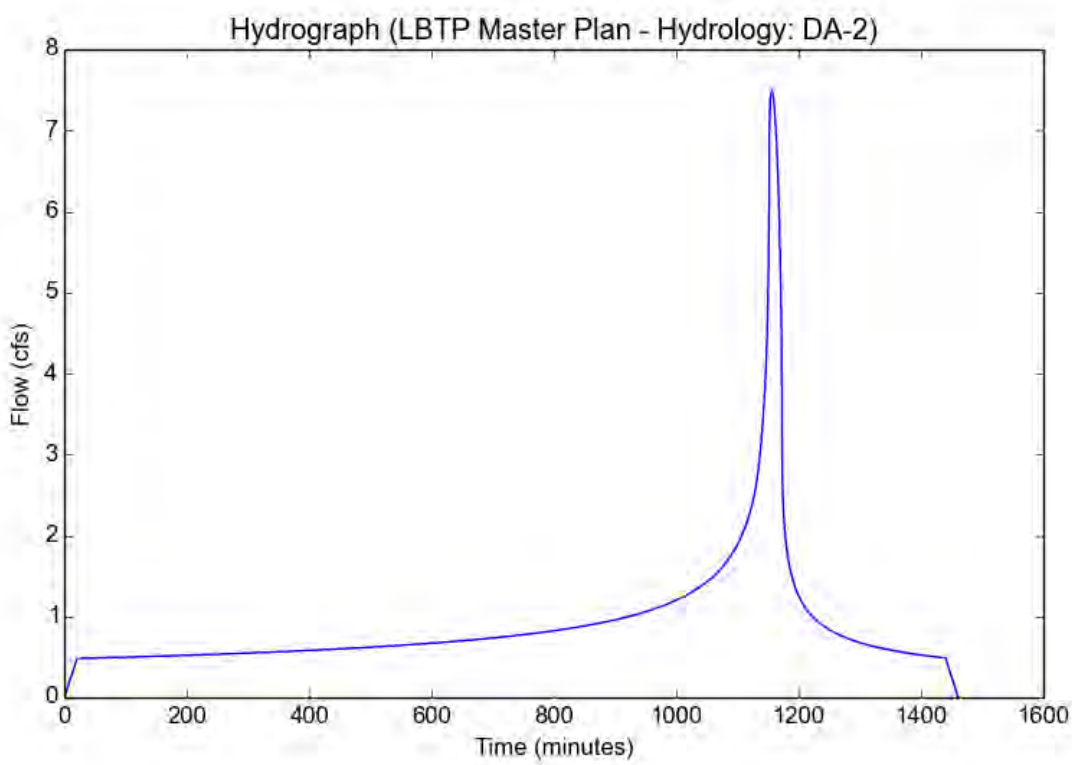
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan - Hydrology
Subarea ID	DA-2
Area (ac)	5.69
Flow Path Length (ft)	2012.46
Flow Path Slope (vft/hft)	0.006762867
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.824253076
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	1.5211
Undeveloped Runoff Coefficient (Cu)	0.7034
Developed Runoff Coefficient (Cd)	0.8654
Time of Concentration (min)	21.0
Clear Peak Flow Rate (cfs)	7.4902
Burned Peak Flow Rate (cfs)	7.4902
24-Hr Clear Runoff Volume (ac-ft)	1.8139
24-Hr Clear Runoff Volume (cu-ft)	79014.93



PROPOSED HYDROLOGY

Peak Flow Hydrologic Analysis

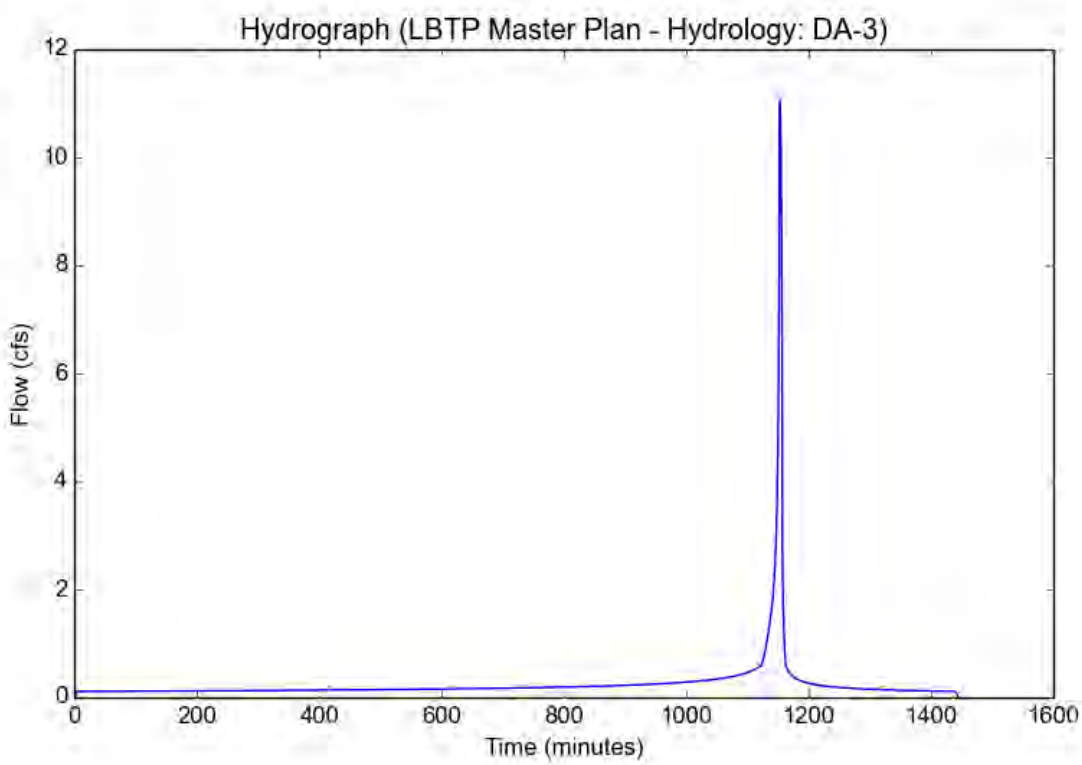
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan - Hydrology
Subarea ID	DA-3
Area (ac)	4.01
Flow Path Length (ft)	360.69
Flow Path Slope (vft/hft)	0.263
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.184538653
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.9859
Undeveloped Runoff Coefficient (Cu)	0.9258
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	10.776
Burned Peak Flow Rate (cfs)	10.776
24-Hr Clear Runoff Volume (ac-ft)	0.5047
24-Hr Clear Runoff Volume (cu-ft)	21982.9789



PROPOSED HYDROLOGY

Peak Flow Hydrologic Analysis

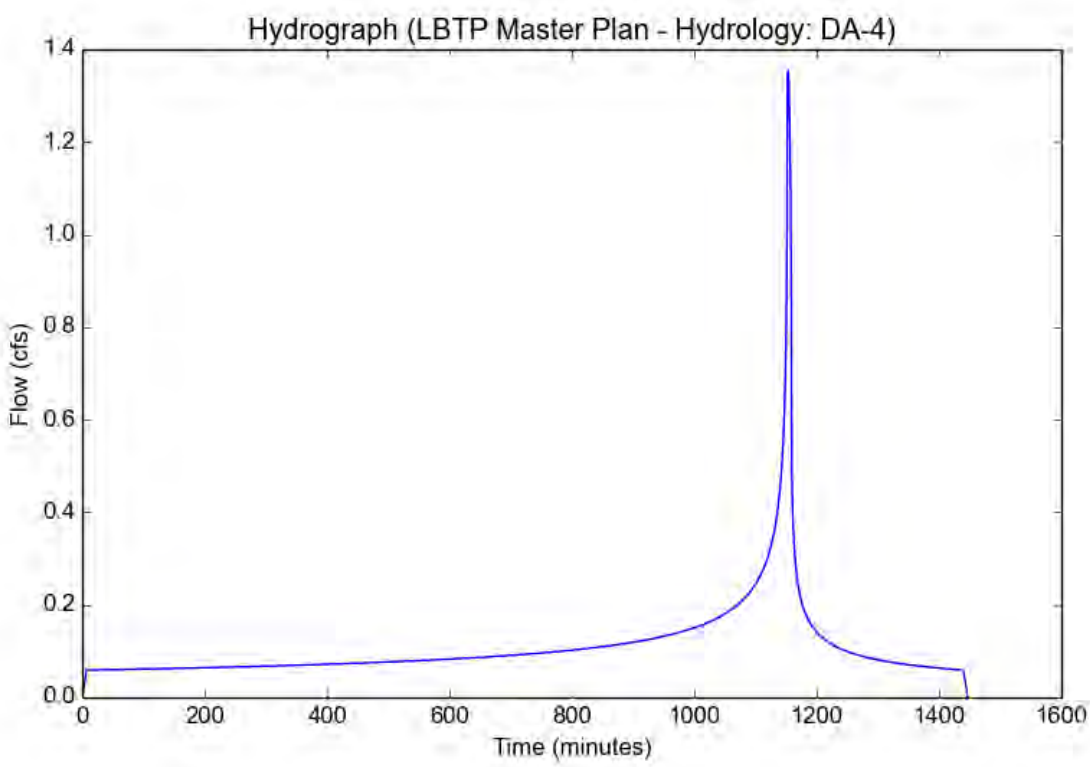
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Master Plan/Hydrocalc/Hydrocalc Output LBTP M
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Master Plan - Hydrology
Subarea ID	DA-4
Area (ac)	0.59
Flow Path Length (ft)	487.33
Flow Path Slope (vft/hft)	0.013194345
50-yr Rainfall Depth (in)	5.7
Percent Impervious	1.0
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.5491
Undeveloped Runoff Coefficient (Cu)	0.8944
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	1.3536
Burned Peak Flow Rate (cfs)	1.3536
24-Hr Clear Runoff Volume (ac-ft)	0.2196
24-Hr Clear Runoff Volume (cu-ft)	9566.7992



Appendix F

Alternate 4 Proposed Hydrology Calculations

ALTERNATE 4 HYDROLOGY

Peak Flow Hydrologic Analysis

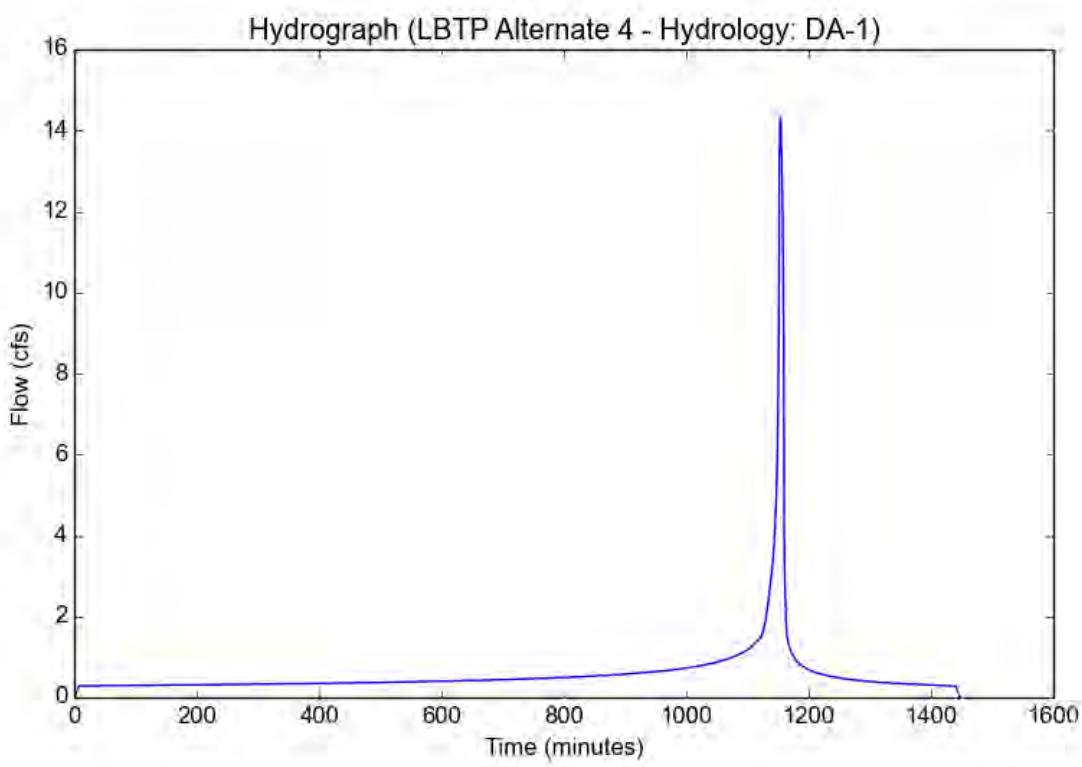
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4 - Hydrology
Subarea ID	DA-1
Area (ac)	6.75
Flow Path Length (ft)	640.23
Flow Path Slope (vft/hft)	0.022757447
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.34962963
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.3941
Undeveloped Runoff Coefficient (Cu)	0.877
Developed Runoff Coefficient (Cd)	0.885
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	14.3022
Burned Peak Flow Rate (cfs)	14.3022
24-Hr Clear Runoff Volume (ac-ft)	1.186
24-Hr Clear Runoff Volume (cu-ft)	51662.0481



ALTERNATE 4 HYDROLOGY

Peak Flow Hydrologic Analysis

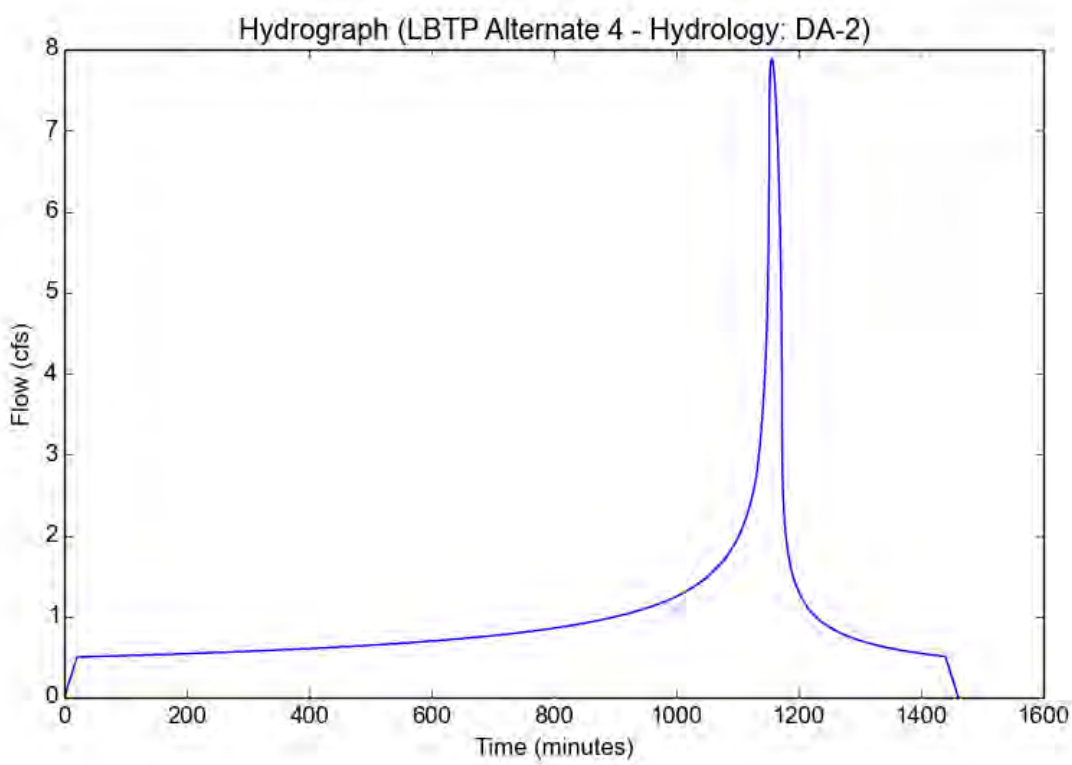
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4 - Hydrology
Subarea ID	DA-2
Area (ac)	6.01
Flow Path Length (ft)	2012.46
Flow Path Slope (vft/hft)	0.006762867
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.808652246
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	1.5211
Undeveloped Runoff Coefficient (Cu)	0.7034
Developed Runoff Coefficient (Cd)	0.8624
Time of Concentration (min)	21.0
Clear Peak Flow Rate (cfs)	7.8834
Burned Peak Flow Rate (cfs)	7.8834
24-Hr Clear Runoff Volume (ac-ft)	1.8874
24-Hr Clear Runoff Volume (cu-ft)	82216.4698



ALTERNATE 4 HYDROLOGY

Peak Flow Hydrologic Analysis

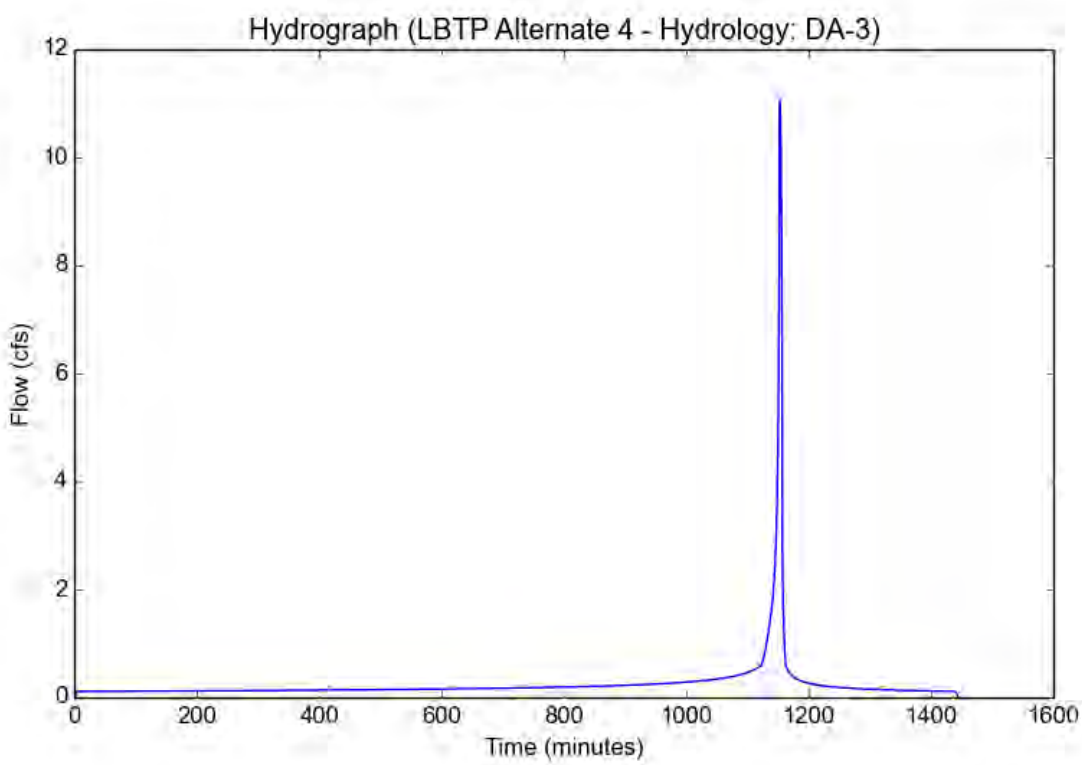
File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4 - Hydrology
Subarea ID	DA-3
Area (ac)	4.01
Flow Path Length (ft)	360.69
Flow Path Slope (vft/hft)	0.263
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.184538653
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	5.0046
Peak Intensity (in/hr)	2.9859
Undeveloped Runoff Coefficient (Cu)	0.9258
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	10.776
Burned Peak Flow Rate (cfs)	10.776
24-Hr Clear Runoff Volume (ac-ft)	0.5047
24-Hr Clear Runoff Volume (cu-ft)	21982.9789



ALTERNATE 4 HYDROLOGY

Peak Flow Hydrologic Analysis

File location: P:/2019/1900236 La Brea Tar Pits Design and Renovation/2 ENGR/Hydrology/Proposed_Alternative 4/Hydrocalc/Hydrocalc Output LBTP A
Version: HydroCalc 1.0.2

Input Parameters

Project Name	LBTP Alternate 4 - Hydrology
Subarea ID	DA-4
Area (ac)	0.59
Flow Path Length (ft)	487.33
Flow Path Slope (vft/hft)	0.013194345
50-yr Rainfall Depth (in)	5.7
Percent Impervious	1.0
Soil Type	13
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

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Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	1.3536
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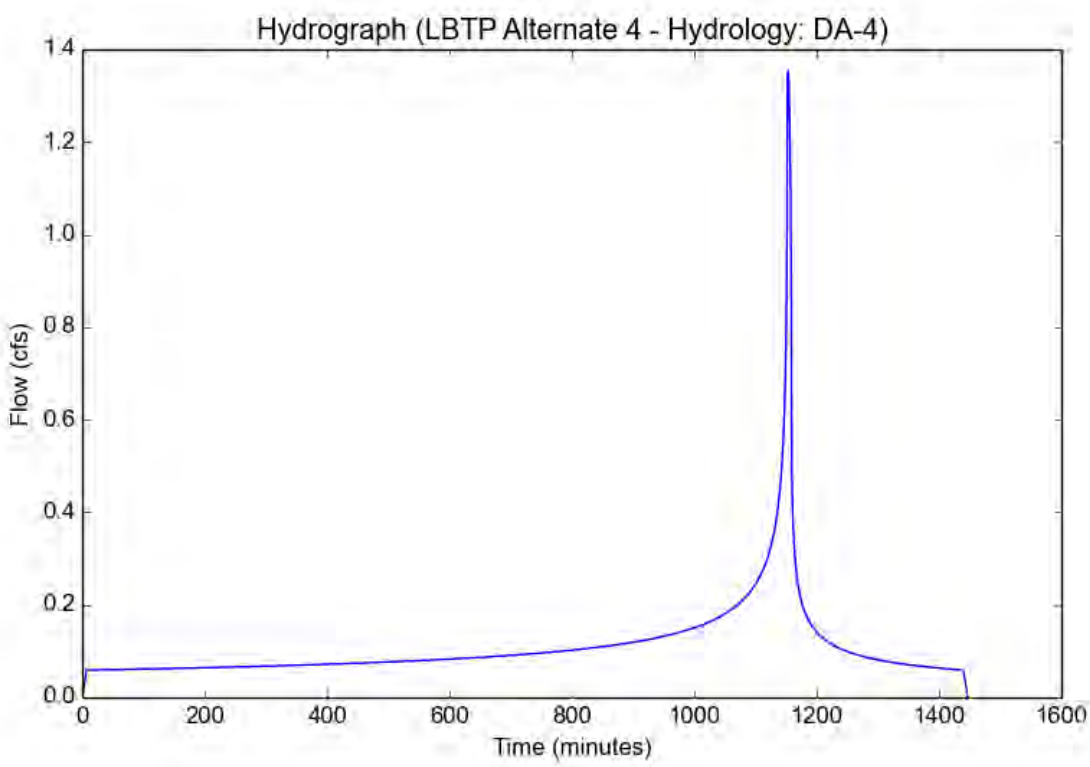
24-Hr Clear Runoff Volume (ac-ft)	0.2196
24-Hr Clear Runoff Volume (cu-ft)	9566.7992



APPENDIX I

Noise and Ground Vibration Technical Report

Noise and Ground Vibration Technical Report
La Brea Tar Pits Master Plan

Los Angeles, California

NOVEMBER 2022

PREPARED FOR

Los Angeles County Museum of Natural History Foundation

LEAD AGENCY

County of Los Angeles

PREPARED BY

SWCA Environmental Consultants

NOISE AND GROUND VIBRATION TECHNICAL REPORT
LA BREA TAR PITS MASTER PLAN
LOS ANGELES, CALIFORNIA

Prepared for:

Los Angeles County Museum of Natural History Foundation
On behalf of County of Los Angeles Museum of Natural History
900 Exposition Boulevard
Los Angeles, California 90007
Attn: Dawn McDivitt, Chief Deputy Director

Lead Agency: County of Los Angeles

Prepared by

Brad Sohm, Principal Noise Team Lead
Carlos M. Ituarte-Villarreal, Noise Specialist

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

November 2022

EXECUTIVE SUMMARY

The objective of this Noise and Ground Vibration Technical Report is to evaluate and describe the potential noise and vibration impacts of the proposed La Brea Tar Pits Master Plan in Los Angeles, California. The project site is located on the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as the La Brea Tar Pits.

The analysis outlines the existing noise environment in the project area, estimates future noise and vibration levels at neighboring land uses as a result of the project's construction and operation, and evaluates the potential for significant impacts. Also provided is an assessment of the project's contribution to potential cumulative noise impacts. Based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines, this study has been prepared to be consistent with applicable City of Los Angeles and Los Angeles County standards and significance thresholds.

The appendices include the noise worksheets and technical data used for this study. The report presents the findings of whether a summary of the potential that the project would exceed applicable noise and vibration regulations, standards, and thresholds. The following are the results of the analyses:

- Due to on-site construction equipment and activities, surrounding noise-sensitive receptors may experience short-term and transient noise impacts during construction activities. Implementation of the below-described Mitigation Measure NOI-1, presented in Section 7.4 of this report, would minimize this impact to less than significant.
- Construction of the project would result in intermittent, transient ground-borne vibration in the vicinity of the project site; however, these impacts are not anticipated to exceed the significance thresholds. Consequently, construction vibration impacts would be less than significant.
- Operation of the project would produce noise from project-related traffic or on-site sources (parking structure, loading dock area, waste compactors, outdoor areas, and mechanical equipment) that would not exceed significance levels. Therefore, operational noise impacts would be less than significant.
- The project's operation would affect the traffic noise levels in the adjacent off-site areas. To estimate the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 13 roadway segments were calculated based on the peak-hour traffic volume change. The assessment shows that the traffic noise level increases for land uses close to the study area roadway segments are not considered significant under any of the project traffic scenarios.
- Project operation would not result in excessive vibration levels at neighboring sensitive receptors. Therefore, the long-term vibration impacts would be less than significant.
- Noise resulting from cumulative construction activities would be reduced to the extent reasonably and technical feasible through mitigation measures proposed for each project and compliance with locally enforced noise ordinances. Construction activities of other cumulative projects in the vicinity would be required to comply with the City of Los Angeles's allowed construction hours and construction would be temporary. In addition, the La Brea Master Plan project is anticipated to implement Mitigation Measure NOI-1. With implementation of this mitigation measure and compliance with City requirements, construction-related noise would have a less-than-significant cumulative impact.

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1 INTRODUCTION

The 13-acre La Brea Tar Pits site is located within the eastern and northeastern portions of Hancock Park in Los Angeles, California. The La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities are owned by the County of Los Angeles (County) but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the Natural History Museums of Los Angeles County, including the La Brea Tar Pits and Page Museum. The Foundation proposes a redevelopment, or "reimagining," of the La Brea Tar Pits site, including renovation of the Page Museum, constructing a new museum building, and developing new amenities in surrounding portions of Hancock Park.

The County is the Lead Agency under the California Environmental Quality Act (CEQA); the Museum of Natural History is a County departmental unit. The Foundation retained SWCA Environmental Consultants (SWCA) to prepare a Noise and Ground Vibration Technical Report in support of the proposed La Brea Tar Pits Master Plan (project). The purpose of this assessment is to evaluate the project's potential construction and operational noise and vibration levels and determine the potential level of impact the project would have on the environment.

2 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The La Brea Tar Pits property (project site) is located at 5801 Wilshire Boulevard within the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902) (Figures 1 and 2). The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to the Los Angeles County Museum of Art (LACMA). The project site is located approximately 5.5 miles west from downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and the LACMA to the west (an approximately 250-foot-long frontage). The area is known as the Miracle Mile neighborhood of the city of Los Angeles. The project site can be found on the U.S. Geological Survey Hollywood, California 7.5-minute quadrangle in Section 20, Township 1 South, Range 14 West.

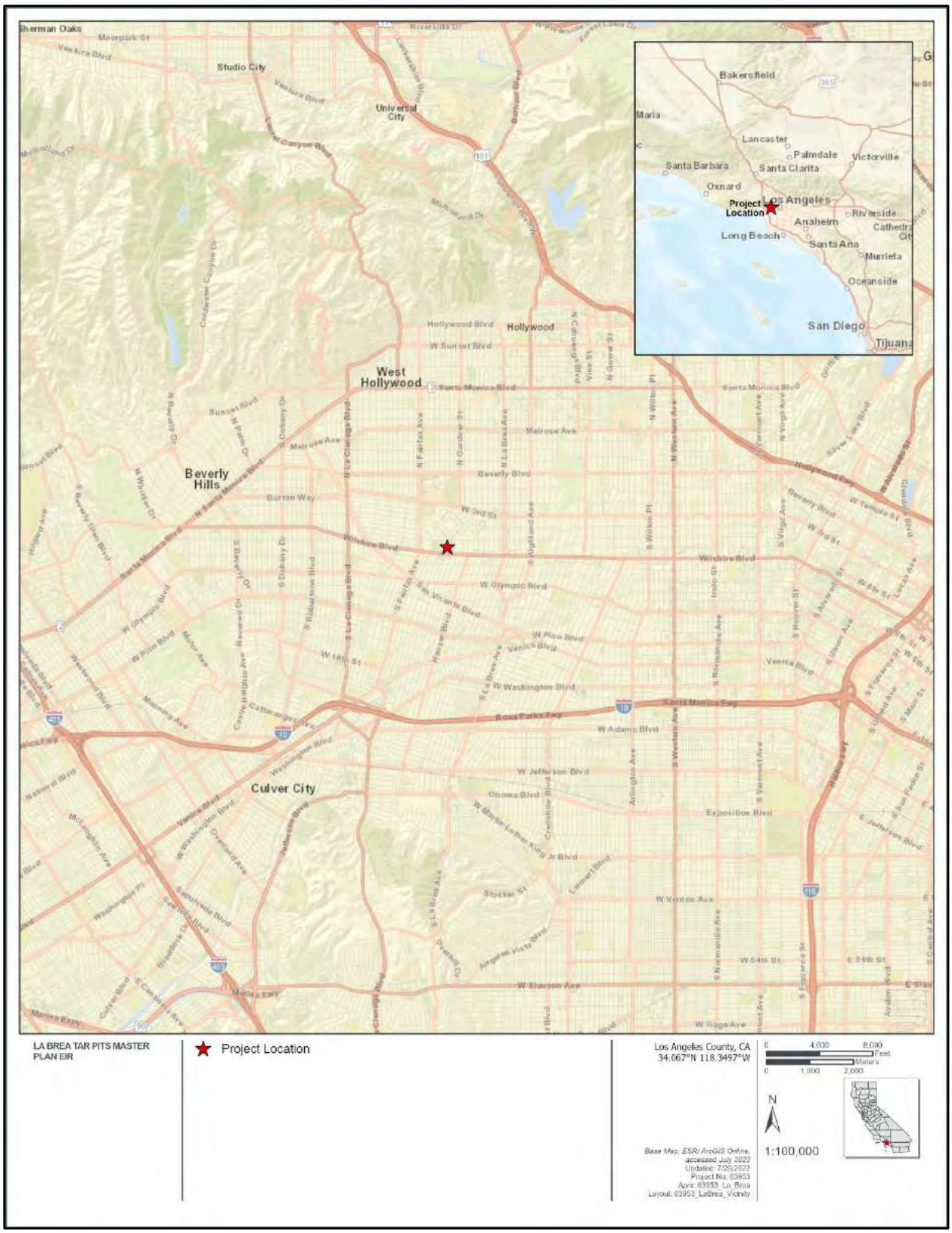


Figure 1. Project vicinity map.

Figure 2. Project location map.

1.1 Existing Conditions and Surrounding Land Uses

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as the La Brea Tar Pits, which includes the Page Museum (see Figure 2). The entirety of Hancock Park is enclosed within an 8- to 10-foot-high metal fence, which serves to secure the site by providing full closure of Hancock Park when the La Brea Tar Pits, Page Museum, and LACMA are closed in the evenings.

The George C. Page Museum is approximately 63,200 square feet and is located on the eastern portion of the project site. The project site contains multiple active fossil quarries, commonly called "tar pits." The active tar pits (Pits 3, 4, 9, 13, 61, 67, and 91) are located within the northwestern portion of the project site, along with the Observation Pit on the western boundary of the project site. Project 23[1] and Pit 91 are active fossil recovery and excavation sites also located in the northwestern portion of the project site. The Lake Pit is largest paleontological excavation pit on the grounds of Hancock Park, located in the southeastern portion of the project site.

The project site includes an approximately 28,000-square-foot multipurpose grass lawn, known as the Central Green, is located to the west of the Page Museum. Parking for the La Brea Tar Pits is located in the northeast corner of the project site, at the corner of South Curson Avenue and West 6th Street (see Figure 2). Vehicles enter and depart the lot from both directions on South Curson Avenue.

The project site is surrounded by a variety of commercial uses, museums, residential buildings, and schools. The project site is bounded by the Park La Brea Pool and multi-family residential uses to the north across West 6th Street, commercial and residential uses to the east across South Curson Avenue, the Craft Contemporary Museum and other museum and commercial uses south across Wilshire Boulevard, and museum and commercial uses to the west (see Figure 2).

2.2 Project Description

The project would result in a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex and portions of Hancock Park, including renovations to the Page Museum (Figure 3). Table 1 provides a summary of the project components; more detail on the project components is provided following the table.

2.2.1 Page Museum Renovations

The project would renovate the existing Page Museum within the same footprint as the existing building (currently approximately 63,200 square feet) to allow for enlarged exhibition space, additional storage, a ground floor café, and retail space. The central atrium would be renovated to provide additional exhibitions and provide additional classroom and laboratory space. The second floor of the Page Museum would contain two classrooms and a multipurpose space. An outdoor café and bar would be located next to these spaces on the center terrace on the west side of the Page Museum. A sloped green roof would be installed to the north of the Page Museum and would curve to the west. The project would add several sustainability features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and rooftop solar photovoltaic panels.

[1] During construction on the LACMA parking garage in 2006, 16 new paleontological deposits were discovered, including an almost-complete skeleton of an adult mammoth. Given the size of the discoveries, 23 large wooden boxes were built around the various deposits, allowing many of the discoveries to remain intact. "Project 23" has now become the short-hand descriptor for the location and activities related to the excavation of deposits within the 23 large wooden boxes that is now occurring in a portion of the La Brea site.

Table 1. Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building in same footprint (approximately 63,200 square feet). Demolish existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. Construct new 2,000-gross-square-foot (gsf) satellite maintenance and support building.
New Museum Building	Construct a new two-story 40,000-gsf museum building northwest of the Page Museum including two new theaters.
Wilshire Gateway	Renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
The Lake Pit	Construct a pedestrian bridge and walking path over the Lake Pit. Install a new garden bioswale.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pits (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous 1-kilometer-long paved pedestrian path linking existing features on the project site. Improvements to the Central Green (establish a drivable path for food truck access). Establish a children's play area, picnic areas, and a small dog park west of the 6th Street Gateway.
Circulation and Parking	Expand existing parking lot from 63,000 square feet to 65,000 square feet and relocate approximately 50 to 70 feet to the north. This would require removal and relocation of existing trees on-site. Increase vehicle parking spaces approximately 5 to 15 spaces for a total of 160 to 170 vehicle parking spaces. Addition of new landscaping and vehicle access lanes to the parking lot. Establish new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping Concept Plan	Establish three distinct landscaping zones encircled by looping pedestrian path. Creation of biofiltration areas for stormwater management. Introduction or relocation of approximately 84 trees from existing locations on-site to new locations on-site.

Figure 3. Proposed site plan.

In addition, the project would demolish the existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. A new 2,000-gross-square-foot (gsf) satellite maintenance and support building would be constructed for additional storage, administration, and research space directly west of the parking lot.

2.2.2 New Museum Building

A new two-story museum building would be located to the northwest of the Page Museum (see Figure 3). The building would be approximately 40,000 gsf and would increase the total museum square footage to 104,000 gsf. The new museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock.

The Page Museum and new museum building would be continuously connected on the first floor. The first-floor central lobby would face southwest toward the Central Green and branch off into the Page Museum to the east and the new museum building to the west. An updated retail and café space would be located off the lobby and look out over the Central Green. The Page Museum and the new museum buildings would be disconnected on the second floor, which would rise above the earthen berm. The separated facilities would be accessible through sloped outdoor walkways from the Central Green or interior staircases in the museum. There would be pedestrian entrances leading into the central lobby from the Central Green and from the parking lot. The existing Page Museum entrance would be converted to an educational group and tour entrance, which would be connected to a new school drop-off area on South Curson Avenue.

2.2.3 Entrance Renovation and Other Internal Circulation Improvements

The project would renovate the existing entrance to the La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza; this would provide orientation, spaces for gathering and queuing, and restrooms (see Figure 3). A picnic area would also be located under the shaded canopy.

A pedestrian bridge and walking path would be constructed over the Lake Pit. Directly to the east of the Lake Pit, a new garden bioswale would be installed to manage stormwater and would include vegetation related to the relocated mammoths and mastodon sculptures.

A school drop-off area on South Curson Avenue would lead directly to the education museum entrance, enabling the choreography of student tour itineraries that are distinct from general museum visitors and other tour groups.

The project would renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA parking garage. Similar to the Wilshire Gateway, a shaded canopy and welcome pavilion would provide orientation, legibility, and amenities. As a visible point of arrival from the residential communities to the north, this new entry would welcome visitors to a shaded park space where community park and recreational needs are balanced with the research activities of La Brea. Under the canopy of shade trees, visitors would find diverse destinations, including play areas, picnic areas, seating and interpretation zones at the protected tar seeps, the gentle topography and bioswales along Oil Creek, and the revitalized destinations of the Dorothy Brown Amphitheater, Observation Pit, and Pit 91. Along the south edge of the loop path, connections would allow access to other Hancock Park programs and transportation connections.

3 CONSTRUCTION TIME FRAME AND PHASING

Construction of the project, from mobilization to the site to final completion, is expected to occur between 2024 and 2027, and would last for approximately 4 years. The project would be constructed in five phases: 1) demolition and project site preparation; 2) installation of infrastructure improvements; 3) development of the proposed new museum building and parking lot; 4) landscaping and hydroseeding; and 5) roadway improvements. Blasting is not anticipated for the construction of this project. The estimated construction scheduling for the project is presented in Table 2.

Table 2. Construction Schedule

Phase	Start Date	End Date	Days/Week	Workdays per Phase
Demolition	1/1/2024	10/31/2024	6	262
Site preparation	1/1/2024	10/31/2024	6	262
Grading	11/1/2024	12/31/2024	6	52
Building construction	1/1/2025	5/31/2027	6	755
Paving	6/1/2027	12/31/2027	6	184
Architectural coating	7/1/2026	9/30/2026	6	79

For this analysis, project construction has been divided into six phases based on the types of equipment required and workload: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating (see Table 2).

4 ENVIRONMENTAL SETTING

4.1 Noise Fundamentals

This section provides a brief overview of noise fundamentals, noise assessment components, and examples of sound levels from a variety of sources.

4.1.1 Definition of Acoustical Terms

Noise is commonly defined as sound that is undesirable because it interferes with speech communication and hearing, causes sleep disturbance, or is otherwise annoying. The following acoustical terms are used throughout this analysis:

- Ambient sound level is defined as the composite of noise from all sources near and far, i.e., the normal or existing level of environmental noise at a given location.
- Decibel (dB) is the physical unit commonly used to measure sound levels. Technically, a dB is a unit of measurement that describes the amplitude of sound equal to 20 times the base 10 logarithm of the ratio of the reference pressure to the sound of pressure, which is 20 micropascals (μPa).
- Sound measurement is further refined by using a decibel “A-weighted” sound level (dBA) scale that more closely measures how a person perceives different frequencies of sound; the A-weighting reflects the sensitivity of the ear to low or moderate sound levels.
- Equivalent noise level (L_{eq}) is the energy average A-weighted noise level during the measurement period.

- The root-mean-squared maximum noise level (L_{max}) characterizes the maximum noise level as defined by the loudest single noise event over the measurement period.
- Day-Night Sound Level (L_{dn}) is the A-weighted equivalent sound level for a 24-hour period with an additional 10 dB weighting imposed on the equivalent sound levels occurring during nighttime hours (10:00 p.m. to 7:00 a.m.).
- Community Noise Equivalent Level (CNEL) is a measure of the 24-hour average noise level that penalizes noise that occurs during the evening and nighttime hours, when noise is considered more disturbing. To account for this increase in disturbance, 5 A-weighted decibels (dBA) is added to the hourly L_{eq} during the evening hours (7:00 p.m. to 10:00 p.m.) and 10 dBA is added during the nighttime hours (10:00 p.m. to 7:00 a.m.).
- Percentile-Exceeded Sound Level (L_{xx}) describes the sound level exceeded for a given percentage of a specific period.
- Noise-sensitive land use is defined as a location most likely to be adversely affected by excessive noise levels, or as a place where quiet is an essential element of their intended purpose.

4.1.2 Sound Levels of Representative Sounds and Noises

The U.S. Environmental Protection Agency (EPA) has developed an index to assess noise impacts from a variety of sources using residential receptors. Noise levels in a quiet rural area at night are typically between 32 and 35 dBA. Quiet urban nighttime noise levels range from 40 to 50 dBA. Noise levels during the day in a noisy urban area are frequently as high as 70 to 80 dBA. Noise levels above 110 dBA become intolerable; levels higher than 80 dBA over continuous periods can result in hearing loss. Levels above 70 dBA tend to be associated with task interference. Levels between 50 and 55 dBA are associated with raised voices in a normal conversation (EPA 1974).

Table 3 provides criteria that have been used to estimate an individual's perception to increases in sound. In general, an average person perceives an increase of 3 dBA or less as barely perceptible. An increase of 10 dBA is perceived as a doubling of the sound.

Table 3. Average Human Ability to Perceive Changes in Sound Levels

Increase in Sound Level (dBA)	Human Perception of Sound
2–3	Barely perceptible
5	Readily noticeable
10	Doubling of the sound
20	Dramatic change

Source: Bolt, Beranek and Newman, Inc. (1973)

Table 4 presents sound levels for some common noise sources and the human response to those decibel levels.

Table 4. Sound Levels of Representative Sounds and Noises

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	**— 70 —**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**— 60 —**	
		Large business office
Quiet urban daytime	**— 50 —**	Dishwasher next room
Quiet urban nighttime	**— 40 —**	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	**— 0 —**	Lowest threshold of human hearing

Source: California Department of Transportation (2022:112)

4.1.3 Noise Assessment Components

A noise assessment is based on the following components: a sound-generating source, a medium through which the source transmits and the pathways taken by these sounds, and an evaluation of the proximity to noise receptors. Soundscapes are affected by the following factors:

- Source. The sources of sound are any generators of small back-and-forth motions (i.e., motions that transfer their motional energy to the transmission path where it is propagated). The acoustic characteristics of the sources are very important. Sources must generate sound of sufficient strength, approximate pitch, and duration so that the sound may be perceived and can cause adverse effects, compared with the natural ambient sounds.
- "Transmission path" or medium. The "transmission path" or medium for sound or noise is most often the atmosphere (i.e., air). For the noise to be transmitted, the transmission path must support the free propagation of the small vibratory motions that make up the sound. Atmospheric conditions (e.g., wind speed and direction, temperature, humidity, precipitation) influence the attenuation of sound. Barriers and/or discontinuities (e.g., existing structures, topography, foliage, ground cover, etc.) that attenuate the flow of sound may compromise the path. For example, sound will travel very well across reflective surfaces such as water and pavement but can attenuate across rough surfaces (e.g., grass, loose soil).
- Proximity to receptors. A receptor is usually defined as a location where a state of quietness is a basis for use or where excessive noise interferes with the normal use of the location. Typical receptors include residential areas, monuments, schools, hospitals, churches, and libraries.

4.2 Ground-borne Vibration Fundamentals

This chapter describes basic concepts related to ground-borne vibration. Ground-borne vibration is a small, rapidly fluctuating motion transmitted through the ground. When seismic waves are perceptible,

when they can be felt, they are called "ground vibrations." Seismic waves are divided into two classes: body waves and surface waves.

1. Body waves travel across the mass of the rock, penetrating down into the interior of the rock mass. There are two forms of body waves: compressional waves and shear waves.
   The compressional wave (P-wave) is a push-pull type wave that produces alternating compression and dilatation in the direction of wave travel. The shear wave (S-wave) is produced when the medium particles oscillate perpendicular to the propagation direction.
2. Surface waves (L-waves) travel over the surface of rock mass but do not travel through it. Surface waves are generated by body waves that are constrained by physical and geometrical conditions from traveling into the rock mass. Surface waves are the large energy carriers and account for the largest ground motions. There are two fundamental types of surface waves: the Raleigh, and the Love waves (Q-wave). Raleigh and Love waves represent the energy measured by a seismograph and are the main component of vibration when examining ground vibration from blasting activities.

The ground vibration from surface waves is measured as the velocity of motion, or how many inches per second (in/sec) the ground is moving. The motion of the ground particles (vibration) happens in three dimensions: radial, transverse, and vertical. During vibration, each particle has a velocity, and the maximum velocity is referred to as the peak particle velocity (PPV). The resulting vector of all three components (i.e., radial, transverse, and vertical) combined is referred to as peak vector sum (PVS).

The industry standard is to use the readings of the PPV as the metric to measure the intensity of the ground vibration. In reporting, the maximum measurement of any of the three components is used rather than the resulting PVS.

4.2.1 Ground Vibration Terms

Ground vibration is described using the following terms:

- Acceleration—The rate at which particle velocity changes.
- Crest factor—The ratio of peak particle velocity to maximum root mean square amplitude in an oscillating signal.
- Displacement—The farthest distance that the ground moves before returning to its original position.
- Frequency—The number of oscillations per second that a particle makes when under the influence of seismic waves.
- Hertz (Hz)—The unit of acoustic or vibration frequency representing cycles per second.
- Peak particle velocity (PPV)—The greatest particle velocity associated with an event.
- Peak vector sum (PVS)—The square root of the sum of the squares of the individual PPV values in all three vector directions.
- Particle velocity—The velocity at which the ground moves.
- Propagation velocity—The speed at which a seismic wave travels away from the blast.
- Root Mean Square (RMS)—The square root of the mean-square value of an oscillating waveform, where the mean-square value is obtained by squaring the value of amplitudes at each instant of time and then averaging these values over the sample time.

- Vibration Velocity Level (LV)—Ten times the common logarithm of the ratio of the square of the amplitude of the RMS vibration velocity to the square of the amplitude of the reference RMS vibration velocity.

4.2.2 Ground Vibration and Structure Damage

Ground vibrations can produce permanent changes in the relative positions of "particles" that constitute structures. Because these permanent changes are unwanted, they are colloquially referred to as "damage". The larger the vibration (i.e., the higher the ground movement speed), the greater is the potential for these permanent shifts in particle positions in structures.

Table 5 summarizes the effects of peak particle velocities on structures and materials that have been documented by various researchers and organizations.

Table 5. Effect of Vibration on Materials and Structures

PPV (in/sec)	Application	Effect	Reference
0.03	Residential structure	Equivalent to walking on floor	Stagg et al. (1980)
0.3	Residential structure	Equivalent to jumping on floor	Stagg et al. (1980)
0.1–0.5	Residential structure	Equates to normal daily family activity	Stagg et al. (1980)
0.5	Mercury switch	Trips switch	Bauer and Calder (1977)
0.5	Residential structure	Equivalent to door slam	Stagg et al. (1980)
0.9	Residential structure	Equivalent to nail driving	Stagg et al. (1980)
<2.0	Residential structure	No damage	Edwards and Northwood (1960)
<2.0	Residential structure	No damage	Nichols et al. (1971)
2	Plaster	Safe level of vibration	E. I. du Pont de Nemours & Co. (1977)
2	Residential structure	Plaster can start to crack	Bauer and Calder (1977)
2.8	Residential structure	No damage	Langefors et al. (1958)
1.2–3.0	Residential structure	Equates to daily environmental changes	Stagg et al. (1980)
3	Plaster	Threshold of cosmetic cracking	Northwood et al. (1963)
2.8–3.3	Plaster	Threshold of damage (from close-in blasts)	E. I. du Pont de Nemours & Co. (1977)
2.0–4.0	Residential structure	Caution range	Edwards and Northwood (1960)
2.0–4.0	Residential structure	Plaster cracking (cosmetic)	Nichols et al. (1971)
>4.0	Residential structure	Probable damage	Edwards and Northwood (1960)
4.3	Residential structure	Fine cracks in plaster	Langefors et al. (1948)
4.5	Plaster	Minor cracking	Northwood et al. (1963)
5.4	Plaster	50% probability of minor damage	E. I. du Pont de Nemours & Co. (1977)
5.44	Water wells	No change in well performance	Robertson et al. (1980)
6.3	Residential structure	Plaster and masonry walls crack	Langefors et al. (1948)
<6.9	Residential structure	No damage observed	Wiss and Nichols (1974)

PPV (in/sec)	Application	Effect	Reference
4.0–7.0	Residential structure	Minor damage possible	Nichols et al. (1971)
>7.0	Residential structure	Major damage possible	Nichols et al. (1971)
7.0–8.0	Cased water wells	No adverse effect on well	Rose et al. (1991)
7.6	Plaster	50% probability of major damage	E. I. du Pont de Nemours & Co. (1977)
8	Concrete blocks	Cracking in blocks	Bauer and Calder (1977)
8	Plaster	Major cracking	Northwood et al. (1963)
9.1	Residential structure	Serious cracking	Langefors et al. (1958)
<10	Rock	No fracturing of intact rock	Bauer and Calder (1978)
>12	Rock	Rock falls in underground tunnels	Langefors et al. (1958)
12	Rock	Rock falls in unlined tunnels	E. I. du Pont de Nemours & Co. (1977)
15	Cased drill holes	Horizontal offset	Bauer and Calder (1977)
24	Rock	Rock fracturing	Langefors et al. (1958)
10–25	Rock	Minor tensile slabbing	Bauer and Calder (1978)
25	Rock	Damage can occur in rock masses	Oriard (1970)
25	Explosive near buried pipe	No damage	Siskind and Stagg (1993)
40	Mechanical equipment	Shafts misaligned	Bauer and Calder (1977)
100	Explosives near concrete	No damage	Oriard and Coulson (1980)
25–100	Rock	Tensile and some radial cracking	Bauer and Calder (1978)
100	Explosives inside concrete	Spalling of fresh grout	Tart et al. (1980)
>100	Rock	Complete breakup of rock masses	Bauer and Calder (1978)
50–150	Explosive near buried pipe	No damage	Oriard (1994)
200	Explosives inside concrete	Spalling of loose/weathered concrete skin	Tart et al. (1980)
375	Explosives inside concrete	Radial cracks develop in concrete	Tart et al. (1980)
600	Explosives inside concrete	Mass blowout of concrete	Tart et al. (1980)

Source: Modified from California Department of Transportation (2020:Table 22),

While structural damage associated with ground vibration can occur, noticeable vibration damage is often seen as cracks in drywall or plaster and exterior surfaces such as grout and stucco. This may, or may not, be a sign of structural damage. Since such cosmetic damage can also be caused by settling, temperature changes, and normal aging; overall, a few hairline cracks found in a house does not necessarily indicate a vibrational cause.

4.2.3 Ground Vibration and Human Perception

In addition to concerns about structural damage, under specific conditions, humans can be startled or annoyed by ground vibration. Human response to vibration is hard to evaluate due to differences in individual perception. Humans can detect lower levels of ground vibration than those levels discussed in Section 4.2.2 that could adversely impact structures. The human body can distinctively perceive ground vibration as low as 0.1 inch per second, with some people being able to perceive even lower levels.

The reason the public may perceive ground vibration as annoying is because it is an A-Cultural Vibration—that is, something that occurs that people are not used to experiencing. For example, vibration produced by a blast is unique and one does not expect it; therefore, an individual may report on the vibration to a much larger extent (Konya 2019). Additionally, the rattling of objects in the immediate surroundings influences the occupants to look for cracks in their residences. Dowding (1996) sees this as human sensitivity being triggered by vibrations that give rise to their inquiring minds.

Table 6 indicates the average human response to vibration that may be anticipated when the person is at rest, situated in a quiet surrounding.

Table 6. Human Response to Ground Vibration

Average Human Response	PPV (in/sec)
Barely to distinctly perceptible	0.020–0.10
Distinctly to strongly perceptible	0.10–0.50
Strongly perceptible to mildly unpleasant	0.50–1.00
Mildly to distinctly unpleasant	1.00–2.00
Distinctly unpleasant to intolerable	2.00–10.00

Source: California Department of Transportation (2020)

Section 12.08.350 of the Los Angeles County Noise Control Ordinance defines “vibration” as the minimum ground or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observations of moving objects, and assumes a human perception threshold of 0.01 in/sec over the range of 1 to 100 hertz.

4.2.4 Vibration Assessment Components

Vibration energy extends out as it travels through the ground, causing the vibration level to reduce with respect to the distance from the source. High-frequency vibration decreases much more rapidly than low frequencies, so that low frequencies tend to dominate the spectrum at large distances from the source. The propagation of ground-borne vibration is not simple to model due to geological differences in the medium (ground). Geological factors that may influence the propagation of ground-borne vibration include the following:

- Soil conditions. The type of soil has a strong influence on the propagation of ground-borne vibration. Hard, dense, and compacted soil, stiff clay soil, and hard rock transfer vibration more efficiently than loose, soft soils, sand, or gravel.
- Depth to bedrock. Shallow depth to bedrock provides more efficient propagation of ground-borne vibration. Shallow bedrock concentrates the vibration energy near the surface, reflecting vibration waves back toward the surface that would otherwise continue to propagate farther down into the earth.
- Soil strata. Discontinuities in the soil layering can produce diffractions or channeling effects that impact the propagation of vibration over long distances.
- Frost conditions. Seismic waves typically propagate more efficiently in frozen soils than in unfrozen soils.
- Water conditions. The amount of moisture in the soil has an impact on vibration propagation. The depth of the water table in the path of the propagation also has substantial effects on ground-borne vibration levels.

Specific conditions at the source and receptor locations can also affect the vibration levels. For instance, how the source is connected to the ground (e.g., direct contact or via a structure) or when the source is underground versus on the surface will impact the amount of energy transmitted into the ground. At the receptor, vibration levels can be affected by variables such as the building construction and the foundation type.

4.3 Existing Conditions

4.4 Existing Land Use and Site Conditions

The project site is in an urbanized area surrounded by a variety of commercial uses, museums, and residential buildings. The project site is bounded by the Park La Brea Pool and multi-family residential uses to the north across West 6th Street, commercial and residential uses to the east across South Curson Avenue, the Craft Contemporary Museum and other museum and commercial uses south across Wilshire Boulevard, and museum and commercial uses to the west. The predominant noise sources in the vicinity of the project site are vehicular traffic, commercial activities, park visitors, landscaping equipment, parking lot activities, and construction noise from projects that are being developed in the area.

Noise-sensitive land uses are commonly defined as locations most likely to be adversely affected by excessive noise levels. As defined in the *Noise Element of the City of Los Angeles General Plan* (City of Los Angeles 1999), noise-sensitive land uses include single- and multi-family dwellings, long-term care facilities, motels, hotels, transient lodgings, and other residential uses; places of worship; hospitals; libraries; schools; nature and wildlife preserves; parks; auditoriums; concert halls; and outdoor theaters (City of Los Angeles 2006).

As presented in Section 4.2, the potential ground-borne vibration can be divided into building damage and potential human annoyance. Because building damage would be considered a permanent negative effect at any building, regardless of land use, all buildings are considered sensitive to this type of impact. Human annoyance from ground-borne vibration is only considered inside occupied buildings and not at outside areas such as parks or playgrounds. Therefore, buildings that would be considered sensitive to human annoyance caused by vibration are generally the same as those that would be sensitive to noise.

Based on the review of the land uses in the project area, four off-site residential receptors (referenced hereafter as monitoring locations ST2, ST3, ST5, and ST6) were selected to represent noise-sensitive uses in the project area. Additionally, four commercial receptors (referenced hereafter as monitoring locations ST7, ST8, ST9, and ST10) were selected to evaluate potential noise and vibration impacts adjacent to the project site (Figure 4).

4.5 Existing Sound Conditions

4.5.1 Measurement Locations

To determine the baseline or ambient sound levels experienced near the project area and at the closest noise-sensitive uses, long-term and short-term sound monitoring was conducted from April 7 to April 9, 2022, to document the acoustic environment in the area surrounding the proposed project. Figure 4 shows the noise measurement locations and Table 7 describes the selected noise monitoring sites.

Figure 4. Noise measurement locations.

Table 7. Noise Monitoring Locations

Monitoring Location	Description	Approximate Distance from Measuring Location to Nearest Project Site Boundary*	Nearest Noise Land Use(s)
LT1	Northeast corner of the Lake Pit.	–	–
LT2	Northeast corner of Pit 13.	–	–
ST2	Multi-family residence on the north side of West 6th Street, northwest of the project site.	160 feet	Multi-Family Residential
ST3	Multi-family residence on the north side of West 6th Street, northwest of the project site.	72 feet	Multi-Family Residential
ST5	Multi-family residence on the north side of West 6th Street, northeast of the project site.	90 feet	Multi-Family Residential
ST6	Multi-family residence on the east side of Curson Avenue, east of the project site.	59 feet	Multi-Family Residential
ST7	Mixed-use commercial building on the east side of Curson Avenue, east of the project site.	61 feet	Commercial
ST8	Office building on the south side of Wilshire Boulevard, southeast of the project site.	124 feet	Commercial
ST9	Commercial building on the south side of Wilshire Boulevard, south of the project site.	114 feet	Commercial
ST10	Commercial building on the south side of Wilshire Boulevard, southwest of the project site.	669 feet	Commercial

* Distances are estimated using 2021 map data from Google Earth (2022)

Two long-term and eight short-term noise monitoring locations were selected to provide the existing ambient noise levels near and at the project's site. The specific placement of the sound level meters was mainly determined by environmental and logistical constraints, and the location of the closest noise-sensitive land uses. The long-term noise monitors were placed at the southeast and northwest corners of the proposed project site. Short-term monitors were placed at the neighboring noise-sensitive land uses and commercial locations to provide good coverage of the area surrounding the project site.

4.5.2 Instrument Description

Noise measurements were collected using three Larson Davis Precision Integrating Sound Level Meter Model 831C units, meeting the requirements of the American National Standards Institute (ANSI) (ANSI 2013), three PCB PRM831 preamplifiers, and three PCB 377B02 free-field microphones (Table 8).

Microphones were fitted with an environmental windscreen and bird spikes and set on a tripod at a height of 5 feet above ground, and located as far from the influence of vertical reflective sources as possible. All cables were secured to prevent any sounds due to wiring hitting other objects. All clocks associated with the sound measurement were synchronized using the Larson Davis G4 LD Utility software.

Table 8. Instrumentation Used

Monitoring Location	Sound Level Meter	Preamplifier	1/2-inch Free-Field Microphone
LT1	Larson Davis 831C (S/N 0011655)	PRM831 (S/N 76995)	377B02 (S/N 173681)
LT2	Larson Davis 831C (S/N 0011585)	PRM831 (S/N 46400)	377B02 (S/N 108355)

ST2, ST3, ST5, ST6, ST7, ST8, ST9, ST10	Larson Davis 831C (S/N 0011655)	PRM831 (S/N 76995)	377B02 (S/N 173681)

4.5.3 Calibration Checks

The sound level meters was calibrated at the beginning and end of each measurement period using a Larson Davis Model CAL200 Precision Acoustic Calibrator. The Larson Davis CAL200 emits a 1 kilohertz (kHz) tone at 114 dB against which the response can be checked. The calibrator has been designed for both field and laboratory use and the accuracy has been calibrated to a reference traceable to the National Institute of Standards and Technology.

The LD 831C sound level meters showed a response of less than the normal error of 0.50 dB. The results of the calibrations are shown in Table 9.

Table 9. Pre- and Post-Instrument Response Checks

Monitoring Location	Pre-Test	Post-Test	Deviation (dBA)*
LT1	4/7/22 8:52 a.m.	4/9/22 8:09 a.m.	−0.01
LT2	4/7/22 9:20 a.m.	4/9/22 8:36 a.m.	−0.07
ST2	4/9/22 9:28 a.m.	4/9/22 9:44 a.m.	0.04
ST3	4/9/22 9:50 a.m.	4/9/22 10:07 a.m.	0.01
ST5	4/7/22 10:24 a.m.	4/7/22 10:42 a.m.	0.05
ST6	4/7/22 10:47 a.m.	4/7/22 11:04 a.m.	0.03
ST7	4/7/22 11:09 a.m.	4/7/22 11:25 a.m.	−0.03
ST8	4/7/22 11:31 a.m.	4/7/22 11:48 a.m.	−0.04
ST9	4/7/22 11:56 a.m.	4/7/22 12:16 p.m.	0.17
ST10	4/7/22 12:30 p.m.	4/7/22 1:02 p.m.	−0.34

* Calibration deviation indicates the difference between the values measured by the instrument and the tone emitted by the acoustic calibrator.

4.5.4 Meteorological Data

Meteorological data were not measured at the monitoring sites during the measurement period. Instead, noise data collected during the survey were validated against weather data from the Enrique Noguera Educational Garden Station (KCALOSAN1004), located approximately 2.3 miles northeast of the project site. Hourly weather information is presented in Appendix A. A summary of the survey weather conditions is provided in Table 10.

Table 10. Weather Conditions for April 7 through April 9, 2022

Weather Station	Start	End	Wind Speed (mph)		Temperature (°F)		Humidity (% relative humidity)	
			Range	Average	Range	Average	Range	Average
Enrique Noguera Educational Garden (KCALOSAN1004)	4/7/2022 00:00	4/9/2022 23:59	0.0–5.1	0.7	61.0–96.5	77.5	8–77	32

Source: Weather Underground (2022)

The American Society for Testing and Materials (ASTM) *Standard Guide for Measurement of Outdoor A-Weighted Noise Levels* (ASTM E1014-12; 2012) specifies that data should not be used when steady wind speeds exceed 20 kilometers per hour (12.4 miles per hour [mph]). Because wind speeds above 12.4 mph were not identified, no hourly data points were removed from any of the noise data sets.

4.5.5 Readings

Long-term monitoring was conducted from April 7 to April 9, 2022. Sound meter LD 831C – 0011655 was placed at the monitoring location LT1 from 8:58 a.m. (Pacific Daylight Time [PDT]) on April 7 to 8:09 a.m. (PDT) on April 9. Data were collected for approximately 47 hours; sound levels were recorded over each 1-minute and 1-hour interval. Sound meter LD 831C – 0011585 was placed at the monitoring location LT2 from 9:22 a.m. (PDT) on April 7 to 8:35 a.m. (PDT) on April 9. Data were collected for approximately 47 hours; sound levels were recorded over each 1-minute and 1-hour intervals.

Short-term monitoring was conducted at eight monitoring locations. Start and stop times for the eight short-term monitoring sites are presented in Table 11. Short-term sound levels were recorded for a single 15-minute interval.

The sound level meters were programmed to sample and store A-weighted sound level data including L_{eq}, percentile levels, and community sound parameters. The following gives a brief description of the methodology used for the sound data collection.

- A-weighted sound level was selected.
- Sound meter was set on “slow” response.
- During noise measurements any dominant background noise source was noted.
- Weather conditions were observed and documented.

Field data sheets were completed during each visit and are provided in Appendix A of this report.

Observed sources of background noise that contributed to the existing sound level at the monitoring locations included vehicular traffic, commercial activities, park visitors, landscaping equipment, parking lot activities, and construction noise. No data points were excluded from the results interference as all the major noise-contributing sources were determined to be representative of the ambient soundscape.

Ambient noise levels for the long-term monitoring sites are represented by the equivalent noise level (L_{eq}) due to the duration of the monitoring period, as it provides a measure of the aggregate sound at a location. L_{eq} is represents the level of continuous sound over a given period that would deliver the same amount of energy as the actual, varying sound exposure, therefore making noise from sporadic anthropogenic noises, wildlife, and wind gusts part of the overall ambient noise level.

Evening noise levels at the short-term monitoring sites were assumed to be equal to the measured daytime noise levels. Nighttime noise levels were assumed to be 10 dBA lower than the measured daytime noise.

4.5.6 Results

Data collection began on April 7, 2022, and continued through April 9, 2022. Table 11 summarizes the measured A-weighted L_{eq}, L_{dn}, and CNEL (calculated from the measured L_{eq}) for each of the monitoring locations.

Table 11. Measured Existing Ambient Noise Levels

Monitoring Location	Start	Stop	Measured Noise Levels (dBA)				Estimated Noise Levels (dBA)	
			Daytime Hours (7:00 a.m.–7:00 p.m.)	Evening Hours (7:00 p.m.–10:00 p.m.)	Nighttime Hours (10:00 p.m.–7:00 a.m.)	L_{90} (24-hour)	L_{dn}* (24-hour)	CNEL* (24-hour)
LT1	2022-04-07 08:58:16	2022-04-09 08:09:16	58.9	54.2	53.0	46.6	60.6	60.9
LT2	2022-04-07 09:22:07	2022-04-09 08:35:39	56.6	54.2	51.7	46.0	59.1	59.5
ST2	2022-04-09 09:28:56	2022-04-09 09:43:57	67.5	-	-	52.1	66.7	68.1
ST3	2022-04-09 09:51:40	2022-04-09 10:06:42	65.5	-	-	51.8	65.3	66.4
ST5	2022-04-07 10:26:12	2022-04-07 10:41:13	74.9	-	-	56.1	73.1	75.1
ST6	2022-04-07 10:48:38	2022-04-07 11:03:41	62.8	-	-	51.5	63.8	64.4
ST7	2022-04-07 11:09:19	2022-04-07 11:24:22	64.8	-	-	54.6	64.9	65.9
ST8	2022-04-07 11:32:22	2022-04-07 11:47:27	69.8	-	-	57.1	68.5	70.2
ST9	2022-04-07 11:58:31	2022-04-07 12:13:33	74.6	-	-	63.7	72.8	74.8
ST10	2022-04-07 12:31:39	2022-04-07 12:46:47	67.1	-	-	54.7	66.4	67.8

Note: L_{90} is the sound level exceeded 90% of the time of the measurement period. Ldn is the A-weighted equivalent sound level for a 24-hour period with an additional 10 dB weighting imposed on the equivalent sound levels occurring during nighttime hours (10:00 p.m. to 7:00 a.m.).

* Estimated from measured daytime noise levels and estimated nighttime levels based on the presented nighttime hours in the Presumed Ambient Noise Levels, City of Los Angeles Municipal Code, Section 111.03.

As shown in Table 11, the daytime noise levels in project vicinity ranged between 62.8 and 74.9 dBA L_{eq}. The two long-term noise measurements (LT1 and LT2) indicate that the average hourly noise levels during daytime hours ranged between 56.6 and 58.9 dBA L_{eq} and between 59.5 and 60.9 dBA CNEL at the project site.

4.5.7 Existing Traffic Noise

In addition to the noise measurements, the existing traffic noise on local roadways in the surrounding areas was calculated to quantify the 24-hour CNEL noise levels using data provided by the draft transportation assessment prepared for the project (Traffic Study; Kittelson & Associates, Inc. 2022). Thirteen roadway segments were selected to represent the existing noise conditions for the analysis. Traffic noise levels were calculated using a proprietary noise model (i.e., SoundPlan Essential v5.1) based on the Federal Highway Administration (FHWA) Traffic Noise Model Version 2.5 (FHWA 2004). The inputs used in the traffic noise modeling included hourly traffic volumes, assumed traffic mix and daily distribution (the percentage of automobiles versus medium trucks and heavy trucks during each hour of the day), and traffic speeds based on the posted speed limits.

The Traffic Study did not directly analyze Average Daily Traffic (ADT) on the road segments in the project site vicinity. The Traffic Study provides an estimate of ADT volumes based on the weekday morning (7:00 a.m.–9:00 a.m.), midday (12:00 p.m.–2:00 p.m.), and afternoon (4:00 p.m.–6:00 p.m.) peak

periods' peak hourly intersection volumes for existing traffic. The Traffic Noise Model prediction model calculated an hourly L_{eq} level for each road segment based on the peak morning, midday, and afternoon intersection volumes presented in the Traffic Study for existing traffic and the lateral distance between the road segments and the receptors. Receptors were placed at the closest building façade along the road segment. The 24-hour CNEL levels were then estimated from the estimated L_{eq} values assuming 80% of the total daily traffic occurs during daytime hours (7:00 a.m.–7:00 p.m.), 10% during evening hours (7:00 p.m.–10:00 p.m.), and 10% during nighttime hours (10:00 p.m.–7:00 a.m.). Vehicle mix/distribution information used in the noise calculations is shown in Table 12. Detailed calculation worksheets are included in Appendix B.

Table 12. Vehicle Mix for Traffic Noise Model

Vehicle Type	Daytime Hours (7:00 a.m.–7:00 p.m.)	Evening Hours (7:00 p.m.–10:00 p.m.)	Nighttime Hours (10:00 p.m.–7:00 a.m.)	Total Percentage of ADT per Vehicle Type
Automobile	78.4%	9.8%	9.8%	98%
Medium truck	0.0%	0.0%	0.0%	0%
Heavy truck	1.6%	0.2%	0.2%	2%
Total	**80.0%**	**10.0%**	**10.0%**	**100%**

Table 13 presents the estimated traffic noise levels for the analyzed roadway segments based on existing traffic volumes for both a weekday and weekend. The estimated existing CNEL due to roadway traffic ranges from 62.6 dBA to 71.7 dBA for weekdays, and between 60.8 dBA and 69.8 dBA during weekends (see Table 13).

Table 13. Existing Roadway Traffic Noise Levels

Roadway Segment		Adjacent Land Use	Calculated Traffic Noise Levels, CNEL*		Noise-Sensitive Land Uses?	Existing Noise Exposure Compatibility Category†
			Weekday (dBA)	Weekend (dBA)		
6th Street	Between Fairfax Avenue and Ogden Drive	Residential	71.3	69.8	Yes	Normally unacceptable
	Between Ogden Drive and Curson Avenue	Residential	71.7	67.7	Yes	Normally unacceptable
	East of Curson Avenue	Residential	71.0	67.7	Yes	Normally unacceptable
Ogden Drive	North of 6th Street	Residential	62.6	60.8	Yes	Conditionally acceptable
	South of Wilshire Boulevard	Commercial	62.9	60.8	No	Normally acceptable
Spaulding Avenue	South of Wilshire Boulevard	Commercial	64.9	63.2	No	Normally acceptable
Curson Avenue	North of 6th Street	Residential	67.3	64.8	Yes	Conditionally acceptable
	Between 6th Street and Wilshire Boulevard	Residential	68.1	67.6	Yes	Conditionally acceptable
	South of Wilshire Boulevard	Residential	71.0	69.1	Yes	Normally unacceptable

Roadway Segment		Adjacent Land Use	Calculated Traffic Noise Levels, CNEL*		Noise-Sensitive Land Uses?	Existing Noise Exposure Compatibility Category†
			Weekday (dBA)	Weekend (dBA)		
Wilshire Boulevard	Between Fairfax Avenue and Ogden Drive	Museum	68.3	66	No	Normally acceptable
	Between Ogden Drive and Spaulding Avenue	Commercial	67.2	65.1	No	Normally acceptable
	Between Spaulding Avenue and Curson Avenue	Museum	69.4	67.0	No	Normally acceptable
	East of Curson Avenue	Commercial	67.8	65.8	No	Normally acceptable

* Detailed calculation worksheets are included in Appendix B.

† Noise compatibility is based on the most stringent land use and the higher of the calculated CNEL during weekday and weekend days.

4.6 Existing Ground-Borne Vibration Conditions

The primary ground-borne vibration source at urban settings is vehicular traffic. It is unusual for vibration from traffic sources to be perceptible, as trucks and buses typically generate vibration velocity levels of approximately 63 vibration velocity decibels (VdB) at 50 feet (Federal Transit Administration [FTA] 2018). Normally, 75 VdB is defined as the dividing line between barely perceptible and distinctly perceptible (FTA 2018). Therefore, it is expected that the existing ground-borne vibration levels at the project vicinity would be below the perceptible level.

5 REGULATORY SETTING

Federal, state, and local agencies have set noise and ground-borne vibration regulations and policies to protect the health and welfare of the public, as described below.

5.1 Federal

There are no federal noise or ground-borne vibration standards or regulations that directly regulate environmental noise related to the construction or operation of the proposed project.

5.2 State

The State of California has not adopted statewide regulations or standards for noise. However, the *State of California General Plan Guidelines*, published and updated by the Governor's Office of Planning and Research (OPR), provides standards and the acceptable noise categories for different land uses (OPR 2017). Figure 5 provides the exterior noise standards associated with the different land uses evaluated by the State.

California also requires each local government entity to perform noise studies and implement a noise element as part of its general plan. The purpose of the noise element is to limit the exposure of the community to excessive noise levels; the noise element must be used to guide decisions concerning land use.

There are no state ground-borne vibration standards that directly apply to the project.

5.3 County of Los Angeles

5.3.1 County of Los Angeles Noise Control Ordinance

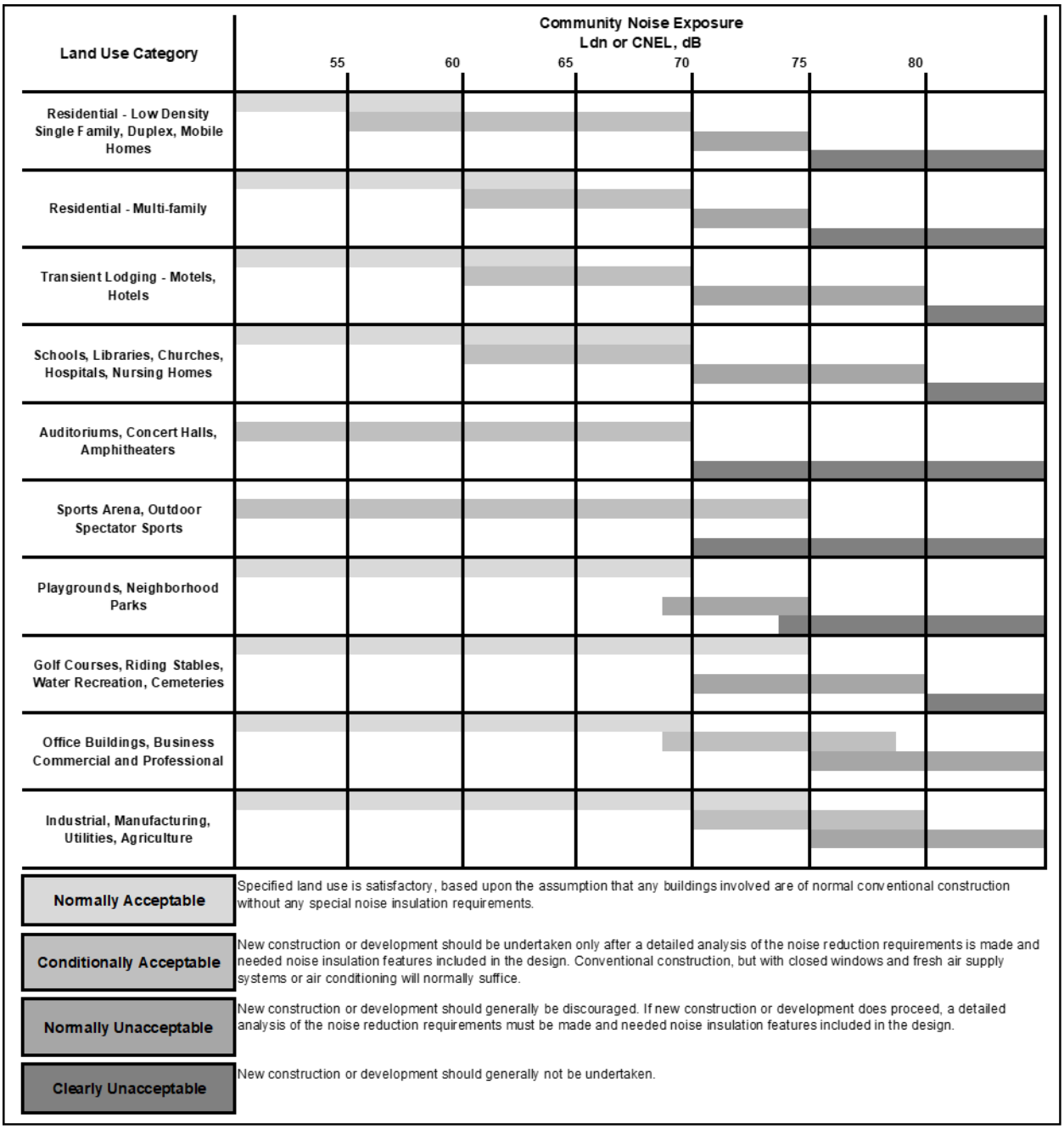
NOISE

The County of Los Angeles Noise Control Ordinance (Section 12.08 of the Los Angeles County Code [County Code]) identifies noise standards for exterior noise sources (Table 14). Regarding maximum exterior noise levels, County Code Section 12.08.390 states that exterior operational noise levels caused by fixed noise sources shall not exceed the levels listed in Table 14, or the existing ambient noise level, whichever is greater (measured in dB).

Table 14. County of Los Angeles Exterior Operational Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45
		7:00 a.m. to 10:00 p.m. (daytime)	50
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime)	55
		7:00 a.m. to 10:00 p.m. (daytime)	60
IV	Industrial properties	Anytime	70

Source: Los Angeles County Code 12.08.390 - Exterior noise standards.



Source: OPR (2017:Appendix D, Figure 2)

Figure 5. Land use compatibility for exterior community noise exposure.

Section 12.08.390 of the County Code also states that no person shall operate or cause to be operated, any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated, to exceed any of the following exterior noise standards:

> **Standard No. 1** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level; or, if the ambient noise level exceeded for 50% of the time of the measurement duration (L_{50}) exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.
>
> **Standard No. 2** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level plus 5 dB; or, if the ambient noise level exceeded for 25% of the time of the measurement duration (L_{25}) exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.
>
> **Standard No. 3** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 5 minutes in any hour. Standard No. 3 shall be the applicable noise level plus 20 dB; or, if the ambient noise level exceeded for 8.3% of the time of the measurement duration ($L_{8.3}$) exceeds the foregoing level, then the ambient $L_{8.3}$ becomes the exterior noise level for Standard No. 3.
>
> **Standard No. 4** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 1 minute in any hour. Standard No. 4 shall be the applicable noise level plus 15 dB; or, if the ambient noise level exceeded for 1.7% of the time of the measurement duration ($L_{1.7}$) exceeds the foregoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.
>
> **Standard No. 5** shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level plus 20 dB; or, if the highest ambient noise level that occurred at the site (L_0) exceeds the foregoing level, then the ambient L_0 becomes the exterior noise level for Standard No. 5.

The County Noise Control Ordinance also identifies specific restrictions regarding construction noise. Construction noise limits are included in Chapter 12.08.440, Noise Control, of the Los Angeles County Code of Ordinances. Pursuant to the County Noise Control Ordinance, the operation of equipment used in construction, repair, alteration, drilling, or demolition work is prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and anytime on Sundays or legal holidays if such noise would create a noise disturbance across a residential or commercial real-property line. Table 15 presents the maximum noise levels at the affected buildings allowed by the County Noise Control Ordinance.

Table 15. County of Los Angeles Construction Noise Limits

Time	Single-Family Residential	Multi-Family Residential	Semi-Residential/ Commercial
At Residential Structures			
Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days) of mobile equipment:			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m., and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA
Stationary Equipment. Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA
At Business Structures			
Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment:			
Daily, including Sundays and legal holidays, all hours		85 dBA (All structures)	

Source: Los Angeles County Code 12.08.440 - Construction noise.

dBA = A-weighted decibel(s)

5.3.1.2 VIBRATION

Section 12.08.560 of the County Noise Control Ordinance provides a ground-borne vibration limit as to not exceed the vibration human perception threshold of 0.01 inch per second (80 VdB).

As noted above, no standards or limits applicable to potential building damage from ground-borne vibration have been adopted by a local, state, or federal agency. Therefore, FTA available guidelines are used to assess potential impacts on buildings and structures due to ground-borne vibration. The FTA's *Transit Noise and Vibration Impacts Assessment Manual* provides impact criteria concerning building damage during construction activities (FTA 2018). Table 16 includes the FTA vibration criteria applicable to construction activities.

Table 16. Construction Vibration Impact Criteria for Building Damage

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA (2018)

PPV = peak particle velocity; in/sec = inch(es) per second

5.4 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County and is proposed for uses that benefit the public. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, the policy and regulatory documents of the City of Los Angeles that are most relevant to the project are provided herein for informational purposes.

5.4.1 Noise Element of the City of Los Angeles General Plan

The *Noise Element of the City of Los Angeles General Plan* (City of Los Angeles 1999) addresses noise sources and noise mitigation strategies and regulations and provides objectives and policies that ensure that noise from various sources does not create an unacceptable noise environment. The goal, objectives, and policies of the Noise Element that are relevant to the project are provided below for informational purposes and are used to inform the criteria by which the noise impacts of the proposed La Brea Tar Pits Master Plan is considered.

Goal – A city where noise does not reduce the quality of urban life.

Objectives and Policies –

> ***Objective 2 (Non-airport) -*** Reduce or eliminate non-airport-related intrusive noise, especially relative to noise sensitive uses.
>
> > ***Policy 2.2.*** Enforce and/or implement applicable city, state, and federal regulations intended to mitigate proposed noise-producing activities, reduce intrusive noise, and alleviate noise that is deemed a public nuisance.
>
> ***Objective 3 (Land Use Development) -*** Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.
>
> > ***Policy 3.1.*** *Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts.*

The City of Los Angeles's (City's) noise compatibility guidelines are based on the State's *General Plan Guidelines* (OPR 2017; see Figure 5).

5.4.2 City of Los Angeles Municipal Code

Section 41.40(a) of the Los Angeles Municipal Code (LAMC) prohibits the use, operation, repair, or servicing of construction equipment, as well as job-site delivery of construction materials, between the hours of 9:00 p.m. and 7:00 a.m., where such activities would disturb "persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence." In addition, Section 41.40(c) prohibits construction, grading, and related job-site deliveries on or within 500 feet of land developed with residential structures before 8:00 a.m. or after 6:00 p.m. on any Saturday or national holiday or at any time on Sunday.

Furthermore, Section 112.05 of the LAMC places a noise level limit of 75 dBA at 50 feet for powered equipment or tools, which includes construction equipment in, or within 500 feet of, any residential zone between the hours of 7:00 a.m. and 10:00 p.m. Under the code, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved

despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment.

Chapter XI of the LAMC (Noise Regulation) regulates noise from non-transportation noise sources such as commercial or industrial operations, mechanical equipment, or residential activities. These regulations do not apply to vehicles operating on public rights-of-way but do apply to noise generated by vehicles on private property, such as in parking lots or parking structures. The allowable noise levels are determined relative to the existing ambient noise levels at the affected location. Section 111.01(a) of the LAMC defines ambient noise as "the composite of noise from all sources near and far in a given environment, exclusive of occasional and transient intrusive noise sources and the particular noise source or sources to be measured. Ambient noise shall be averaged over a period of at least 15 minutes."

The Noise Regulation indicates that in cases where the actual ambient conditions are not measured, the City's presumed daytime and nighttime ambient noise levels, as defined in the LAMC Section 111.03 and provided in Table 17, should be used.

Table 17. City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime (7:00 a.m. to 10:00 p.m.), L_{eq}	Nighttime (10:00 p.m. to 7:00 a.m.), L_{eq}
	dBA	dBA
Residential, school, hospitals, hotels	50	40
Commercial	60	55
Manufacturing (M1, MR1, MR2)	60	55
Heavy manufacturing (M2, M3)	65	65

Source: City of Los Angeles Municipal Code, Section 111.03
L_{eq} = equivalent noise level

Section 111.02 states that under conditions where noise alleged to be offending occurs for more than 5 minutes but less than 15 minutes in any 1-hour period between the hours of 7:00 a.m. and 10:00 p.m. of any day, a 5-dBA allowance should be provided to the noise source. Additionally, under conditions where the offending noise occurs for 5 minutes or less in any 1-hour period between the hours of 7:00 a.m. and 10:00 p.m. of any day, an additional 5-dBA allowance can be provided to the noise source. Section 114.02 of the LAMC also provides noise regulations with respect to vehicle-related noise and prohibits the operation of any motor-driven vehicles upon any property within the city in a manner that would exceed the ambient noise level by more than 5 dBA.

5.4.3 City of Los Angeles CEQA Thresholds Guide

The *L.A. CEQA Thresholds Guide: Your Resource for Preparing CEQA Analyses in Los Angeles* (City of L.A. Thresholds Guide; City of Los Angeles 2006) is a guidance document that draws together practical information useful to City staff, project proponents, and the public involved in the environmental review of projects in the city of Los Angeles subject to CEQA.

The City of L.A. Thresholds Guide defines "noise sensitive" as residences, transient lodgings, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks. The City of L.A. Thresholds Guide includes a set of criteria to evaluate project impacts. The significance thresholds assist in determining whether a project's impacts would be presumed significant under normal circumstances and, therefore, require mitigation to be identified.

A project under CEQA would normally have a significance impact on noise levels from construction if:

- Construction activities lasting more than 1 day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use;
- Construction activities lasting more than 10 days in a 3-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA at a noise sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

A project would normally have a significant impact on noise levels from project operations if the project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" category, or any 5-dBA or greater noise increase (see Figure 5).

6 THRESHOLDS OF SIGNIFICANCE AND METHODOLOGY

The following sections provide the framework for the noise impacts analysis. In general, Appendix G of the State CEQA Guidelines was first consulted to guide the impact analysis. Further, the regulations of the City and the County were compared to determine the most appropriate guidance document for consideration of significant impacts. While the project site is located within the City of Los Angeles, it is owned by the County of Los Angeles and is proposed for uses that benefit the public. Accordingly, the project is not subject to the regulatory controls of the City of Los Angeles. However, the areas surrounding the project site are entirely within the jurisdiction of the City of Los Angeles. As such, the noise analysis was prepared in consideration of both City and County criteria and regulations, with the more restrictive provisions applied.

6.1 Thresholds of Significance

Consistent with the State CEQA Guidelines, Appendix G, the project would have a significant noise impact if it would result in any of the following conditions:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or
- Generation of excessive ground-borne vibration or ground-borne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels.

Because the project site is not located within an airport land use plan, within 2 miles of a public airport or public use airport, or within the vicinity of a private airstrip, the project would not expose project occupants to excessive airport-related noise. Therefore, impacts related to airport-related noise would not occur and are not evaluated any further in this report.

6.1.1 Short-term Construction Noise Criteria

The County Noise Control Ordinance (Section 12.08.440 of the County Code) identifies noise standards for construction activities. The County's construction noise limit is 65 dBA for multi-family residential uses and 85 dBA for business structures. Similarly, the LAMC limit for construction noise lasting more than 10 days is 5 dBA above ambient levels. The following significance criteria are applied to the project, as set forth in the LAMC, the City of L.A. Thresholds Guide, and the County of Los Angeles Ordinance, with the more restrictive provisions applied:

- Construction activities would exceed the ambient noise level by 5 dBA (L_{eq}) or more at a noise-sensitive use.

6.1.2 Short-term Construction Vibration Criteria

Because there are currently no local regulatory standards for ground-borne vibration that are applicable to the project, then, based on FTA impacts with respect to building damage (see Table 5), ground-borne vibration would be considered significant if

- ground-borne vibration levels from construction activities exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building; or
- ground-borne vibration levels from construction activities exceed 0.3 PPV at the nearest off-site engineered concrete building; or
- ground-borne vibration levels from construction activities exceed 0.2 PPV at the nearest off-site non-engineered timber and masonry building; or
- ground-borne vibration levels from construction activities exceed 0.12 PPV at buildings extremely susceptible to vibration damage (e.g., historic buildings).

With respect to human annoyance, Section 12.08.560 of the Los Angeles County Noise Control Ordinance presents a threshold of 0.01 inch per second (80 VdB). Therefore, construction vibration impacts associated with human perception would be significant if:

- ground-borne vibration levels from construction activities exceed 80 VdB at the off-site receptor.

6.1.3 Long-Term Operational Noise Criteria

Per Chapter XI of the LAMC, a noise level increase of 5 dBA over the ambient noise level at an adjacent property line is considered a noise violation for most operational noise sources. The Los Angeles County Noise Control Ordinance states that the exterior operational noise level caused by project-related on-site fixed sources shall not exceed the levels presented in Table 14 or the ambient noise level, whichever is greater. Therefore, project-related operational on-site (i.e., non-roadway) noise sources, such as outdoor building mechanical/electrical equipment, outdoor activities, or parking facilities, would be significant if

- operational on-site activities would exceed the ambient noise level by 5 dBA (L_{eq}) or more at a noise-sensitive use.

6.1.4 Traffic Noise Criteria

Relating to roadway noise, a 24-hour average noise level metric (i.e., dBA CNEL) was used to assess noise impacts associated with the project based on the City's land use/noise compatibility guidelines and the City of L.A. Thresholds Guide (City of Los Angeles 2006). An increase of 3 dBA CNEL at noise-sensitive uses with ambient noise levels within the "normally unacceptable" or "clearly unacceptable"

category (see Figure 5), or any 5-dBA or greater noise increase if the ambient noise level at the affected sensitive land use is within the "normally acceptable" or "conditionally acceptable" category, would be considered significant.

6.2 Methodology

This analysis focuses on the potential change in the existing noise levels due to implementation of the project. Noise and ground-borne vibration would result from both construction and operation of the project.

A combination of existing literature and application of accepted noise and ground-borne vibration prediction and propagation methodologies were used for estimating short-term construction, operation, and long-term non-transportation and transportation source noise levels, as well as for evaluating ground-borne vibration impacts.

Using the construction and operation assumptions provided for the project, potential noise and vibration levels were estimated using the methods described below.

6.2.1 Construction Noise

6.2.1.1 ON-SITE CONSTRUCTION NOISE

Construction-related noise was analyzed using data and modeling methodologies from the FHWA's Roadway Construction Noise Model (FHWA 2011). The Roadway Construction Noise Model is FHWA's national model for the prediction of construction noise. This software is based on actual sound level measurements from various equipment types taken during the Central Artery/Tunnel Project conducted in Boston, Massachusetts, during the early 1990s (FWHA 2011).

Estimates of noise from the construction of the project are based on a roster of the maximum amount of construction equipment used on a given day. Table 18 presents standard construction equipment and the associated noise level at 50 feet. The Roadway Construction Noise Model has noise levels for various types of equipment preprogrammed into the software; that is, the noise level associated with the equipment is typical for the equipment type and not based on any specific make or model.

The approximate noise generated by construction equipment to be used at the project site has been conservatively calculated based on an estimated project construction equipment roster anticipated to be used at the construction site, and not considering further attenuation due to atmospheric interference or intervening structures.

The equipment and activities on-site would vary throughout the project, depending on various stages of construction. The predicted noise from construction activity is presented as a worst-case (highest noise level) scenario, where it is assumed that all equipment is present and operating simultaneously on-site for each stage of construction.

To analyze the project's potential noise impacts, the average 1-hour L_{eq} construction noise level generated during each phase of construction was estimated at each analyzed receptor based on its distance to the construction phase activity.

Table 18. Noise Levels for Common Construction Equipment

Equipment Description	Typical Maximum Noise Levels at 50 Feet (dBA)
Auger drill rig	85
Backhoe	80
Chain saw	85
Compressor (air)	80
Concrete saw	90
Crane	85
Dozer	85
Drill rig truck	84
Drum mixer	80
Dump truck	84
Excavator	85
Flat-bed truck	84
Front-end loader	80
Generator	82
Grader	85
Impact pile driver	95
Jackhammer	85
Man lift	85
Paver	85
Pickup truck	55
Pneumatic tools	85
Pumps	77
Rock drill	85
Roller	85
Scraper	85
Tractor	84
Trencher	82
Vibratory concrete mixer	80
Vibratory pile driver	95
Welder/torch	73

Source: Roadway Construction Noise Model Software, Version 1.1 (FHWA 2011)

6.2.1.2 OFF-SITE CONSTRUCTION NOISE

Noise levels would be generated from construction-related traffic associated with worker trips and haul-truck trips on roadways. The analysis of roadway noise levels from the project's construction traffic was conducted using a proprietary traffic noise model (SoundPlan Essential v5.1), with calculations based on data and methodology from the FHWA Traffic Noise Model, Version 2.5 (FHWA 2004).

This model allows for calculating noise levels at specific distances from the roadway based on traffic volumes, average speeds, and site environmental conditions. This analysis assessed the highest daily worker and haul-truck trips during project construction based on the construction assumptions that were developed based on information provided by the Foundation.

SoundPlan Essential, using methodologies from the FHWA Traffic Noise Model, calculates the hourly Leq noise levels generated by construction-related traffic. Potential noise impacts were then determined by comparing the predicted noise levels along the project's haul routes.

6.2.2 Operational Noise

6.2.2.1 ON-SITE OPERATIONAL NOISE

On-site noise levels would be generated by stationary noise sources such as mechanical equipment (heating, ventilation, and air conditioning [HVAC] equipment, dry coolers, and emergency generators), the on-site parking lot, the two loading areas, waste compactors, and the outdoor areas.

Using noise level data from published sources, impacts from these on-site stationary noise sources are evaluated by estimating the noise levels that each noise source would generate at the nearest noise-sensitive receptors. The estimated noise level from each noise source considers the distance from source to receptor.

Regarding mechanical equipment, noise level data for the project's dry coolers, which would be located on each building's rooftop, and three emergency generators, which would be in the mechanical rooms on the ground-floor level of the Page Museum, the new museum building, and the support building, were obtained from the project's mechanical, electrical, and plumbing engineer. It was assumed that the HVAC equipment would be located in mechanical rooms within the project buildings and equipped with silencers to reduce noise levels. Therefore, the analysis of mechanical equipment noise for the project was only conducted for the rooftop dry coolers and emergency generators.

The project's on-site parking lot noise level was estimated using FTA's recommended methodology for stationary source general assessment, which uses the following equation to estimate noise levels for parking garages:

$$L_{eq(h)} = SEL_{ref} + 10\log(N_{autos}/1000) - 25\log(D/50) - 35.6$$

where $L_{eq(h)}$ is the hourly L_{eq} noise level at 50 feet, SEL_{ref} is the reference noise level for a stationary noise source represented in sound exposure level at 50 feet from the noise source, N_{autos} is the number of automobiles per hour, and D is the distance from the parking garage to the sensitive receptor. The FTA cites an SEL_{ref} of 92 dBA for a parking garage with 1,000 cars during the peak activity hour (FTA 2018).

For the project's loading area, which would be used by delivery vehicles serving the project, sound levels from similar projects were used to estimate the noise levels at the nearest off-site sensitive receptors (County of Los Angeles 2017).Similarly, waste compactor noise ratings were taken from Table C8 of the British Standard BS 5228-1:2009 (British Standards Institution 2014).

Use of outdoor areas (i.e., outdoor café and bar located on the center terrace on the west side of the Page Museum; Pit 91; and a shaded outdoor classroom) would consist primarily of people congregating and conversing in those areas. Published data on human speech noise levels was obtained for the estimation of noise levels based on assumptions of the number of people who are expected to gather in each of the project's outdoor amenity areas. The speech noise levels for people in various noise environments used for analysis in this report are shown in Table 19.

Table 19. Noise Levels for Human Speech

Voice Effort	Sound Levels (dBA L_{eq}) at 1 meter (3 feet)		
	Male	Female	Children
Casual	53	50	50
Normal	58	55	55
Raised	65	62	62
Loud	75	71	71
Shout	88	82	82

Sources: EPA (1977); Harris (1998)

Additionally, the outdoor café and bar would be equipped with an outdoor speaker system to provide ambient background music. For this analysis, the noise level generated from the outdoor speaker system is assumed to be equivalent to 75 dBA at a distance of 15 feet (4.5 meters).

6.2.2.2 OFF-SITE OPERATIONAL NOISE

Off-site roadway noise was analyzed using the FHWA Traffic Noise Model methodology and traffic data from the Traffic Study. To quantify the effects of the project, traffic noise was analyzed using four different scenarios: 1) Existing, 2) Existing Plus Project, 3) Future (2032) Without Project, and 4) Future (2032) With Project. The first two scenarios were used to analyze the direct traffic noise impacts of the project; scenarios 3 and 4 were used to analyze the future/cumulative impacts.

6.2.3 Ground-Borne Vibration

6.2.3.1 CONSTRUCTION GROUND-BORNE VIBRATION

Construction-related vibration resulting from the project was analyzed using data and modeling methodologies provided by the FTA analytical vibration prediction model (FTA 2018). This guidance manual provides typical vibration source levels for various types of construction equipment, as well as methods for estimating the propagation of ground-borne vibration over distance.

The following equation was used to estimate the change in PPV levels over distance:

$$PPV_{equipment} = PPV_{ref} \times (100/D_{rec})^n$$

Where: $PPV_{equipment}$ is the PPV at a receptor; PPV_{ref} is the reference PPV at 100 feet from the equipment; D_{rec} is the distance from the equipment to the receptor, in feet; and n is the attenuation rate through ground (the default suggested value for n is 1.1). The equation was used to estimate the PPV at each of the closest vibration-sensitive receptors based on the worst-case (closest) distance between each source and receptor.

Vibration emission levels (PPV_{ref}) used are from measurements from several projects, including the Central Artery/Tunnel Project in Boston and from several published sources, including the FTA manual (2018) and Dowding (1996).

6.2.3.2 OPERATIONAL GROUND-BORNE VIBRATION

The primary source of ground-borne vibration related to the proposed project's operation includes traffic and parking operations. Humans are not likely to perceive vehicular-induced ground vibration. Therefore, the proposed project's operation would not increase the current vibration levels in the vicinity of the project.

7 IMPACTS EVALUATION AND RECOMMENDED MITIGATION MEASURES

Consistent with the State CEQA Guidelines, Appendix G, the evaluation contained in this section considered whether the project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project that exceed the criteria established in the previous section and, similarly, whether the project would generate excessive ground-borne vibration or ground-borne noise levels. Mitigation measures are identified in the analysis where impacts of the project could exceed significance criteria.

7.1 Increases in Ambient Noise Levels

The following analysis considers whether the project would generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.

7.1.1 Construction Noise

Project construction would consist of different activities undertaken in phases through to the operation of the project. For this analysis, project construction has divided into six phases based on the types of equipment required and workload: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating (see Table 2).

7.1.1.1 ON-SITE CONSTRUCTION NOISE

Construction activities associated with the project are anticipated to last approximately 4 years, with completion anticipated in 2027. During this time, temporary increases in noise levels in the project area are expected to occur due to the operation of various large construction equipment within the project site.

Table 20 shows the project's anticipated construction schedule and presents an estimate of the maximum number of pieces of equipment for each construction phase, and conservatively assumes equipment would be operating 8 hours per day, 6 days per week for each construction phase duration.

The highest construction noise levels at each of the analyzed monitoring locations were estimated based on the reference noise levels shown in Table 21 and the distance of each analyzed monitor from the project's construction activities. To more accurately characterize the noise associated with each construction phase, a usage factor for each type of equipment was used to represent those periods when equipment is not operating under full-power conditions. Additionally, the noise levels were estimated to present a conservative impact analysis, assuming all pieces of equipment operate simultaneously. Furthermore, the model assumes that construction noise is constant when, in reality, construction activities are periodic and change throughout the day.

Table 20. Construction Anticipated Schedule, Trips, and Equipment

Phase (Duration)	Equipment Used			Daily Vehicle Trips
	Type	Number	Hours/day	
Demolition (262 working days) 1/1/2024 – 10/31/2024 Approx.102,000 square feet demolished	Rubber-tired dozer	2	8	50 worker one-way trips 8 vendor one-way trips 4 haul one-way trip
	Excavators or Jackhammer	3	8	
	Concrete/industrial saw	1	8	
Site Preparation (262 working days) 1/1/2024 – 10/31/2024	Rubber-tired dozers	3	8	20 worker one-way trips
	Tractors/loaders/backhoe	4	8	
Grading (52 working days) 11/1/2024 – 12/31/2024	Graders	1	8	75 worker one-way trips 10 vendor one-way trips 107 haul one-way trips
	Excavators or Jackhammer	2	8	
	Tractors/loaders/backhoe	2	8	
	Scrapers	2	8	
	Rubber-tired dozers	1	8	
Building Construction (755 working days) 1/1/2025 – 5/31/2027	Forklifts	3	8	200 worker one-way trips 17 vendor one-way trips 7 haul one-way trips
	Generator sets	1	8	
	Cranes	1	8	
	Welders	1	8	
	Tractors/loaders/backhoe	3	8	
Paving (184 working days) 6/1/2027 – 12/31/2027	Pavers	2	8	15 worker one-way trips 4 vendor one-way trips
	Paving equipment	2	8	
	Rollers	2	8	
Architectural Coating (79 working days) 7/1/2026 – 9/30/2026	Air compressor	1	6	20 worker one-way trips

Table 21. Estimated Construction Noise Levels at Nearby Sensitive Receptors

Receptor	Measured Daytime Ambient Noise Levels, L_{eq}	Estimated Construction Noise Levels by Construction Phases (Ambient plus Construction), L_{eq}						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	68.8	69.2	70.5	67.8	67.5	67.6	72.5
ST3	65.5	67.2	**70.8**	**73.2**	66.6	65.7	65.8	70.5
ST5	74.9	75.2	75.4	75.8	75.0	75.0	74.9	79.9
ST6	62.8	**68.8**	**70.0**	**72.4**	65.9	64	63.4	67.8
ST7	64.8	68.3	**71.2**	**73.7**	65.9	65.1	65	69.8
ST8	69.8	70.9	71.4	72.5	70.0	69.8	69.8	74.8
ST9	74.6	75.1	75.4	76.0	74.7	74.6	74.6	79.6
ST10	67.1	67.7	67.6	68.0	67.3	67.1	67.1	72.1

Note: Values in **bold** exceed the significance threshold for that receptor.

* Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

As discussed in Section 6.1.1, the corresponding significance criterion used in this construction noise analysis is an increase in the ambient noise level (L_{eq}) of 5 dBA at the noise-sensitive use. The estimated construction noise levels that would be experienced by the nearby sensitive receptors are shown in Table 21. Detailed calculations are provided in Appendix B.

As shown in Table 21, the highest estimated construction-related noise levels that could result at nearby sensitive receptors throughout the project's construction period would range from 68.0 dBA L_{eq} at sensitive receptor ST10 to 76.0 dBA L_{eq} at sensitive receptor ST9. All analyzed sensitive receptors near the project site would not be exposed to construction only noise levels exceeding 75 dBA L_{eq}. The exceedance of the significance thresholds would occur during the demolition, site preparation, and grading phases. As indicated in Table 21, the estimated construction noise levels at off-site receptors ST2, ST5, ST8, ST9, and ST10 would be below the significance threshold. At receptors ST3, ST6, and ST7, the estimated noise levels would exceed the significance threshold by 2.7 dBA at ST3, 4.6 at ST6, and 3.9 dBA at ST7. Therefore, without employing mitigation, noise impacts associated with the construction activities for the project would be significant.

The project would have a significant short-term and temporary impact on residential uses located to the north and east of the project site (see Table 21). Therefore, mitigation measures are proposed to minimize the impact of construction noise on these sensitive noise receptors. Mitigation measures would require construction of temporary and impermeable 12-foot-high temporary barriers designed to reduce noise by 10 dBA, or more, along the north and the east boundary between the project site and off-site receptor locations north and east of the project site. The noise reduction provided by the noise barrier would reduce construction-related noise to less than the significance threshold at the off-site sensitive uses. Consequently, construction noise impacts would be mitigated to less than significant.

Potential impacts would be reduced below the applicable threshold(s) with implementation of Mitigation Measure NOI-1 (Table 22). Therefore, potential impacts related to on-site construction noise would be less than significant with mitigation.

Table 22. Estimated Construction Noise Levels at Nearby Sensitive Receptors after Mitigation

Receptor	Measured Daytime Ambient Noise Levels, L_{eq}	Estimated Construction Noise Levels by Construction Phases (Ambient plus Construction), L_{eq} †						Significance Threshold, L_{eq}*
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	67.6	67.7	67.9	67.5	67.5	67.5	72.5
ST3	65.5	65.7	66.4	67.2	65.6	65.5	65.5	70.5
ST5	74.9	74.9	75.0	75.0	74.9	74.9	74.9	79.9
ST6	62.8	63.9	64.3	65.4	63.2	62.9	62.9	67.8
ST7	64.8	65.7	66.1	67.0	64.9	64.8	64.8	69.8
ST8	69.8	70.9	71.4	72.5	70.0	69.9	69.8	74.8
ST9	74.6	75.1	75.4	76.0	74.7	74.6	74.6	79.6
ST10	67.1	67.7	67.6	68.0	67.3	67.1	67.1	72.1

* Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

† Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

7.1.1.2 OFF-SITE CONSTRUCTION NOISE

Worker vehicles and haul trucks transporting equipment and materials to and from the project site during construction would increase noise levels on the local roads in the project area. It is expected that construction trucks would typically access the project site from the nearby Interstate (I-) 10, taking the La Brea Avenue exit from the westbound I-10. Trucks would travel northbound to Wilshire Boulevard, continue westbound on Wilshire Boulevard, then northbound on Curson Avenue to the project site. The construction worker vehicles would not be restricted to travel exclusively on this haul route and instead are allowed to access the project site via other routes. However, to perform a conservative traffic noise analysis, all traffic for the project (i.e., worker and truck trips) is assumed to travel on this haul route.

The grading phase would be the peak period of construction with the highest number of construction trucks. There would be a maximum of 127 construction trucks (e.g., vendor, hauling), totaling 254 trips per day. The hourly truck trips were estimated based on 8-hour workdays and assuming a uniform distribution of trips. The hourly worker trips were also estimated, assuming half of the workers would arrive in 1 hour, resulting in 38 worker trips per hour.

The estimated roadway noise levels resulting from the addition of the project's construction-related traffic on these roadway segments are shown in Table 23. Detailed calculations are provided in Appendix B.

Table 23. Off-Site Construction Traffic Noise Levels

Construction Phase	Estimated Number of Trips per Hour					Estimated Off-Site Construction Noise Levels along the Project Haul Routes, L_{eq}
						Wilshire Boulevard, La Brea Avenue, Curson Avenue
	Worker*	Vendor†	Hauling†	On-Site Trucks†	Total	dBA
Demolition	25.0	2.0	2.0	1.0	**30.0**	57.1
Site preparation	10.0	0.0	0.0	1.0	**11.0**	51.4
Grading	38.0	3.0	27.0	1.0	**69.0**	64.5
Building construction	100.0	5.0	0.0	1.0	**106.0**	59.6
Paving	8.0	1.0	0.0	1.0	**10.0**	52.8
Architectural coating	10.0	0.0	0.0	1.0	**11.0**	55.9
Existing ambient noise levels along the project haul routes, L_{eq}‡						72.4 / 73.3 / 68.6
Significance threshold, L_{eq}§						68.6

* Worker trips are based on half the total trips per day.

† The number of hourly trips is based on an hourly average, assuming a uniform distribution of trips over an 8-hour workday.

‡ La Brea Avenue noise levels were taken from County of Los Angeles (2017:Table IV.I-14).

§ Significance thresholds are equivalent to the existing daytime noise levels.

As shown in Table 23, the estimated noise levels generated by construction off-site traffic would be below the existing daytime ambient noise level at the noise sensitive receptors along the haul routes. Therefore, potential noise impacts from off-site construction traffic would be less than significant.

7.1.2 Operational Noise

Once operational, the project would establish stationary on-site noise sources at the project site as well as contribute to off-site roadway traffic noise. New stationary noise sources would include the parking facilities, mechanical equipment (i.e., dry coolers and emergency generators), loading and waste compacting activities, and activities associated with the use of outdoor spaces (e.g., outdoor café and bar located on the center terrace on the west side of the Page Museum; and Pit 91 outdoor classroom), and roadway traffic noise sources.

7.1.2.1 ON-SITE STATIONARY NOISE SOURCES

7.1.2.1.1 Mechanical Equipment

As part of the project, noise-generating mechanical equipment at the project site would include numerous HVAC equipment located in mechanical rooms throughout the Page Museum building, the new museum building, and the support building, rooftop dry coolers, and emergency generators. All mechanical rooms within the project buildings would be outfitted with sound attenuation measures to reduce noise levels at neighboring properties. The mechanical equipment that may be audible at nearby sensitive receptors would be the dry coolers (located on the rooftops of the buildings) and three emergency generators (located on the ground floor of each building).

Noise from the rooftop dry coolers would be generated when the equipment is operating throughout the day. A reference noise level of 73 dBA at 3 feet was assumed for a 5-ton dry cooler unit.[2] Detailed calculations along the number and rating of the mechanical noise sources are provided in Appendix C.

The three generators on the ground floor of the project buildings would be operated periodically for testing and maintenance in addition to times of electrical power failure at the project site. It was assumed that only one of the generators would be operating at a given hour. A rating of 86 dBA at 50 feet was assumed for the generators.

Table 24 presents the estimated noise levels at the evaluated off-site receptors from the operation of the proposed mechanical noise sources.

As shown in Table 24, the estimated noise levels from the operation of the mechanical equipment would range between 47.3 dBA L_{eq} at receptor ST10 to 59.2 dBA L_{eq} at receptor ST3. Additionally, all the estimated noise levels from mechanical equipment plus existing ambient would be below the existing daytime ambient noise levels plus 5 dBA. Thus, the operation of the project's mechanical noise sources would not generate substantial noise level increases at nearby off-site sensitive uses. Therefore, this impact would be less than significant.

[2] Lennox ML14XC1 Air conditioner MERIT Series.

Table 24. Estimated Noise Levels from Mechanical Equipment

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Mechanical Equipment, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	50.1	67.6	72.5
ST3	65.5	59.2	66.4	70.5
ST5	74.9	53.1	74.9	79.9
ST6	62.8	57.2	63.9	67.8
ST7	64.8	56.4	65.4	69.8
ST8	69.8	52.1	69.9	74.8
ST9	74.6	52.0	74.6	79.6
ST10	67.1	47.3	67.1	72.1

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

7.1.2.1.2 Parking Noise

The existing parking lot would be expanded from 63,000 square feet to 65,000 square feet and shifted to the northeast corner of the site. The parking lot would hold approximately 170 vehicle parking spaces, an increase of approximately 15 spaces. Sources of noise within the parking lot would primarily include car movements, doors opening and closing, people talking, and car alarms.

Based on the peak-hour traffic volumes presented in the Traffic Study prepared for the project, vehicles traveling into and out of the project site would result in approximately 85 morning peak hour, 122 midday peak hour, and 34 afternoon peak hour trips at the project's driveways on Curson Avenue and 6th Street. For the purposes of this analysis, the midday peak-hour traffic volumes were used to estimate noise levels generated at the parking lot, as they are higher than the traffic volumes for the morning and afternoon. peak hours. Therefore, approximately 0.72 movements per hour per parking space were assumed to estimate noise levels at the analyzed receptors.

Table 25 presents the estimated noise levels from parking activities at the off-site sensitive receptors. As shown in Table 25, the estimated noise levels from the parking lot operation would range between 24.5 dBA L_{eq} at receptor ST10 and 43.8 dBA L_{eq} at receptor ST6. Additionally, the estimated noise levels at all off-site locations would be below the project significance threshold (i.e., an increase of 5 dBA Leq over existing ambient noise levels). Thus, the project's parking lot operation would not generate substantial noise level increases at nearby off-site sensitive uses. Therefore, this impact would be less than significant.

Table 25. Estimated Noise Levels from Parking Activities

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Parking Activities, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	29.0	67.5	72.5
ST3	65.5	37.1	65.5	70.5
ST5	74.9	42.2	74.9	79.9
ST6	62.8	43.8	62.9	67.8
ST7	64.8	33.4	64.8	69.8
ST8	69.8	26.2	69.8	74.8
ST9	74.6	28.2	74.6	79.6
ST10	67.1	24.5	67.1	72.1

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

7.1.2.1.3 Loading and Trash Compactor Activities

Two loading and service areas would accommodate deliveries for labs, exhibition material, food service, events, and staff offices. One of the loading areas would be located at the new museum building on the north side, and the second loading area would be located at the Page Museum, also on the north side. The project would include one waste compactor at each of the proposed loading areas.

For the project's loading area, which would be used by delivery vehicles serving the project, sound levels from similar projects were used to estimate the noise levels at the nearest off-site sensitive receptors. A noise level of 71 dBA L_{eq} at a distance of 50 feet was assumed to represent typical noise levels from loading dock facilities (County of Los Angeles 2017). In addition, a noise rating of 66 dBA L_{eq} at a distance of 50 feet was assumed to represent the waste compactor operations (British Standards Institution 2014:Table C8, Waste Compactor).

The estimated noise levels from the operation of the loading docks and the trash compactors would be below the existing ambient noise levels (Table 26). Therefore, potential noise impacts from loading and waste compactor operations would be less than significant. Detailed calculations are provided in Appendix C.

Table 26. Estimated Noise Levels from Loading and Trash Compactor Operations

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Loading and Trash Compactor Operations, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	48.8	67.6	72.5
ST3	65.5	54.4	65.8	70.5
ST5	74.9	57.2	75.0	79.9
ST6	62.8	59.2	64.4	67.8

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Loading and Trash Compactor Operations, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST7	64.8	55.1	65.2	69.8
ST8	69.8	51.9	69.9	74.8
ST9	74.6	52.3	74.6	79.6
ST10	67.1	48.1	67.2	72.1

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

7.1.2.1.4 Outdoor Areas

Outdoor areas (e.g., outdoor café and bar located on the center terrace on the west side of the Page Museum; and Pit 91 outdoor classroom) would consist primarily of people congregating and conversing in those areas. Pit 91 would continue to be a key research and interpretation destination in the park. The project would demolish the current viewing station overlooking Pit 91 and construct a shaded outdoor classroom with canopy (2,880 square feet). The second floor of the Page Museum would contain two classrooms and a multipurpose space. An outdoor café and bar would be located next to these spaces on the center terrace on the west side of the Page Museum (8,234 square feet).

To analyze the noise impacts from the use of outdoor spaces, the estimated total number of people is conservatively based on 15 square feet per person, based on the California Building Code's occupant load factor for assembly areas. For the noise analysis, it was estimated that up to 549 people could occupy the second floor of the Page Museum, and up to 192 people could occupy the Pit 91 outdoor classroom. A reference noise level of 65 dBA and 62 dBA L_{eq} at a distance of 3 feet (1 meter) was used to represent males and females speaking in a raised voice, respectively (Harris 1991). Additionally, it was assumed that up to 50 percent of the people would be talking at the same time.

An additional potential noise source associated with the use of the second floor of the Page Museum would be the use of an outdoor sound system. A reference value of 75 dBA L_{eq} at a distance of 15 feet (4.5 meters) was assumed for the operation of the outdoor sound system. In addition, the hours of operation for the use of the outdoor areas were assumed to be from 7:00 a.m. to 7:00 p.m., following the museum's hours of operation.

Table 27 presents the estimated noise levels resulting from the use of outdoor areas at the off-site sensitive receptors. Detailed calculations are provided in Appendix C. As shown in Table 27, the estimated noise levels at all analyzed receptors would not exceed the ambient noise levels plus 5 dBA L_{eq} threshold. Therefore, potential noise impacts from outdoor areas would be less than significant.

Table 27. Estimated Noise Levels from Outdoor Uses

Off-Site Receptor	Existing Daytime Ambient Noise Levels, L_{eq}	Estimated Noise Levels from Outdoor Uses, L_{eq}	Ambient plus Project Noise Levels, L_{eq}	Significance Threshold*
	dBA	dBA	dBA	dBA
ST2	67.5	42.7	67.5	72.5
ST3	65.5	46.9	65.6	70.5
ST5	74.9	47.9	74.9	79.9
ST6	62.8	51.8	63.1	67.8
ST7	64.8	50.7	65.0	69.8
ST8	69.8	46.4	69.8	74.8
ST9	74.6	46.7	74.6	79.6
ST10	67.1	42.0	67.1	72.1

* Significance thresholds are assumed to be equal to the measured daytime noise levels plus 5 dBA.

7.1.2.2 OFF-SITE TRAFFIC

7.1.2.2.1 Existing Plus Project

The project would generate new vehicle trips that would incrementally add to the existing traffic levels on surrounding streets and could result in an increase in the associated traffic noise levels. Based on the Traffic Study prepared for the project, it is estimated that the project would generate 12 morning peak hour trips, 306 midday peak hour trips, and 85 afternoon peak hour trips during the weekdays. Additionally, the Traffic Study estimates that the project would generate 284 midday peak hour trips during the weekend (Saturday). Overall, the project would generate an estimated 1,293 new trips during the weekdays and 1,679 net new trips during the weekend.

As discussed previously, while the Traffic Study did not directly analyze ADT on the roadway segments in the project site vicinity, the ADT volumes on these nearby roadway segments were estimated, based on the maximum daily peak hour trips on each roadway intersection presented in the Traffic Study. Detailed calculations are provided in Appendix C.

Table 28 presents the estimated off-site traffic noise impacts associated with Existing Plus Project conditions. As shown therein, the project would result in a maximum CNEL increase of 0.3 dBA during a weekday, and an estimated increase of 0.4 dBA during the weekend, between 6th Street and Wilshire Boulevard. Therefore, the estimated off-site traffic noise level increase would be below the 3-dBA CNEL significance threshold based on the City's land use/noise compatibility guidelines and the City of L.A. Thresholds Guide, and the potential current off-site traffic noise impacts associated with the project would be less than significant.

7.1.2.2.2 Future Plus Project

The analysis of operational off-site traffic noise impacts above evaluated the increase in traffic noise levels attributable to the project based on existing conditions. Further analysis was prepared to determine the potential noise impacts associated with the project operation compared to the future noise conditions. Table 29 summarizes the estimated off-site traffic noise impacts associated with Future Plus Project conditions. Detailed calculations are provided in Appendix C. As shown therein, the project would result

in a maximum CNEL increase of 0.4 dBA during weekdays along the road segment between Fairfax Avenue and Ogden Drive, and an estimated increase of 0.4 dBA during the weekend between 6th Street and Wilshire Boulevard. Therefore, the estimated off-site traffic noise level increase would be below the City of L.A. Thresholds Guide, and the potential future off-site traffic noise impacts associated with the project would be less than significant.

Table 28. Traffic Noise Impacts – Existing Plus Project

Roadway Segment		Adjacent Land Use	Calculated Traffic Noise Levels, CNEL					
			Existing Without Project		Existing Plus Project		Increase Due to Project	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
			dBA	dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Avenue and Ogden Drive	Residential	71.3	69.8	71.5	70.1	0.2	0.3
	Between Ogden Drive and Curson Avenue	Residential	71.7	67.7	71.7	67.7	0.0	0.0
	East of Curson Avenue	Residential	71.0	67.7	71.0	67.8	0.0	0.1
Ogden Drive	North of 6th Street	Residential	62.6	60.8	62.7	60.9	0.1	0.1
	South of Wilshire Boulevard	Commercial	62.9	60.8	63.0	61.0	0.1	0.2
Spaulding Avenue	South of Wilshire Boulevard	Commercial	64.9	63.2	65.0	63.4	0.1	0.2
Curson Avenue	North of 6th Street	Residential	67.3	64.8	67.4	64.9	0.1	0.1
	Between 6th Street and Wilshire Boulevard	Residential	68.1	67.6	68.4	68.0	0.3	0.4
	South of Wilshire Boulevard	Residential	71.0	69.1	71.1	69.3	0.1	0.2
Wilshire Boulevard	Between Fairfax Avenue and Ogden Drive	Museum	68.3	66.0	68.4	66.2	0.1	0.2
	Between Ogden Drive and Spaulding Avenue	Commercial	67.2	65.1	67.3	65.3	0.1	0.2
	Between Spaulding Avenue and Curson Avenue	Museum	69.4	67.0	69.5	67.2	0.1	0.2
	East of Curson Avenue	Commercial	67.8	65.8	67.9	65.9	0.1	0.1

Table 29. Traffic Noise Impacts – Future Plus Project

Roadway Segment		Adjacent Land Use	Calculated Traffic Noise Levels, CNEL					
			Future Without Project		Future Plus Project		Increase Due to Project	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
			dBA	dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Avenue and Ogden Drive	Residential	71.5	70.3	71.5	70.5	0.0	0.2
	Between Ogden Drive and Curson Avenue	Residential	71.9	70.3	72.0	70.4	0.1	0.1
	East of Curson Avenue	Residential	71.2	68.4	71.2	68.4	0.0	0.0
Ogden Drive	North of 6th Street	Residential	63.0	61.8	63.3	61.9	0.3	0.1
	South of Wilshire Boulevard	Commercial	63.0	61.2	63.0	61.4	0.0	0.2
Spaulding Avenue	South of Wilshire Boulevard	Commercial	65.3	63.5	65.3	63.8	0.0	0.2
Curson Avenue	North of 6th Street	Residential	67.7	66.3	67.7	66.4	0.0	0.1
	Between 6th Street and Wilshire Boulevard	Residential	67.8	68.1	67.8	68.5	0.0	0.4
	South of Wilshire Boulevard	Residential	71.4	69.5	71.4	69.6	0.0	0.1
Wilshire Boulevard	Between Fairfax Avenue and Ogden Drive	Museum	62.8	66.3	63.2	66.5	0.4	0.2
	Between Ogden Drive and Spaulding Avenue	Commercial	67.6	65.5	67.6	65.8	0.0	0.2
	Between Spaulding Avenue and Curson Avenue	Museum	69.6	67.4	69.6	67.7	0.0	0.2
	East of Curson Avenue	Commercial	67.5	66.2	67.6	66.4	0.1	0.1

7.1.2.3 COMPOSITE NOISE LEVEL IMPACTS

In addition to considering the project's operational off-site and on-site noise generation, the composite noise levels (i.e., noise levels from all on-site and off-site noise sources combined) experienced by surrounding sensitive receptors due to the project's operational noise sources occurring concurrently with existing noise sources are also evaluated to assess the potential overall increase in ambient noise levels at the analyzed monitoring locations. These off-site monitoring locations would experience noise levels generated by the project's mechanical equipment, outdoor areas, parking facilities, off-site traffic, and loading operations in addition to ambient noise levels generated by surrounding land uses and roadways. The analysis of the composite operational noise levels in the project vicinity was evaluated using the CNEL noise metric and is conducted using the following assumptions for each noise source:

- Mechanical Noise: Noise levels generated by the noise-generating mechanical equipment at the project site would occur continuously between 6:00 a.m. and 10:00 p.m.
- Parking Facility: Noise levels that would be generated at the project parking lot by peak-hour vehicle trips are assumed to occur continuously throughout the hours of 6:00 a.m. to 10:00 p.m.
- Outdoor Activities: Noise levels that would be generated at the outdoor areas are assumed to occur continuously throughout the hours of 7:00 a.m. to 7:00 p.m.
- Off-Site Traffic: Noise levels generated by off-site traffic are assumed to occur continuously for 24 hours per day.
- Loading Area/Waste Compactor: Noise levels generated by the project's loading areas and the waste compactors are assumed to occur for 3 hours between 7:00 a.m. to 10:00 p.m.

Table 30 presents the estimated composite noise levels in terms of CNEL at the off-site receptors.

Table 30. Composite Operational Noise Impacts

Off-Site Monitoring Location	Estimated Noise Levels								
	Existing Ambient	Off-Site Traffic	Mechanical	Parking	Trash Compactor and Loading	Outdoor Activities	Project Composite	Ambient plus Project	Increase
	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST2	68.1	52.9	51.3	30.2	46.0	39.7	55.8	68.3	0.2
ST3	66.4	43.9	60.4	38.3	51.6	43.9	61.1	67.5	1.1
ST5	75.1	50.8	54.3	43.4	54.4	44.9	58.5	75.2	0.1
ST6	64.4	54.1	58.4	45.0	56.4	48.8	61.7	66.3	1.9
ST7	65.9	54.7	57.6	34.6	52.3	47.7	60.4	67.0	1.1
ST8	70.2	54.7	53.3	27.4	49.1	43.4	57.8	70.4	0.2
ST9	74.8	53.9	53.2	29.4	49.5	43.7	57.5	74.9	0.1
ST10	67.8	52.3	48.5	25.7	45.3	39.0	54.5	68.0	0.2

As shown in Table 30, the project would have a maximum increase of 1.9 dBA CNEL (at receptor ST6) during project operation. Therefore, the composite noise levels due to the project operations would remain below the 3-dBA CNEL significance threshold set forth in the City of L.A. Thresholds Guide and the City's Noise Regulations for noise-sensitive uses within the "normally unacceptable" or "clearly unacceptable" category and the potential noise impacts due to project operations would be less than significant.

7.2 Ground-borne Vibration and Noise

The operation of heavy construction equipment at the project site would generate ground-borne vibration that could affect structures immediately adjacent to the project site or could also cause an annoyance to people at those locations.

Ground-borne vibration levels resulting from construction activities occurring within the project site were estimated using data published by the FTA (FTA 2018). Construction activities that would have the potential to generate levels of ground-borne vibration within the project site include mobile equipment activities, among others. Project vibration impacts were estimated using the vibration source level of construction equipment and the construction vibration assessment methodology published by the FTA.

Based on the reference vibration levels for the different pieces of equipment and the distances from the primary project construction activities, construction vibration velocity levels were estimated at the different receptors. The estimated vibration velocities were then compared against the building damage criteria in the FTA's *Transit Noise and Vibration Impacts Assessment Manual* (2018). Table 31 shows the estimated PPVs at the off-site receptors and the estimated vibration impacts on buildings.

Table 31. Construction Vibration Impacts – Building Damage

Off-Site Receptor	Building Category	Estimated Vibration Velocity Levels at the Off-Site Receptors (PPV)						Significance Threshold,
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
		in/sec	in/sec	in/sec	in/sec	in/sec	in/sec	in/sec
ST2	Non-engineered timber and masonry buildings	0.0051	0.0051	0.0051	0.0009	0.0016	0.0000	0.2
ST3	Non-engineered timber and masonry buildings	0.0021	0.0119	0.0119	0.0025	0.0038	0.0000	0.2
ST5	Non-engineered timber and masonry buildings	0.0029	0.0062	0.0062	0.0013	0.0095	0.0000	0.2
ST6	Engineered concrete and masonry buildings	0.0069	0.0107	0.0107	0.0025	0.0092	0.0000	0.3
ST7	Engineered concrete and masonry buildings	0.0070	0.0140	0.0140	0.0013	0.0043	0.0000	0.3
ST8	Engineered concrete and masonry buildings	0.0072	0.0072	0.0072	0.0006	0.0024	0.0000	0.3
ST9	Engineered concrete and masonry buildings	0.0088	0.0088	0.0088	0.0006	0.0025	0.0000	0.3

Off-Site Receptor	Building Category	Estimated Vibration Velocity Levels at the Off-Site Receptors (PPV)						Significance Threshold,
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
		in/sec	in/sec	in/sec	in/sec	in/sec	in/sec	in/sec
ST10	Engineered concrete and masonry buildings	0.0013	0.0013	0.0013	0.0006	0.0013	0.0000	0.3

* FTA construction vibration impact criteria for building damage (FTA 2018).

Table 32 shows the comparison between the estimated ground-vibration levels and the human annoyance threshold. Detailed calculation worksheets are included in Appendix D.

Table 32. Construction Vibration Impacts – Human Annoyance

Off-Site Receptor	Building Category	Estimated Vibration Velocity Levels at the Off-Site Receptors						Significance Threshold,
		Demolition	Site Preparation	Grading	Building Const.	Paving	Arch. Coating	
		VdB	VdB	VdB	VdB	VdB	VdB	VdB
ST2	Non-engineered timber and masonry buildings	62	62	62	47	52	0	80
ST3	Non-engineered timber and masonry buildings	54	69	69	56	60	0	80
ST5	Non-engineered timber and masonry buildings	57	64	64	50	68	0	80
ST6	Engineered concrete and masonry buildings	65	69	69	56	67	0	80
ST7	Engineered concrete and masonry buildings	65	71	71	51	61	0	80
ST8	Engineered concrete and masonry buildings	65	65	65	44	56	0	80
ST9	Engineered concrete and masonry buildings	67	67	67	44	56	0	80
ST10	Engineered concrete and masonry buildings	50	50	50	44	50	0	80

* FTA ground-borne vibration impact criteria for residences and buildings where people normally sleep for infrequent vibration events (FTA 2018).

As shown in Table 31 and Table 32, vibration levels generated by the construction equipment at the project site during project construction would not exceed the applicable vibration criteria for building damage or human annoyance at the surrounding structures. Therefore, impacts would be less than significant.

Groundborne noise refers to the rumbling noise resulting from the motion of building room surfaces as a result of the vibration of floors and walls; and it is only audible inside buildings. The link between groundborne vibration and groundborne noise depends on the vibration's frequency and the acoustical

absorption characteristics of the receiving room. The groundborne noise decibel level is lower for typical buildings than the groundborne vibration velocity level at low frequencies.

7.3 Cumulative Impacts

Cumulative noise or vibration impacts can occur when more than one project is under construction simultaneously or is expected to generate operational noise or vibration at the same time. The potential for cumulative noise impacts to occur is specific to the distance between the related projects and their stationary sources.

7.3.1 On-Site Construction Noise

Related projects in the vicinity of the proposed project considered in this analysis include construction activities that could occur simultaneously with the construction of the project consistent with the analysis performed in the Traffic Study. The following related projects were identified in the Traffic Study and are included in this analysis:

- LACMA renovation: This project is located at 5906 W. Wilshire Boulevard and shares the western half of the block with the proposed project. It proposes replacing four buildings within LACMA East collectively compromising 392,871 gsf. Overall, the project would result in a net decrease in the square footage of museum operations by approximately 5,371 square feet and a reduction in the maximum theater size from over 600 seats to 300 seats.
- Mixed-use project: This project is located at 5891 Olympic Boulevard and will consist of 46 apartments.
- Wilshire Curson project: This project is located at 5700–5780 Wilshire Boulevard / 712–752 S. Curson Avenue / 5721–5773 W. 8th Street / 715–761 S. Masselin Avenue. It is currently developed with two, six-story primarily office buildings comprising 1,002,990 square feet of floor area. The project would retain and renovate the southern portion of the existing buildings and would demolish the northern portion of the two existing office buildings for the addition of approximately 1,923,837 square feet of new floor area, consisting of 1,806,237 square feet of office uses and 117,600 square feet of ground floor commercial space. Upon completion, the project would result in a net lot area of 390,092 square feet (8.9 acres) within the project site, with a total floor area of approximately 2,340,552 square feet composed of 2,222,952 square feet of office floor area and 117,600 square feet of commercial floor area with a floor area ratio of 6:1.
- Mixed-use residential project: This project is located at 800 S. Fairfax Avenue. The site currently contains 40 apartments and an existing 3,829-square-foot restaurant/lounge. The restaurant/ lounge will remain, but the existing residential buildings will be replaced with 181 apartments, 28 affordable apartments, and 2,653 square feet of restaurant.
- Mixed-use residential and commercial development: This project is located at 5411 Wilshire Boulevard. It consists of the construction of a new 42-story mixed-use tower including up to 348 dwelling units and approximately 10,176 square feet of ground-floor commercial uses. Thirty-eight of the dwelling units would be restricted affordable. The project would demolish approximately 38,545 square feet of existing commercial uses.
- Olympic + Fairfax mixed-use project: This project is located at 6052–6066 W. Olympic Boulevard. It includes construction of a six-story, mixed-use building containing approximately 5,135 square feet of commercial retail space, 108 apartments, and 12 affordable apartments. It would replace 11,440 square feet of commercial retail uses.

- Mixed-use project: This project is located at 6300 W. 3rd Street. It includes demolition of over 150,000 square feet of commercial uses and construction of an eight-story, mixed-use building consisting of 83,994 square feet of commercial space and 331 dwelling units.
- San Vicente medical/commercial project: This project is located at 650–676 S. San Vicente Boulevard. The project proposes 140,305 square feet of medical office space, 4,000 square feet of restaurant/retail space, and 1,000 square feet for other commercial uses, such as a pharmacy. This will include the demolition of an existing 5,738 square-foot, vacant educational building and an 8,225-square-foot Big 5 Sporting Goods store.
- Olympic Boulevard mixed-use project: This project is located at 6001–6011 W. Olympic Boulevard. The proposed project includes the construction of a mixed-use building with 1,596 square feet of ground-floor retail, 51 apartments, and six affordable apartments. It includes the demolition of 8,488 square feet of retail and six apartments.

The construction-related noise levels from the related projects can be considered transient and intermittent. Further, it is assumed that the projects within the incorporated area of the City of Los Angeles would be required to comply with the City's Noise Ordinance No. 144,331 and No. 161,574. In addition, each of the related projects would be subject to Section 41.40 of the LAMC, which limits the hours of allowable construction activities, and Section 112.05 of the LAMC, which prohibits any powered equipment or powered hand tool from producing noise levels that exceed 75 dBA at a distance of 50 feet from the noise source within 500 feet of a residential zone. Noise resulting from cumulative construction activities would be reduced to the extent reasonably and technically feasible through mitigation measures proposed for each project and compliance with locally enforced noise ordinances.

As previously discussed in Section 7.1.1, construction noise levels for the project could exceed existing ambient noise levels by more than 5 dBA. However, as shown in Table 22, on-site construction noise levels for the project would be reduced to less-than-significant levels after mitigation. Therefore, with the related projects also complying with City requirements regarding construction noise impacts, the proposed project construction-related noise would have a less-than-significant cumulative impact.

7.3.2 Off-Site Construction Noise

In addition to the cumulative impacts of on-site construction activities, off-site construction trucks and worker trucks for the project would potentially result in cumulative impacts if the trucks for the related projects use the same haul route. As discussed above, the primary haul routes include Wilshire Boulevard and La Brea Avenue. A basic review of the related projects indicates that the same route would be used during construction. The analysis of the estimated off-site noise levels from project construction (see Section 7.1.1.2) indicated that noise levels along the haul route would be below the estimated ambient levels by a minimum of 4.1 dBA. To exceed the ambient noise levels, the total truck trips would need to increase by an approximate factor of 2.6 (i.e., increase from 69 trips per hour to 179 trips per hour). Based on the proposed project's limited contribution of construction traffic trips and the limited number of anticipated future development projects that would use the same or a similar haul route, traffic associated with the construction of the project and other related projects would not cumulatively add up to 179 or more hourly trips along Wilshire Boulevard and La Brea Avenue. Therefore, cumulative noise impacts from off-site construction are expected to be less than cumulatively significant.

7.3.3 On-Site Construction Vibration

Ground-borne vibration impacts due to construction activities are generally limited to buildings located close to the construction site. The closest related project is the LACMA renovation project, which is located adjacent to the project site. The *LACMA Building for the Permanent Collection Draft Environmental Impact Report* (County of Los Angeles 2017) indicates that the estimated vibration velocity levels (from all construction equipment) would be below the significance thresholds at all off-site building structures. Therefore, due to the rapid attenuation of the ground-borne vibration, there is no potential for a cumulative construction impact concerning ground-borne vibration.

7.3.4 Off-Site Construction Vibration

Based on FTA data, the vibration generated by a typical truck would be approximately 63VdB (0.006 PPV) at 50 feet (FTA 2018). The shortest distance between the haul route and the receptor is approximately 25 feet. Ground-borne vibration generated by a haul truck at this distance would be approximately 0.016 PPV, which is well below the most stringent building damage threshold of 0.12 PPV. Additionally, the estimated vibration levels along the haul route would be approximately 72 VdB, below the human annoyance threshold of 80 VdB. Trucks from related projects are expected to produce similar vibration levels as the project. Thus, the ground-borne vibration levels from haul trucks would be below the 0.12 PPV threshold. Therefore, potential cumulative vibration impacts from off-site construction would be less than significant.

7.3.5 On-Site Stationary Noise Sources

The LAMC limits stationary source noise from mechanical equipment; therefore, potential noise levels from these sources are expected to be less than significant for each related project. Furthermore, based on the distance of the related projects from the project site, cumulative stationary source noise impacts associated with the operation of the project and neighboring related projects would be less than significant.

7.3.6 Off-Site Mobile Noise Sources

Traffic volumes would be generated by the project and other related projects and would produce roadway noise. Cumulative noise impacts due to mobile sources were analyzed by comparing the projected increase in traffic noise levels from the Existing Conditions to Future Cumulative Conditions. The Future Cumulative Conditions scenario includes traffic volumes from future projects, future growth, and the proposed project. Table 33 presents the calculated traffic noise levels from Existing Conditions and Future Cumulative Plus Project Conditions.

Cumulative traffic volumes would result in a maximum increase of 2.5 dBA during a typical weekday, and 2.5 dBA during a typical weekend. Therefore, the cumulative noise impacts due to mobile (off-site) noise sources associated with the project, future growth, and related projects would be less than significant.

Table 33. Traffic Noise Impacts – Future Cumulative Plus Project

Roadway Segment		Adjacent Land Use	Calculated Traffic Noise Levels, CNEL					
			Existing Conditions		Cumulative Plus Project		Increase	
			Weekday	Weekend	Weekday	Weekend	Weekday	Weekend
			dBA	dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Avenue and Ogden Drive	Residential	71.3	69.8	72.3	71.1	1.0	1.3
	Between Ogden Drive and Curson Avenue	Residential	71.7	67.7	72.5	69.4	0.8	1.7
	East of Curson Avenue	Residential	71.0	67.7	71.6	68.9	0.6	1.2
Ogden Drive	North of 6th Street	Residential	62.6	60.8	63.4	62.2	0.8	1.4
	South of Wilshire Boulevard	Commercial	62.9	60.8	64.2	62.1	1.3	1.3
Spaulding Avenue	South of Wilshire Boulevard	Commercial	64.9	63.2	66.2	64.4	1.3	1.2
Curson Avenue	North of 6th Street	Residential	67.3	64.8	68.3	66.8	1.0	2.0
	Between 6th Street and Wilshire Boulevard	Residential	68.1	67.6	70.6	70.1	2.5	2.5
	South of Wilshire Boulevard	Residential	71.0	69.1	72.6	70.7	1.6	1.6
Wilshire Boulevard	Between Fairfax Avenue and Ogden Drive	Museum	68.3	66.0	69.4	67.2	1.1	1.2
	Between Ogden Drive and Spaulding Avenue	Commercial	67.2	65.1	68.5	66.4	1.3	1.3
	Between Spaulding Avenue and Curson Avenue	Museum	69.4	67.0	70.6	68.3	1.2	1.3
	East of Curson Avenue	Commercial	67.8	65.8	69.2	67.4	1.4	1.6

7.4 Mitigation Measures

As discussed in detail in Section 7.1.1, project construction would have the potential to result in significant noise impacts at off-site sensitive receptors from on-site construction activities.

Mitigation Measure NOI-1: The following measures shall be implemented to reduce construction-related noise impacts:

- Operation of equipment used in construction, alteration, drilling, or demolition work shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m., Monday through Friday; before 8:00 a.m. or after 6:00 p.m. on Saturday; and any time on Sundays or legal holidays.
- A temporary and impermeable 12-foot-high temporary barrier designed to provide a 10-dBA noise reduction, shall be erected along the eastern and northern sides of the project site boundary. This barrier shall be constructed in one of the following ways:
  - from acoustical blankets hung over or from a supporting frame, or
  - from commercially available acoustical panels lined with sound-absorbing material, or
  - from common construction materials such as plywood, provided that the barrier is designed with overlapping material at the seams to ensure that no gaps exist between the panels.
- Noise levels from powered equipment or powered hand tools at a distance of 50 feet from the noise source or within 500 feet of a residential zone will be limited to 75 dBA, such limits shall not apply where compliance is technically infeasible. Technical infeasibility means that the noise limit cannot be achieved despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during operation of the equipment.
- All construction equipment shall be properly maintained per manufacturers' specifications and fitted with the best available noise-suppression devices.
- Pneumatic tools used at the site shall be equipped with an exhaust muffler on the compressed air exhaust to minimize noise levels.
- Stationary noise sources shall be located as far from adjacent sensitive receptors as possible and shall be muffled and enclosed within temporary sheds or insulated barriers when possible.
- Prior to commencement of construction, a designated project contact person will directly notify the management of any surrounding residential properties located within 100 feet of the project site about the construction schedule and activities and provide a contact number to address any noise-related complaints during construction.
- A designated point of contact shall be identified to address noise-related complaints during construction. The noise disturbance coordinator will be responsible for responding to any local complaints about construction noise.

Implementation of the above-described Mitigation Measure NOI-1 would minimize this impact to less than significant.

8 LITERATURE CITED

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APPENDIX A

Technician Field Sheets

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: **LT1**

Coordinates	Lat:	34.062993					
	Lon:	-118.355549					
	Elevation (ft):	176					
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831		
	S/N:	0011655		S/N:	76995		
Microphone	Model :	377B02	**File Name**		LT_LB1.001.s		
	S/N:	173681					
Monitoring	Start Time:	4/7/22 8:58 AM	**Calibrations**	Pre-Test:	4/7/22 8:52 AM	Deviation:	-0.01
	End Time:	4/9/22 8:09 AM		Post-Test:	4/9/22 8:09 AM		

Location Description
Northeast corner of the Lake Pit.

Parameter	LT_LB1.001.s										
	4/7/22 8:58 AM	4/9/22 8:09 AM									
Duration hh:mm		47:11:00									
LA_{eq}		56.9									
L_{dn}		60.6									
L_d		58.2									
L_n		53.0									
L_{den}		60.9									
L_d		58.9									
L_{eve}		54.2									
L_n		53.0									
$LA_{1.7}$		64.0									
$LA_{8.3}$		59.5									
LA_{10}		59.0									
LA_{25}		56.6									
LA_{50}		54.0									
LA_{90}		46.6									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	8:58	Traffic
			Construction
			Park visitors
			Landscaping equipment

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: LT2

Coordinates	Lat:	34.06456					
	Lon:	-118.358345					
	Elevation (ft):	173					
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831		
	S/N:	0011585		S/N:	46400		
Microphone	Model :	377B02	**File Name**		LT_LB2.003.s		
	S/N:	108355					
Monitoring	Start Time:	4/7/22 9:22 AM	**Calibrations**	Pre-Test:	4/7/22 9:20 AM	Deviation:	-0.07
	End Time:	4/9/22 8:35 AM		Post-Test:	4/9/22 8:36 AM		

Location Description
Northeast corner of Pit 13

Parameter	LT_LB2.003.s										
	4/7/22 9:22 AM	4/9/22 8:35 AM									
Duration hh:mm		47:13:32									
LA_{eq}		55.0									
L_{dn}		59.1									
L_d		56.2									
L_n		51.7									
L_{den}		59.5									
L_d		56.6									
L_{eve}		54.2									
L_n		51.7									
$LA_{1.7}$		62.0									
$LA_{8.3}$		57.5									
LA_{10}		57.0									
LA_{25}		54.8									
LA_{50}		52.4									
LA_{90}		46.0									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	9:20	Traffic
			Construction
			Park visitors
			Landscaping equipment

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: ST2

Coordinates	Lat:	34.064964					
	Lon:	-118.359104					
	Elevation (ft):	170					
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831		
	S/N:	0011655		S/N:	76995		
Microphone	Model :	377B02	**File Name**		LT_LB1.002.s		
	S/N:	173681					
Monitoring	Start Time:	4/9/22 9:28 AM	**Calibrations**	Pre-Test:	4/9/22 9:28 AM	Deviation:	0.04
	End Time:	4/9/22 9:43 AM		Post-Test:	4/9/22 9:44 AM		

Location Description
Multi-familiy residence on the north side of West 6th Street, northwest of the Project site.

Parameter	LT_LB1.002.s										
	4/9/22 9:28 AM	4/9/22 9:43 AM									
Duration hh:mm		0:15:01									
LA_{eq}		67.5									
L_{dn}		-									
L_d		67.5									
L_n		-									
L_{den}		-									
L_d		67.5									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		74.4									
$LA_{8.3}$		70.4									
LA_{10}		70.0									
LA_{25}		67.0									
LA_{50}		60.9									
LA_{90}		52.1									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	9-Apr	9:28	Traffic
			Construction
			Park visitors

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: ST3

Coordinates	Lat:	34.064973			
	Lon:	-118.357479			
	Elevation (ft):	176			
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831
	S/N:	0011655		S/N:	76995
Microphone	Model :	377B02	**File Name**		LT_LB1.003.s
	S/N:	173681			
Monitoring	Start Time:	4/9/22 9:51 AM	**Calibrations**	Pre-Test:	4/9/22 9:50 AM Deviation: 0.01
	End Time:	4/9/22 10:06 AM		Post-Test:	4/9/22 10:07 AM

Location Description
Multi-familiy residence on the north side of West 6th Street, northwest of the Project site.

Parameter	LT_LB1.003.s										
	4/9/22 9:51 AM	4/9/22 10:06 AM									
Duration hh:mm		0:15:02									
LA_{eq}		65.5									
L_{dn}		-									
L_d		65.5									
L_n		-									
L_{den}		-									
L_d		65.5									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		72.6									
$LA_{8.3}$		70.4									
LA_{10}		70.0									
LA_{25}		66.7									
LA_{50}		62.5									
LA_{90}		51.8									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	9-Apr	9:50	Traffic
			Construction
			Park visitors

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: ST5

Coordinates	Lat:	34.064983			
	Lon:	-118.354607			
	Elevation (ft):	181			
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831
	S/N:	0011588		S/N:	58540
Microphone	Model :	377B02	**File Name**		ST_LB.001.s
	S/N:	308845			
Monitoring	Start Time:	4/7/22 10:26 AM	**Calibrations**	Pre-Test:	4/7/22 10:24 AM Deviation: 0.05
	End Time:	4/7/22 10:41 AM		Post-Test:	4/7/22 10:42 AM

Location Description
Multi-familiy residence on the north side of West 6th Street, northeast of the Project site.

Parameter	ST_LB.001.s										
	4/7/22 10:26 AM	4/7/22 10:41 AM									
Duration hh:mm		0:15:01									
LA_{eq}		74.9									
L_{dn}		-									
L_d		74.9									
L_n		-									
L_{den}		-									
L_d		74.9									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		83.0									
$LA_{8.3}$		72.2									
LA_{10}		71.8									
LA_{25}		68.6									
LA_{50}		62.6									
LA_{90}		56.1									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	10:26	Traffic

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: ST6

Coordinates	Lat:	34.064148			
	Lon:	-118.354543			
	Elevation (ft):	182			
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831
	S/N:	0011588		S/N:	58540
Microphone	Model :	377B02	**File Name**		ST_LB.002.s
	S/N:	308845			
Monitoring	Start Time:	4/7/22 10:48 AM	**Calibrations**	Pre-Test:	4/7/22 10:47 AM Deviation: 0.03
	End Time:	4/7/22 11:03 AM		Post-Test:	4/7/22 11:04 AM

Location Description
Multi-familiy residence on the east side of Curson Avenue, east of the Project site.

Parameter	ST_LB.002.s										
	4/7/22 10:48 AM	4/7/22 11:03 AM									
Duration hh:mm		0:15:03									
LA_{eq}		62.8									
L_{dn}		-									
L_d		62.8									
L_n		-									
L_{den}		-									
L_d		62.8									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		70.7									
$LA_{8.3}$		67.4									
LA_{10}		66.8									
LA_{25}		63.2									
LA_{50}		59.1									
LA_{90}		51.5									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	10:48	Traffic
			Parking Lots

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: ST7

Coordinates	Lat:	34.063134			
	Lon:	-118.354546			
	Elevation (ft):	185			
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831
	S/N:	0011588		S/N:	58540
Microphone	Model :	377B02	**File Name**		ST_LB.003.s
	S/N:	308845			
Monitoring	Start Time:	4/7/22 11:09 AM	**Calibrations**	Pre-Test:	4/7/22 11:09 AM Deviation: -0.03
	End Time:	4/7/22 11:24 AM		Post-Test:	4/7/22 11:25 AM

Location Description
Mixed-use commercial building on the east side of Curson Avenue, east of the Project site.

Parameter	ST_LB.003.s										
	4/7/22 11:09 AM	4/7/22 11:24 AM									
Duration hh:mm		0:15:03									
LA_{eq}		64.8									
L_{dn}		-									
L_d		64.8									
L_n		-									
L_{den}		-									
L_d		64.8									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		74.0									
$LA_{8.3}$		66.5									
LA_{10}		66.0									
LA_{25}		63.6									
LA_{50}		60.0									
LA_{90}		54.6									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	11:09	Traffic
			Parking Lots

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: ST8

Coordinates	Lat:	34.06227					
	Lon:	-118.354891					
	Elevation (ft):	186					
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831		
	S/N:	0011588		S/N:	58540		
Microphone	Model :	377B02	**File Name**		ST_LB.004.s		
	S/N:	308845					
Monitoring	Start Time:	4/7/22 11:32 AM	**Calibrations**	Pre-Test:	4/7/22 11:31 AM	Deviation:	-0.04
	End Time:	4/7/22 11:47 AM		Post-Test:	4/7/22 11:48 AM		

Location Description
Office building on the south side of Wilshire Blvd, southeast of the Project site.

Parameter	ST_LB.004.s										
	4/7/22 11:32 AM	4/7/22 11:47 AM									
Duration hh:mm		0:15:05									
LA_{eq}		69.8									
L_{dn}		-									
L_d		69.8									
L_n		-									
L_{den}		-									
L_d		69.8									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		78.1									
$LA_{8.3}$		73.0									
LA_{10}		72.5									
LA_{25}		69.6									
LA_{50}		65.4									
LA_{90}		57.1									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	11:32	Traffic

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: ST9

Coordinates	Lat:	34.062328			
	Lon:	-118.356069			
	Elevation (ft):	182			
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831
	S/N:	0011588		S/N:	58540
Microphone	Model :	377B02	**File Name**		ST_LB.005.s
	S/N:	308845			
Monitoring	Start Time:	4/7/22 11:58 AM	**Calibrations**	Pre-Test:	4/7/22 11:56 AM Deviation: 0.17
	End Time:	4/7/22 12:13 PM		Post-Test:	4/7/22 12:16 PM

Location Description
Commercial building on the south side of Wilshire Blvd, south of the Project site.

Parameter	ST_LB.005.s										
	4/7/22 11:58 AM	4/7/22 12:13 PM									
Duration hh:mm		0:15:02									
LA_{eq}		74.6									
L_{dn}		-									
L_d		74.6									
L_n		-									
L_{den}		-									
L_d		74.6									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		81.3									
$LA_{8.3}$		79.0									
LA_{10}		78.7									
LA_{25}		76.0									
LA_{50}		71.7									
LA_{90}		63.7									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	11:58	Traffic
			Construction

La Brea Tar Pits Master Plan
Baseline Noise Survey

Location: **ST10**

Coordinates	Lat:	34.062551					
	Lon:	-118.358913					
	Elevation (ft):	164					
Sound Meter	Model :	LD 831	**Preamplifier**	Model :	PRM831		
	S/N:	0011588		S/N:	58540		
Microphone	Model :	377B02	**File Name**		ST_LB.006.s		
	S/N:	308845					
Monitoring	Start Time:	4/7/22 12:31 PM	**Calibrations**	Pre-Test:	4/7/22 12:30 PM	Deviation:	-0.34
	End Time:	4/7/22 12:46 PM		Post-Test:	4/7/22 1:02 PM		

Location Description
Commercial building on the south side of Wilshire Blvd, southwest of the Project site.

Parameter	ST_LB.006.s										
	4/7/22 12:31 PM	4/7/22 12:46 PM									
Duration hh:mm		0:15:08									
LA_{eq}		67.1									
L_{dn}		-									
L_d		67.1									
L_n		-									
L_{den}		-									
L_d		67.1									
L_{eve}		-									
L_n		-									
$LA_{1.7}$		75.4									
$LA_{8.3}$		70.5									
LA_{10}		69.9									
LA_{25}		67.5									
LA_{50}		63.4									
LA_{90}		54.7									

Log:

Event	Day	Time	Comment (Dominant Background Noise Source)
1	7-Apr	11:58	Traffic
			Construction

Baseline Noise Survey
Weather Data

34.094° N, 118.334° W

Station: Enrique Noguera Educational Ga

ID: KCALOSAN1004

Start date: 4/7/2022 **End date:** 4/9/2022

Day	Time	Temperature		Hourly Wind	Precipitation	Humidity	Daily max	Daily min
		F	C	mph	in	%	F	F
4/7/2022	0:00	65.15	18.4	0.0	0.00	66%	96.54	61.01
	1:00	65.11	18.4	0.0	0.00	65%		
	2:00	64.73	18.2	0.0	0.00	68%		
	3:00	61.80	16.6	0.0	0.00	76%		
	4:00	61.01	16.1	0.0	0.00	70%		
	5:00	61.07	16.1	0.0	0.00	54%		
	6:00	61.15	16.2	0.0	0.00	40%		
	7:00	66.61	19.2	0.0	0.00	33%		
	8:00	75.62	24.2	0.1	0.00	23%		
	9:00	84.80	29.3	0.1	0.00	19%		
	10:00	88.34	31.3	0.2	0.00	19%		
	11:00	91.49	33.1	0.3	0.00	17%		
	12:00	93.98	34.4	0.6	0.00	15%		
	13:00	96.54	35.9	1.3	0.00	14%		
	14:00	96.18	35.7	2.5	0.00	13%		
	15:00	96.22	35.7	2.6	0.00	12%		
	16:00	94.04	34.5	3.1	0.00	12%		
	17:00	92.37	33.5	2.3	0.00	12%		
	18:00	88.08	31.2	1.1	0.00	14%		
	19:00	82.34	28.0	0.0	0.00	20%		
	20:00	77.88	25.5	0.0	0.00	26%		
	21:00	75.58	24.2	0.0	0.00	27%		
	22:00	74.05	23.4	0.0	0.00	27%		
	23:00	71.79	22.1	0.0	0.00	27%		

Baseline Noise Survey
Weather Data

34.094° N, 118.334° W

Station: Enrique Noguera Educational Ga

ID: KCALOSAN1004

Start date: 4/7/2022 **End date:** 4/9/2022

Day	Time	Temperature		Hourly Wind	Precipitation	Humidity	Daily max	Daily min
		F	C	mph	in	%	F	F
4/8/2022	0:00	72.77	22.6	0.1	0.00	21%	96.01	66.26
	1:00	70.27	21.3	0.0	0.00	22%		
	2:00	70.65	21.5	0.3	0.00	21%		
	3:00	75.74	24.3	0.0	0.00	14%		
	4:00	69.48	20.8	0.0	0.00	24%		
	5:00	66.26	19.0	0.0	0.00	28%		
	6:00	69.10	20.6	0.0	0.00	21%		
	7:00	71.11	21.7	0.0	0.00	23%		
	8:00	75.83	24.4	0.0	0.00	27%		
	9:00	87.10	30.6	0.0	0.00	18%		
	10:00	92.05	33.4	0.0	0.00	14%		
	11:00	94.84	34.9	0.0	0.00	13%		
	12:00	95.78	35.4	1.7	0.00	12%		
	13:00	96.01	35.6	2.5	0.00	10%		
	14:00	94.91	34.9	3.7	0.00	10%		
	15:00	94.55	34.8	5.1	0.00	9%		
	16:00	94.81	34.9	4.2	0.00	8%		
	17:00	93.90	34.4	3.2	0.00	9%		
	18:00	90.57	32.5	1.2	0.00	13%		
	19:00	84.52	29.2	0.0	0.00	19%		
	20:00	79.82	26.6	0.0	0.00	24%		
	21:00	77.21	25.1	0.0	0.00	27%		
	22:00	74.87	23.8	0.0	0.00	30%		
	23:00	73.19	22.9	0.0	0.00	32%		

Baseline Noise Survey
Weather Data

34.094° N, 118.334° W

Station: Enrique Noguera Educational Ga

ID: KCALOSAN1004

Start date: 4/7/2022 **End date:** 4/9/2022

Day	Time	Temperature		Hourly Wind	Precipitation	Humidity	Daily max	Daily min
		F	C	mph	in	%	F	F
4/9/2022	0:00	70.84	21.58	0.0	0.00	0.41		
	1:00	69.09	20.61	0.0	0.00	0.37		
	2:00	67.86	19.92	0.0	0.00	0.39		
	3:00	66.57	19.21	0.0	0.00	0.38		
	4:00	64.96	18.31	0.0	0.00	0.42		
	5:00	63.92	17.73	0.0	0.00	0.42		
	6:00	63.19	17.33	0.0	0.00	0.42		
	7:00	65.20	18.44	0.0	0.00	0.45		
	8:00	71.13	21.74	0.0	0.00	0.42		
	9:00	77.75	25.42	0.0	0.00	0.37		
	10:00	81.92	27.73	0.0	0.00	0.35		
	11:00	83.12	28.40	0.0	0.00	0.37		
	12:00	82.31	27.95	1.30	0.00	0.40		
	13:00	81.50	27.50	2.6	0.00	0.44		
	14:00	81.53	27.51	1.6	0.00	0.44		
	15:00	81.99	27.77	2.1	0.00	0.41		
	16:00	80.57	26.98	2.9	0.00	0.42		
	17:00	78.09	25.61	1.3	0.00	0.45		
	18:00	72.03	22.24	1.9	0.00	0.50		
	19:00	67.08	19.49	0.8	0.00	0.58		
	20:00	65.41	18.56	0.5	0.00	0.61		
	21:00	64.28	17.93	0.3	0.00	0.67		
	22:00	63.46	17.48	0.0	0.00	0.74		
	23:00	63.20	17.33	0.3	0.00	0.77		

APPENDIX B

Construction Noise Calculations

Existing Roadway Traffic Noise Levels - Weekday

Station	Vehicles type	Traffic values				Control	Road surface
		AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction							
	Total	554	954	1594	-	none	Average (of DGAC and PCC)
	Automobiles	543	935	1562	56		
	Medium trucks	-	-	-	-		
	Heavy trucks	11	19	32	56		
	Buses	-	-	-	-		
	Motorcycles	-	-	-	-		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction							
	Total	561	961	1599	-	none	Average (of DGAC and PCC)
	Automobiles	550	942	1567	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	11	19	32	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction							
	Total	629	905	1591	-	none	Average (of DGAC and PCC)
	Automobiles	616	887	1559	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	13	18	32	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction							
	Total	742	942	1533	-	none	Average (of DGAC and PCC)
	Automobiles	742	942	1533	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction							
	Total	1164	675	663	-	none	Average (of DGAC and PCC)
	Automobiles	1163	673	661	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	2	2	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction							
	Total	1176	673	645	-	none	Average (of DGAC and PCC)
	Automobiles	1152	660	632	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	24	13	13	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1131	665	635	-	none	Average (of DGAC and PCC)
	Automobiles	1108	652	622	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	23	13	13	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction							
	Total	1021	640	681	-	none	Average (of DGAC and PCC)
	Automobiles	1021	640	681	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	9	24	53	-	none	Average (of DGAC and PCC)
	Automobiles	9	24	52	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	9	12	48	-	none	Average (of DGAC and PCC)
	Automobiles	9	12	47	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	115	65	78	-	none	Average (of DGAC and PCC)
	Automobiles	113	64	76	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	2	1	2	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	77	75	63	-	none	Average (of DGAC and PCC)
	Automobiles	75	74	62	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		

Existing Roadway Traffic Noise Levels - Weekday

Station	Vehicles type	Traffic values AM Veh/h	midday Veh/h	PM Veh/h	Speed km/h	Control	Road surface
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	549	300	323	-	none	Average (of DGAC and PCC)
	Automobiles	538	294	317	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	11	6	6	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction							
	Total	382	264	352	-	none	Average (of DGAC and PCC)
	Automobiles	374	259	345	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	8	5	7	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction							
	Total	843	524	556	-	none	Average (of DGAC and PCC)
	Automobiles	826	514	545	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	17	10	11	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction							
	Total	104	82	82	-	none	Average (of DGAC and PCC)
	Automobiles	102	80	80	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	2	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction							
	Total	352	260	258	-	none	Average (of DGAC and PCC)
	Automobiles	345	255	253	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	7	5	5	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	324	157	245	-	none	Average (of DGAC and PCC)
	Automobiles	318	154	240	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	6	3	5	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1751	638	739	-	none	Average (of DGAC and PCC)
	Automobiles	1716	625	724	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	35	13	15	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1942	675	687	-	none	Average (of DGAC and PCC)
	Automobiles	1903	662	673	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	39	14	14	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Ogden Dr WB T Traffic direction: In entry direction							
	Total	1926	925	741	-	none	Average (of DGAC and PCC)
	Automobiles	1887	907	726	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	39	19	15	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Ogden Dr EB T Traffic direction: In entry direction							
	Total	500	768	910	-	none	Average (of DGAC and PCC)
	Automobiles	490	753	892	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	10	15	18	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	541	573	943	-	none	Average (of DGAC and PCC)
	Automobiles	530	562	924	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	11	11	19	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	607	610	1167	-	none	Average (of DGAC and PCC)
	Automobiles	595	598	1144	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	12	12	23	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		

Existing Roadway Traffic Noise Levels - Weekday

Station	Vehicles type	Traffic values AM Veh/h	midday Veh/h	PM Veh/h	Speed km/h	Control	Road surface
Curson Avenue-6th Street NB W Traffic direction: In entry direction							
	Total	166	129	213	-	none	Average (of DGAC and PCC)
	Automobiles	163	126	209	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	3	3	4	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-6th Street SB W Traffic direction: In entry direction							
	Total	269	122	171	-	none	Average (of DGAC and PCC)
	Automobiles	264	120	168	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	5	2	3	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street SB W Traffic direction: In entry direction							
	Total	90	24	37	-	none	Average (of DGAC and PCC)
	Automobiles	88	24	36	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street NB W Traffic direction: In entry direction							
	Total	26	19	45	-	none	Average (of DGAC and PCC)
	Automobiles	25	19	44	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction							
	Total	486	346	434	-	none	Average (of DGAC and PCC)
	Automobiles	476	339	425	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	10	7	9	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street EB S Traffic direction: In entry direction							
	Total	36	61	33	-	none	Average (of DGAC and PCC)
	Automobiles	35	60	32	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	1	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street NB E Traffic direction: In entry direction							
	Total	8	76	114	-	none	Average (of DGAC and PCC)
	Automobiles	8	74	112	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	2	2	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		

Roadway Segment		Adjacent Land Use	Leq dBA	Daytime dBA	Evening dBA	Nightime dBA	CNEL dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	71.8	70.0	67.0	62.3	71.3
	Between Ogden Dr. and Curson Ave.	Residential	72.2	70.4	67.4	62.7	71.7
	East of Curson Ave.	Residential	71.5	69.7	66.7	62.0	71.0
Ogden Drive	North of 6th St.	Residential	63.1	61.3	58.3	53.6	62.6
	South of Wilshire Blvd.	Commercial	63.4	61.6	58.6	53.9	62.9
Spaulding Avenue	South of Wilshire Blvd.	Commercial	65.4	63.6	60.6	55.9	64.9
Curson Avenue	North of 6th St.	Residential	67.8	66.0	63.0	58.3	67.3
	Between 6th St. and Wilshire Blvd.	Residential	68.6	66.8	63.8	59.1	68.1
	South of Wilshire Blvd.	Residential	71.5	69.7	66.7	62.0	71.0
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	68.8	67.0	64.0	59.3	68.3
	Between Ogden Dr. and Spaulding Ave.	Commercial	67.7	65.9	62.9	58.2	67.2
	Between Spaulding. and Curson Ave.	Museum	69.9	68.1	65.1	60.4	69.4
	East of Curson Ave.	Commercial	68.3	66.5	63.5	58.8	67.8

Existing Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction					
	Total	826	-	none	Average (of DGAC and PCC)
	Automobiles	809	56		
	Medium trucks	-	-		
	Heavy trucks	17	56		
	Buses	-	-		
	Motorcycles	-	-		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction					
	Total	844	-	none	Average (of DGAC and PCC)
	Automobiles	827	56		
	Medium trucks	-	56		
	Heavy trucks	17	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction					
	Total	809	-	none	Average (of DGAC and PCC)
	Automobiles	793	56		
	Medium trucks	-	56		
	Heavy trucks	16	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction					
	Total	812	-	none	Average (of DGAC and PCC)
	Automobiles	812	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction					
	Total	629	-	none	Average (of DGAC and PCC)
	Automobiles	628	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction					
	Total	627	-	none	Average (of DGAC and PCC)
	Automobiles	614	56		
	Medium trucks	-	56		
	Heavy trucks	13	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction					
	Total	619	-	none	Average (of DGAC and PCC)
	Automobiles	607	56		
	Medium trucks	-	56		
	Heavy trucks	12	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction					
	Total	543	-	none	Average (of DGAC and PCC)
	Automobiles	543	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	39	-	none	Average (of DGAC and PCC)
	Automobiles	38	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	19	-	none	Average (of DGAC and PCC)
	Automobiles	19	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	99	-	none	Average (of DGAC and PCC)
	Automobiles	97	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	2	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	130	-	none	Average (of DGAC and PCC)
	Automobiles	127	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		

Existing Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	358	-	none	Average (of DGAC and PCC)
	Automobiles	351	56		
	Medium trucks	-	56		
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction					
	Total	354	-	none	Average (of DGAC and PCC)
	Automobiles	347	56		
	Medium trucks	-	56		
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction					
	Total	448	-	none	Average (of DGAC and PCC)
	Automobiles	439	56		
	Medium trucks	-	56		
	Heavy trucks	9	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction					
	Total	64	-	none	Average (of DGAC and PCC)
	Automobiles	63	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction					
	Total	361	-	none	Average (of DGAC and PCC)
	Automobiles	354	56		
	Medium trucks	-	56		
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	233	-	none	Average (of DGAC and PCC)
	Automobiles	228	56		
	Medium trucks	-	56		
	Heavy trucks	5	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	642	-	none	Average (of DGAC and PCC)
	Automobiles	629	56		
	Medium trucks	-	56		
	Heavy trucks	13	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	617	-	none	Average (of DGAC and PCC)
	Automobiles	605	56		
	Medium trucks	-	56		
	Heavy trucks	12	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Ogden Dr WB T Traffic direction: In entry direction					
	Total	1073	-	none	Average (of DGAC and PCC)
	Automobiles	1052	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Ogden Dr EB T Traffic direction: In entry direction					
	Total	956	-	none	Average (of DGAC and PCC)
	Automobiles	937	56		
	Medium trucks	-	56		
	Heavy trucks	19	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	534	-	none	Average (of DGAC and PCC)
	Automobiles	523	56		
	Medium trucks	-	56		
	Heavy trucks	11	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	553	-	none	Average (of DGAC and PCC)
	Automobiles	542	56		
	Medium trucks	-	56		
	Heavy trucks	11	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		

Existing Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Curson Avenue-6th Street NB W Traffic direction: In entry direction					
	Total	138	-	none	Average (of DGAC and PCC)
	Automobiles	135	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-6th Street SB W Traffic direction: In entry direction					
	Total	134	-	none	Average (of DGAC and PCC)
	Automobiles	131	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street SB W Traffic direction: In entry direction					
	Total	51	-	none	Average (of DGAC and PCC)
	Automobiles	50	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street NB W Traffic direction: In entry direction					
	Total	30	-	none	Average (of DGAC and PCC)
	Automobiles	29	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction					
	Total	418	-	none	Average (of DGAC and PCC)
	Automobiles	410	56		
	Medium trucks	-	56		
	Heavy trucks	8	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street EB S Traffic direction: In entry direction					
	Total	199	-	none	Average (of DGAC and PCC)
	Automobiles	195	56		
	Medium trucks	-	56		
	Heavy trucks	4	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street NB E Traffic direction: In entry direction					
	Total	145	-	none	Average (of DGAC and PCC)
	Automobiles	142	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nightime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	70.3	68.5	65.5	60.8	69.8
	Between Ogden Dr. and Curson Ave.	Residential	68.2	66.4	63.4	58.7	67.7
	East of Curson Ave.	Residential	68.2	66.4	63.4	58.7	67.7
Ogden Drive	North of 6th St.	Residential	61.3	59.5	56.5	51.8	60.8
	South of Wilshire Blvd.	Commercial	61.3	59.5	56.5	51.8	60.8
Spaulding Avenue	South of Wilshire Blvd.	Commercial	63.7	61.9	58.9	54.2	63.2
Curson Avenue	North of 6th St.	Residential	65.3	63.5	60.5	55.8	64.8
	Between 6th St. and Wilshire Blvd.	Residential	68.1	66.3	63.3	58.6	67.6
	South of Wilshire Blvd.	Residential	69.6	67.8	64.8	60.1	69.1
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	66.5	64.7	61.7	57.0	66.0
	Between Ogden Dr. and Spaulding Ave.	Commercial	65.6	63.8	60.8	56.1	65.1
	Between Spaulding. and Curson Ave.	Museum	67.5	65.7	62.7	58.0	67.0
	East of Curson Ave.	Commercial	66.3	64.5	61.5	56.8	65.8

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	168	Dozer	0	40	50	82
Excavator	168	Excavator	1	40	50	81
Concrete Saw	168	Concrete Saw	0	20	50	90
Dozer	1206	Dozer	1	40	50	82
Excavator	1206	Excavator	1	40	50	81
Concrete Saw	1206	Concrete Saw	1	20	50	90
Dozer	540	Dozer	1	40	50	82
Excavator	540	Excavator	1	40	50	81
Concrete Saw	540	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	61.5	65.5
Concrete Saw		
Dozer	45.4	49.4
Excavator	44.4	48.4
Concrete Saw	50.4	57.4
Dozer	52.4	56.3
Excavator	51.4	55.3
Concrete Saw		
Total [1]	**62.8**	**65.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	68.8	69.6	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	370	Dozer	0	40	50	82
Excavator	370	Excavator	1	40	50	81
Concrete Saw	370	Concrete Saw	0	20	50	90
Dozer	735	Dozer	1	40	50	82
Excavator	735	Excavator	1	40	50	81
Concrete Saw	735	Concrete Saw	1	20	50	90
Dozer	330	Dozer	1	40	50	82
Excavator	300	Excavator	1	40	50	81
Concrete Saw	300	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	54.6	58.6
Concrete Saw		
Dozer	49.7	53.7
Excavator	48.7	52.7
Concrete Saw	54.7	61.7
Dozer	56.6	60.6
Excavator	56.5	60.4
Concrete Saw		
Total [1]	**62.2**	**61.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	67.2	67.0	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	245	Dozer	0	40	50	82
Excavator	245	Excavator	1	40	50	81
Concrete Saw	245	Concrete Saw	0	20	50	90
Dozer	422	Dozer	1	40	50	82
Excavator	422	Excavator	1	40	50	81
Concrete Saw	422	Concrete Saw	1	20	50	90
Dozer	1010	Dozer	1	40	50	82
Excavator	1010	Excavator	1	40	50	81
Concrete Saw	1010	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	58.2	62.2
Concrete Saw		
Dozer	54.5	58.5
Excavator	53.5	57.5
Concrete Saw	59.5	66.5
Dozer	46.9	50.9
Excavator	45.9	49.9
Concrete Saw		
Total [1]	**63.3**	**66.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	75.2	75.5	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	137	Dozer	0	40	50	82
Excavator	137	Excavator	1	40	50	81
Concrete Saw	137	Concrete Saw	0	20	50	90
Dozer	265	Dozer	1	40	50	82
Excavator	265	Excavator	1	40	50	81
Concrete Saw	265	Concrete Saw	1	20	50	90
Dozer	1002	Dozer	1	40	50	82
Excavator	1002	Excavator	1	40	50	81
Concrete Saw	1002	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	63.3	67.2
Concrete Saw		
Dozer	58.5	62.5
Excavator	57.5	61.5
Concrete Saw	63.5	70.5
Dozer	47.0	51.0
Excavator	46.0	50.0
Concrete Saw		
Total [1]	**67.6**	**70.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	68.8	71.2	62.8	67.8	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	135	Dozer	0	40	50	82
Excavator	135	Excavator	1	40	50	81
Concrete Saw	135	Concrete Saw	0	20	50	90
Dozer	405	Dozer	1	40	50	82
Excavator	405	Excavator	1	40	50	81
Concrete Saw	405	Concrete Saw	1	20	50	90
Dozer	1055	Dozer	1	40	50	82
Excavator	1055	Excavator	1	40	50	81
Concrete Saw	1055	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	63.4	67.4
Concrete Saw		
Dozer	54.9	58.8
Excavator	53.9	57.8
Concrete Saw	59.8	66.8
Dozer	46.5	50.5
Excavator	45.5	49.5
Concrete Saw		
Total [1]	**65.8**	**67.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	68.3	69.3	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	133	Dozer	0	40	50	82
Excavator	133	Excavator	1	40	50	81
Concrete Saw	133	Concrete Saw	0	20	50	90
Dozer	668	Dozer	1	40	50	82
Excavator	668	Excavator	1	40	50	81
Concrete Saw	668	Concrete Saw	1	20	50	90
Dozer	1108	Dozer	1	40	50	82
Excavator	1108	Excavator	1	40	50	81
Concrete Saw	1108	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	63.5	67.5
Concrete Saw		
Dozer	50.5	54.5
Excavator	49.5	53.5
Concrete Saw	55.5	62.5
Dozer	46.1	50.1
Excavator	45.1	49.1
Concrete Saw		
Total [1]	**64.6**	**67.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	70.9	71.8	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	116	Dozer	0	40	50	82
Excavator	116	Excavator	1	40	50	81
Concrete Saw	116	Concrete Saw	0	20	50	90
Dozer	678	Dozer	1	40	50	82
Excavator	678	Excavator	1	40	50	81
Concrete Saw	678	Concrete Saw	1	20	50	90
Dozer	815	Dozer	1	40	50	82
Excavator	815	Excavator	1	40	50	81
Concrete Saw	815	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	64.7	68.7
Concrete Saw		
Dozer	50.4	54.4
Excavator	49.4	53.4
Concrete Saw	55.4	62.4
Dozer	48.8	52.8
Excavator	47.8	51.8
Concrete Saw		
Total [1]	**65.6**	**68.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	75.1	75.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	556	Dozer	0	40	50	82
Excavator	556	Excavator	1	40	50	81
Concrete Saw	556	Concrete Saw	0	20	50	90
Dozer	1223	Dozer	1	40	50	82
Excavator	1223	Excavator	1	40	50	81
Concrete Saw	1223	Concrete Saw	1	20	50	90
Dozer	418	Dozer	1	40	50	82
Excavator	418	Excavator	1	40	50	81
Concrete Saw	418	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	51.1	55.1
Concrete Saw		
Dozer	45.3	49.2
Excavator	44.3	48.2
Concrete Saw	50.2	57.2
Dozer	54.6	58.6
Excavator	53.6	57.6
Concrete Saw		
Total [1]	**59.1**	**58.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.7	67.7	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	168	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	168	Backhoe	1	40	50	78
Rubber Tired Dozers	1206	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1206	Backhoe	2	40	50	78
Rubber Tired Dozers	540	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	540	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	62.5	66.5
Backhoe	58.5	62.5
Dozer	45.4	54.4
Backhoe	44.4	53.4
Dozer	52.4	61.3
Backhoe	48.4	57.3
Total [1]	**64.4**	**66.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	69.2	70.0	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	95	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	95	Backhoe	1	40	50	78
Rubber Tired Dozers	735	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	735	Backhoe	2	40	50	78
Rubber Tired Dozers	330	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	330	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	67.4	71.4
Backhoe	63.4	67.4
Dozer	49.7	58.7
Backhoe	48.7	57.7
Dozer	56.6	65.6
Backhoe	52.6	61.6
Total [1]	**69.3**	**71.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	70.8	72.4	65.5	70.5	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	146	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	146	Backhoe	1	40	50	78
Rubber Tired Dozers	422	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	422	Backhoe	2	40	50	78
Rubber Tired Dozers	1010	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1010	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	63.7	67.7
Backhoe	59.7	63.7
Dozer	54.5	63.5
Backhoe	53.5	62.5
Dozer	46.9	55.9
Backhoe	42.9	51.9
Total [1]	**65.9**	**67.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	75.4	75.7	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	102	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	102	Backhoe	1	40	50	78
Rubber Tired Dozers	265	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	265	Backhoe	2	40	50	78
Rubber Tired Dozers	1002	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1002	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	66.8	70.8
Backhoe	62.8	66.8
Dozer	58.5	67.5
Backhoe	57.5	66.5
Dozer	47.0	56.0
Backhoe	43.0	52.0
Total [1]	**69.1**	**70.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	70.0	71.4	62.8	67.8	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	85	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	85	Backhoe	1	40	50	78
Rubber Tired Dozers	405	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	405	Backhoe	2	40	50	78
Rubber Tired Dozers	1055	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1055	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	68.4	72.4
Backhoe	64.4	68.4
Dozer	54.9	63.8
Backhoe	53.9	62.8
Dozer	46.5	55.5
Backhoe	42.5	51.5
Total [1]	**70.1**	**72.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	71.2	73.1	64.8	69.8	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	133	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	133	Backhoe	1	40	50	78
Rubber Tired Dozers	668	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	668	Backhoe	2	40	50	78
Rubber Tired Dozers	1108	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1108	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	64.5	68.5
Backhoe	60.5	64.5
Dozer	50.5	59.5
Backhoe	49.5	58.5
Dozer	46.1	55.1
Backhoe	42.1	51.1
Total [1]	**66.3**	**68.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	71.4	72.2	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	116	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	116	Backhoe	1	40	50	78
Rubber Tired Dozers	678	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	678	Backhoe	2	40	50	78
Rubber Tired Dozers	815	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	815	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	65.7	69.7
Backhoe	61.7	65.7
Dozer	50.4	59.4
Backhoe	49.4	58.4
Dozer	48.8	57.8
Backhoe	44.8	53.8
Total [1]	**67.4**	**69.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	75.4	75.8	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	683	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	683	Backhoe	1	40	50	78
Rubber Tired Dozers	1223	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1223	Backhoe	2	40	50	78
Rubber Tired Dozers	418	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	418	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	50.3	54.3
Backhoe	46.3	50.3
Dozer	45.3	54.2
Backhoe	44.3	53.2
Dozer	54.6	63.6
Backhoe	50.6	59.6
Total [1]	**57.9**	**63.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.6	68.7	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	168	Grader	0	40	50	85
Excavators	168	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	168	Backhoe	1	40	50	78
Scrapers	168	Scraper	1	40	50	84
Rubber Tired Dozers	168	Dozer	0	40	50	82
Graders	1206	Grader	1	40	50	85
Excavators	1206	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	1206	Backhoe	0	40	50	78
Scrapers	1206	Scraper	0	40	50	84
Rubber Tired Dozers	1206	Dozer	1	40	50	82
Graders	540	Grader	0	40	50	85
Excavators	540	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	540	Backhoe	1	40	50	78
Scrapers	540	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	61.5	65.5
Backhoe	58.5	62.5
Scraper	64.5	68.5
Dozer		
Grader	48.4	52.4
Excavator		
Backhoe		
Scraper		
Dozer	45.4	49.4
Grader		
Excavator	51.4	55.3
Backhoe	48.4	52.3
Scraper	54.4	58.3
Total [1]	**67.4**	**68.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	70.5	71.0	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	95	Grader	0	40	50	85
Excavators	95	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	95	Backhoe	1	40	50	78
Scrapers	95	Scraper	1	40	50	84
Rubber Tired Dozers	95	Dozer	0	40	50	82
Graders	735	Grader	1	40	50	85
Excavators	735	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	735	Backhoe	0	40	50	78
Scrapers	735	Scraper	0	40	50	84
Rubber Tired Dozers	735	Dozer	1	40	50	82
Graders	330	Grader	0	40	50	85
Excavators	330	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	330	Backhoe	1	40	50	78
Scrapers	300	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	66.4	70.4
Backhoe	63.4	67.4
Scraper	69.4	73.4
Dozer		
Grader	52.7	56.7
Excavator		
Backhoe		
Scraper		
Dozer	49.7	53.7
Grader		
Excavator	55.6	59.6
Backhoe	52.6	56.6
Scraper	59.5	63.4
Total [1]	**72.3**	**73.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	73.2	74.1	65.5	70.5	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	146	Grader	0	40	50	85
Excavators	146	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	146	Backhoe	1	40	50	78
Scrapers	146	Scraper	1	40	50	84
Rubber Tired Dozers	146	Dozer	0	40	50	82
Graders	422	Grader	1	40	50	85
Excavators	422	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	422	Backhoe	0	40	50	78
Scrapers	422	Scraper	0	40	50	84
Rubber Tired Dozers	422	Dozer	1	40	50	82
Graders	1010	Grader	0	40	50	85
Excavators	1010	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1010	Backhoe	1	40	50	78
Scrapers	1010	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	62.7	66.7
Backhoe	59.7	63.7
Scraper	65.7	69.7
Dozer		
Grader	57.5	61.5
Excavator		
Backhoe		
Scraper		
Dozer	54.5	58.5
Grader		
Excavator	45.9	49.9
Backhoe	42.9	46.9
Scraper	48.9	52.9
Total [1]	**68.8**	**69.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	75.8	76.0	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	102	Grader	0	40	50	85
Excavators	102	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	102	Backhoe	1	40	50	78
Scrapers	102	Scraper	1	40	50	84
Rubber Tired Dozers	102	Dozer	0	40	50	82
Graders	265	Grader	1	40	50	85
Excavators	265	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	265	Backhoe	0	40	50	78
Scrapers	265	Scraper	0	40	50	84
Rubber Tired Dozers	265	Dozer	1	40	50	82
Graders	1002	Grader	0	40	50	85
Excavators	1002	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1002	Backhoe	1	40	50	78
Scrapers	1002	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	65.8	69.8
Backhoe	62.8	66.8
Scraper	68.8	72.8
Dozer		
Grader	61.5	65.5
Excavator		
Backhoe		
Scraper		
Dozer	58.5	62.5
Grader		
Excavator	46.0	50.0
Backhoe	43.0	47.0
Scraper	49.0	53.0
Total [1]	**71.9**	**72.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	72.4	73.2	62.8	67.8	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	85	Grader	0	40	50	85
Excavators	85	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	85	Backhoe	1	40	50	78
Scrapers	85	Scraper	1	40	50	84
Rubber Tired Dozers	85	Dozer	0	40	50	82
Graders	405	Grader	1	40	50	85
Excavators	405	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	405	Backhoe	0	40	50	78
Scrapers	405	Scraper	0	40	50	84
Rubber Tired Dozers	405	Dozer	1	40	50	82
Graders	1055	Grader	0	40	50	85
Excavators	1055	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1055	Backhoe	1	40	50	78
Scrapers	1055	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	67.4	71.4
Backhoe	64.4	68.4
Scraper	70.4	74.4
Dozer		
Grader	57.9	61.8
Excavator		
Backhoe		
Scraper		
Dozer	54.9	58.8
Grader		
Excavator	45.5	49.5
Backhoe	42.5	46.5
Scraper	48.5	52.5
Total [1]	**73.1**	**74.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	73.7	74.8	64.8	69.8	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	133	Grader	0	40	50	85
Excavators	133	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	133	Backhoe	1	40	50	78
Scrapers	133	Scraper	1	40	50	84
Rubber Tired Dozers	133	Dozer	0	40	50	82
Graders	668	Grader	1	40	50	85
Excavators	668	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	668	Backhoe	0	40	50	78
Scrapers	668	Scraper	0	40	50	84
Rubber Tired Dozers	668	Dozer	1	40	50	82
Graders	1108	Grader	0	40	50	85
Excavators	1108	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1108	Backhoe	1	40	50	78
Scrapers	1108	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	63.5	67.5
Backhoe	60.5	64.5
Scraper	66.5	70.5
Dozer		
Grader	53.5	57.5
Excavator		
Backhoe		
Scraper		
Dozer	50.5	54.5
Grader		
Excavator	45.1	49.1
Backhoe	42.1	46.1
Scraper	48.1	52.1
Total [1]	**69.2**	**70.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	72.5	73.2	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	116	Grader	0	40	50	85
Excavators	116	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	116	Backhoe	1	40	50	78
Scrapers	116	Scraper	1	40	50	84
Rubber Tired Dozers	116	Dozer	0	40	50	82
Graders	678	Grader	1	40	50	85
Excavators	678	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	678	Backhoe	0	40	50	78
Scrapers	678	Scraper	0	40	50	84
Rubber Tired Dozers	678	Dozer	1	40	50	82
Graders	815	Grader	0	40	50	85
Excavators	815	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	815	Backhoe	1	40	50	78
Scrapers	815	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	64.7	68.7
Backhoe	61.7	65.7
Scraper	67.7	71.7
Dozer		
Grader	53.4	57.4
Excavator		
Backhoe		
Scraper		
Dozer	50.4	54.4
Grader		
Excavator	47.8	51.8
Backhoe	44.8	48.8
Scraper	50.8	54.8
Total [1]	**70.4**	**71.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	76.0	76.4	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	683	Grader	0	40	50	85
Excavators	683	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	683	Backhoe	1	40	50	78
Scrapers	683	Scraper	1	40	50	84
Rubber Tired Dozers	683	Dozer	0	40	50	82
Graders	1223	Grader	1	40	50	85
Excavators	1223	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	1223	Backhoe	0	40	50	78
Scrapers	1223	Scraper	0	40	50	84
Rubber Tired Dozers	1223	Dozer	1	40	50	82
Graders	418	Grader	0	40	50	85
Excavators	418	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	418	Backhoe	1	40	50	78
Scrapers	418	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Le Dozer

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	49.3	53.3
Backhoe	46.3	50.3
Scraper	52.3	56.3
Dozer		
Grader	48.3	52.2
Excavator		
Backhoe		
Scraper		
Dozer	45.3	49.2
Grader		
Excavator	53.6	57.6
Backhoe	50.6	54.6
Scraper	56.6	60.6
Total [1]	**60.8**	**60.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	68.0	68.0	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	820	Front End Loader	1	40	50	79
Generator Sets	820	Generator	0	50	50	81
Cranes	820	Crane	0	16	50	81
Welders	820	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	820	Backhoe	1	40	50	78
Forklifts	959	Front End Loader	1	40	50	79
Generator Sets	959	Generator	1	50	50	81
Cranes	959	Crane	1	16	50	81
Welders	959	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	959	Backhoe	1	40	50	78
Forklifts	540	Front End Loader	1	40	50	79
Generator Sets	540	Generator	0	50	50	81
Cranes	540	Crane	0	16	50	81
Tractors/Loaders/Backh	540	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	45.7	49.7
Generator		
Crane		
Welder/Torch		
Backhoe	44.7	48.7
Front End Loader	44.4	48.3
Generator	47.3	50.3
Crane	42.4	50.3
Welder/Torch	39.4	43.3
Backhoe	43.4	47.3
Front End Loader	49.4	53.3
Generator		
Crane		
Backhoe	48.4	52.3
Total [1]	**55.4**	**53.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.8	67.7	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	271	Front End Loader	1	40	50	79
Generator Sets	271	Generator	0	50	50	81
Cranes	271	Crane	0	16	50	81
Welders	271	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	271	Backhoe	1	40	50	78
Forklifts	735	Front End Loader	1	40	50	79
Generator Sets	735	Generator	1	50	50	81
Cranes	735	Crane	1	16	50	81
Welders	735	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	735	Backhoe	1	40	50	78
Forklifts	518	Front End Loader	1	40	50	79
Generator Sets	518	Generator	0	50	50	81
Cranes	518	Crane	0	16	50	81
Tractors/Loaders/Backh	518	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	55.3	59.3
Generator		
Crane		
Welder/Torch		
Backhoe	54.3	58.3
Front End Loader	46.7	50.7
Generator	49.6	52.7
Crane	44.7	52.7
Welder/Torch	41.7	45.7
Backhoe	45.7	49.7
Front End Loader	49.7	53.7
Generator		
Crane		
Backhoe	48.7	52.7
Total [1]	**60.0**	**59.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	66.6	66.4	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	683	Front End Loader	1	40	50	79
Generator Sets	683	Generator	0	50	50	81
Cranes	683	Crane	0	16	50	81
Welders	683	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	683	Backhoe	1	40	50	78
Forklifts	422	Front End Loader	1	40	50	79
Generator Sets	422	Generator	1	50	50	81
Cranes	422	Crane	1	16	50	81
Welders	422	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	422	Backhoe	1	40	50	78
Forklifts	565	Front End Loader	1	40	50	79
Generator Sets	565	Generator	0	50	50	81
Cranes	565	Crane	0	16	50	81
Tractors/Loaders/Backh	565	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	47.3	51.3
Generator		
Crane		
Welder/Torch		
Backhoe	46.3	50.3
Front End Loader	51.5	55.5
Generator	54.5	57.5
Crane	49.5	57.5
Welder/Torch	46.5	50.5
Backhoe	50.5	54.5
Front End Loader	49.0	52.9
Generator		
Crane		
Backhoe	48.0	51.9
Total [1]	**59.6**	**57.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	75.0	75.0	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	735	Front End Loader	1	40	50	79
Generator Sets	735	Generator	0	50	50	81
Cranes	735	Crane	0	16	50	81
Welders	735	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	735	Backhoe	1	40	50	78
Forklifts	265	Front End Loader	1	40	50	79
Generator Sets	265	Generator	1	50	50	81
Cranes	265	Crane	1	16	50	81
Welders	265	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	265	Backhoe	1	40	50	78
Forklifts	518	Front End Loader	1	40	50	79
Generator Sets	518	Generator	0	50	50	81
Cranes	518	Crane	0	16	50	81
Tractors/Loaders/Backh	518	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	46.7	50.7
Generator		
Crane		
Welder/Torch		
Backhoe	45.7	49.7
Front End Loader	55.5	59.5
Generator	58.5	61.5
Crane	53.6	61.5
Welder/Torch	50.5	54.5
Backhoe	54.5	58.5
Front End Loader	49.7	53.7
Generator		
Crane		
Backhoe	48.7	52.7
Total [1]	**62.9**	**61.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	65.9	65.2	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	890	Front End Loader	1	40	50	79
Generator Sets	890	Generator	0	50	50	81
Cranes	890	Crane	0	16	50	81
Welders	890	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	890	Backhoe	1	40	50	78
Forklifts	405	Front End Loader	1	40	50	79
Generator Sets	405	Generator	1	50	50	81
Cranes	405	Crane	1	16	50	81
Welders	405	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	405	Backhoe	1	40	50	78
Forklifts	636	Front End Loader	1	40	50	79
Generator Sets	636	Generator	0	50	50	81
Cranes	636	Crane	0	16	50	81
Tractors/Loaders/Backh	636	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	45.0	49.0
Generator		
Crane		
Welder/Torch		
Backhoe	44.0	48.0
Front End Loader	51.9	55.8
Generator	54.8	57.8
Crane	49.9	57.8
Welder/Torch	46.9	50.8
Backhoe	50.9	54.8
Front End Loader	47.9	51.9
Generator		
Crane		
Backhoe	46.9	50.9
Total [1]	**59.5**	**57.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	65.9	65.6	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	1038	Front End Loader	1	40	50	79
Generator Sets	1038	Generator	0	50	50	81
Cranes	1038	Crane	0	16	50	81
Welders	1038	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	1038	Backhoe	1	40	50	78
Forklifts	668	Front End Loader	1	40	50	79
Generator Sets	668	Generator	1	50	50	81
Cranes	668	Crane	1	16	50	81
Welders	668	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	668	Backhoe	1	40	50	78
Forklifts	798	Front End Loader	1	40	50	79
Generator Sets	798	Generator	0	50	50	81
Cranes	798	Crane	0	16	50	81
Tractors/Loaders/Backh	798	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	43.7	47.7
Generator		
Crane		
Welder/Torch		
Backhoe	42.7	46.7
Front End Loader	47.5	51.5
Generator	50.5	53.5
Crane	45.5	53.5
Welder/Torch	42.5	46.5
Backhoe	46.5	50.5
Front End Loader	46.0	49.9
Generator		
Crane		
Backhoe	45.0	48.9
Total [1]	**55.8**	**53.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	70.0	69.9	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	805	Front End Loader	1	40	50	79
Generator Sets	805	Generator	0	50	50	81
Cranes	805	Crane	0	16	50	81
Welders	805	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	805	Backhoe	1	40	50	78
Forklifts	678	Front End Loader	1	40	50	79
Generator Sets	678	Generator	1	50	50	81
Cranes	678	Crane	1	16	50	81
Welders	678	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	678	Backhoe	1	40	50	78
Forklifts	671	Front End Loader	1	40	50	79
Generator Sets	671	Generator	0	50	50	81
Cranes	671	Crane	0	16	50	81
Tractors/Loaders/Backh	671	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	45.9	49.9
Generator		
Crane		
Welder/Torch		
Backhoe	44.9	48.9
Front End Loader	47.4	51.4
Generator	50.3	53.4
Crane	45.4	53.4
Welder/Torch	42.4	46.4
Backhoe	46.4	50.4
Front End Loader	47.5	51.4
Generator		
Crane		
Backhoe	46.5	50.4
Total [1]	**56.3**	**53.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.7	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	660	Front End Loader	1	40	50	79
Generator Sets	660	Generator	0	50	50	81
Cranes	660	Crane	0	16	50	81
Welders	660	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	660	Backhoe	1	40	50	78
Forklifts	1223	Front End Loader	1	40	50	79
Generator Sets	1223	Generator	1	50	50	81
Cranes	1223	Crane	1	16	50	81
Welders	1223	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	1223	Backhoe	1	40	50	78
Forklifts	1031	Front End Loader	1	40	50	79
Generator Sets	1031	Generator	0	50	50	81
Cranes	1031	Crane	0	16	50	81
Tractors/Loaders/Backh	1031	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	47.6	51.6
Generator		
Crane		
Welder/Torch		
Backhoe	46.6	50.6
Front End Loader	42.3	46.2
Generator	45.2	48.2
Crane	40.3	48.2
Welder/Torch	37.3	41.2
Backhoe	41.3	45.2
Front End Loader	43.7	47.7
Generator		
Crane		
Backhoe	42.7	46.7
Total [1]	**53.5**	**51.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.3	67.2	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	1094	Paver	2	50	50	77
Roller	1094	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	45.2	48.2
Roller	44.2	51.2
Total [1]	**47.7**	**51.2**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.5	67.6	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	622	Paver	2	50	50	77
Roller	622	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	50.1	53.1
Roller	49.1	56.1
Total [1]	**52.7**	**56.1**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	65.7	66.0	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	338	Paver	2	50	50	77
Roller	338	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	55.4	58.4
Roller	54.4	61.4
Total [1]	**57.9**	**61.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	75.0	75.1	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	346	Paver	2	50	50	77
Roller	346	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	55.2	58.2
Roller	54.2	61.2
Total [1]	**57.7**	**61.2**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	64.0	65.1	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	571	Paver	2	50	50	77
Roller	571	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	50.8	53.9
Roller	49.9	56.9
Total [1]	**53.4**	**56.9**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	65.1	65.4	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	836	Paver	2	50	50	77
Roller	836	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	47.5	50.5
Roller	46.6	53.5
Total [1]	**50.1**	**53.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	69.8	69.9	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	824	Paver	2	50	50	77
Roller	824	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	47.7	50.7
Roller	46.7	53.7
Total [1]	**50.2**	**53.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.6	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	1264	Paver	2	50	50	77
Roller	1264	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Paver	43.9	47.0
Roller	43.0	50.0
Total [1]	**46.5**	**50.0**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.1	67.2	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	540	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	48.4	52.3
Total [1]	**48.4**	**52.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.6	67.6	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	271	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	54.3	58.3
Total [1]	**54.3**	**58.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	65.8	66.3	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	422	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	50.5	54.5
Total [1]	**50.5**	**54.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	74.9	74.9	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	265	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	54.5	58.5
Total [1]	**54.5**	**58.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	63.4	64.2	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	405	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	50.9	54.8
Total [1]	**50.9**	**54.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	65.0	65.2	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	668	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	46.5	50.5
Total [1]	**46.5**	**50.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	69.8	69.9	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	671	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	46.5	50.4
Total [1]	**46.5**	**50.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.6	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	660	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	46.6	50.6
Total [1]	**46.6**	**50.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.1	67.2	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	168	Dozer	0	40	50	82
Excavator	168	Excavator	1	40	50	81
Concrete Saw	168	Concrete Saw	0	20	50	90
Dozer	1206	Dozer	1	40	50	82
Excavator	1206	Excavator	1	40	50	81
Concrete Saw	1206	Concrete Saw	1	20	50	90
Dozer	540	Dozer	1	40	50	82
Excavator	540	Excavator	1	40	50	81
Concrete Saw	540	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	51.5	55.5
Concrete Saw		
Dozer	35.4	39.4
Excavator	34.4	38.4
Concrete Saw	40.4	47.4
Dozer	42.4	46.3
Excavator	41.4	45.3
Concrete Saw		
Total [1]	**52.8**	**55.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.6	67.8	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	370	Dozer	0	40	50	82
Excavator	370	Excavator	1	40	50	81
Concrete Saw	370	Concrete Saw	0	20	50	90
Dozer	735	Dozer	1	40	50	82
Excavator	735	Excavator	1	40	50	81
Concrete Saw	735	Concrete Saw	1	20	50	90
Dozer	330	Dozer	1	40	50	82
Excavator	300	Excavator	1	40	50	81
Concrete Saw	300	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	44.6	48.6
Concrete Saw		
Dozer	39.7	43.7
Excavator	38.7	42.7
Concrete Saw	44.7	51.7
Dozer	46.6	50.6
Excavator	46.5	50.4
Concrete Saw		
Total [1]	**52.2**	**51.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	65.7	65.7	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	245	Dozer	0	40	50	82
Excavator	245	Excavator	1	40	50	81
Concrete Saw	245	Concrete Saw	0	20	50	90
Dozer	422	Dozer	1	40	50	82
Excavator	422	Excavator	1	40	50	81
Concrete Saw	422	Concrete Saw	1	20	50	90
Dozer	1010	Dozer	1	40	50	82
Excavator	1010	Excavator	1	40	50	81
Concrete Saw	1010	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	48.2	52.2
Concrete Saw		
Dozer	44.5	48.5
Excavator	43.5	47.5
Concrete Saw	49.5	56.5
Dozer	36.9	40.9
Excavator	35.9	39.9
Concrete Saw		
Total [1]	**53.3**	**56.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	74.9	75.0	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	137	Dozer	0	40	50	82
Excavator	137	Excavator	1	40	50	81
Concrete Saw	137	Concrete Saw	0	20	50	90
Dozer	265	Dozer	1	40	50	82
Excavator	265	Excavator	1	40	50	81
Concrete Saw	265	Concrete Saw	1	20	50	90
Dozer	1002	Dozer	1	40	50	82
Excavator	1002	Excavator	1	40	50	81
Concrete Saw	1002	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	53.3	57.2
Concrete Saw		
Dozer	48.5	52.5
Excavator	47.5	51.5
Concrete Saw	53.5	60.5
Dozer	37.0	41.0
Excavator	36.0	40.0
Concrete Saw		
Total [1]	**57.6**	**60.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	63.9	64.8	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	135	Dozer	0	40	50	82
Excavator	135	Excavator	1	40	50	81
Concrete Saw	135	Concrete Saw	0	20	50	90
Dozer	405	Dozer	1	40	50	82
Excavator	405	Excavator	1	40	50	81
Concrete Saw	405	Concrete Saw	1	20	50	90
Dozer	1055	Dozer	1	40	50	82
Excavator	1055	Excavator	1	40	50	81
Concrete Saw	1055	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	53.4	57.4
Concrete Saw		
Dozer	44.9	48.8
Excavator	43.9	47.8
Concrete Saw	49.8	56.8
Dozer	36.5	40.5
Excavator	35.5	39.5
Concrete Saw		
Total [1]	**55.8**	**57.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	65.3	65.5	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	133	Dozer	0	40	50	82
Excavator	133	Excavator	1	40	50	81
Concrete Saw	133	Concrete Saw	0	20	50	90
Dozer	668	Dozer	1	40	50	82
Excavator	668	Excavator	1	40	50	81
Concrete Saw	668	Concrete Saw	1	20	50	90
Dozer	1108	Dozer	1	40	50	82
Excavator	1108	Excavator	1	40	50	81
Concrete Saw	1108	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	63.5	67.5
Concrete Saw		
Dozer	50.5	54.5
Excavator	49.5	53.5
Concrete Saw	55.5	62.5
Dozer	46.1	50.1
Excavator	45.1	49.1
Concrete Saw		
Total [1]	**64.6**	**67.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	70.9	71.8	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	116	Dozer	0	40	50	82
Excavator	116	Excavator	1	40	50	81
Concrete Saw	116	Concrete Saw	0	20	50	90
Dozer	678	Dozer	1	40	50	82
Excavator	678	Excavator	1	40	50	81
Concrete Saw	678	Concrete Saw	1	20	50	90
Dozer	815	Dozer	1	40	50	82
Excavator	815	Excavator	1	40	50	81
Concrete Saw	815	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	64.7	68.7
Concrete Saw		
Dozer	50.4	54.4
Excavator	49.4	53.4
Concrete Saw	55.4	62.4
Dozer	48.8	52.8
Excavator	47.8	51.8
Concrete Saw		
Total [1]	**65.6**	**68.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	75.1	75.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Demolition - Mitigated Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Dozer	556	Dozer	0	40	50	82
Excavator	556	Excavator	1	40	50	81
Concrete Saw	556	Concrete Saw	0	20	50	90
Dozer	1223	Dozer	1	40	50	82
Excavator	1223	Excavator	1	40	50	81
Concrete Saw	1223	Concrete Saw	1	20	50	90
Dozer	418	Dozer	1	40	50	82
Excavator	418	Excavator	1	40	50	81
Concrete Saw	418	Concrete Saw	0	20	50	90

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer		
Excavator	51.1	55.1
Concrete Saw		
Dozer	45.3	49.2
Excavator	44.3	48.2
Concrete Saw	50.2	57.2
Dozer	54.6	58.6
Excavator	53.6	57.6
Concrete Saw		
Total [1]	**59.1**	**58.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.7	67.7	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	168	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	168	Backhoe	1	40	50	78
Rubber Tired Dozers	1206	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1206	Backhoe	2	40	50	78
Rubber Tired Dozers	540	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	540	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	52.5	56.5
Backhoe	48.5	52.5
Dozer	35.4	39.4
Backhoe	34.4	38.4
Dozer	42.4	46.3
Backhoe	38.4	42.3
Total [1]	**54.4**	**56.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.7	67.8	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	95	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	95	Backhoe	1	40	50	78
Rubber Tired Dozers	735	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	735	Backhoe	2	40	50	78
Rubber Tired Dozers	330	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	330	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	57.4	61.4
Backhoe	53.4	57.4
Dozer	39.7	43.7
Backhoe	38.7	42.7
Dozer	46.6	50.6
Backhoe	42.6	46.6
Total [1]	**59.3**	**61.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	66.4	66.9	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	146	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	146	Backhoe	1	40	50	78
Rubber Tired Dozers	422	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	422	Backhoe	2	40	50	78
Rubber Tired Dozers	1010	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1010	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	53.7	57.7
Backhoe	49.7	53.7
Dozer	44.5	48.5
Backhoe	43.5	47.5
Dozer	36.9	40.9
Backhoe	32.9	36.9
Total [1]	**55.9**	**57.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	75.0	75.0	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	102	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	102	Backhoe	1	40	50	78
Rubber Tired Dozers	265	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	265	Backhoe	2	40	50	78
Rubber Tired Dozers	1002	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1002	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	56.8	60.8
Backhoe	52.8	56.8
Dozer	48.5	52.5
Backhoe	47.5	51.5
Dozer	37.0	41.0
Backhoe	33.0	37.0
Total [1]	**59.1**	**60.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	64.3	64.9	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	85	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	85	Backhoe	1	40	50	78
Rubber Tired Dozers	405	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	405	Backhoe	2	40	50	78
Rubber Tired Dozers	1055	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1055	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	58.4	62.4
Backhoe	54.4	58.4
Dozer	44.9	48.8
Backhoe	43.9	47.8
Dozer	36.5	40.5
Backhoe	32.5	36.5
Total [1]	**60.1**	**62.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	66.1	66.8	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	133	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	133	Backhoe	1	40	50	78
Rubber Tired Dozers	668	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	668	Backhoe	2	40	50	78
Rubber Tired Dozers	1108	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1108	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	64.5	68.5
Backhoe	60.5	54.5
Dozer	50.5	44.5
Backhoe	49.5	43.5
Dozer	46.1	40.1
Backhoe	42.1	36.1
Total [1]	**66.3**	**68.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	71.4	72.2	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	116	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	116	Backhoe	1	40	50	78
Rubber Tired Dozers	678	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	678	Backhoe	2	40	50	78
Rubber Tired Dozers	815	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	815	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	65.7	69.7
Backhoe	61.7	55.7
Dozer	50.4	44.4
Backhoe	49.4	43.4
Dozer	48.8	42.8
Backhoe	44.8	38.8
Total [1]	**67.4**	**69.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	75.4	75.8	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Site Preparation - Mitigated Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Rubber Tired Dozers	683	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	683	Backhoe	1	40	50	78
Rubber Tired Dozers	1223	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	1223	Backhoe	2	40	50	78
Rubber Tired Dozers	418	Dozer	1	40	50	82
Tractors/Loaders/Backhoes	418	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Dozer	50.3	54.3
Backhoe	46.3	40.3
Dozer	45.3	39.2
Backhoe	44.3	38.2
Dozer	54.6	48.6
Backhoe	50.6	44.6
Total [1]	**57.9**	**54.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.6	67.3	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	168	Grader	0	40	50	85
Excavators	168	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	168	Backhoe	1	40	50	78
Scrapers	168	Scraper	1	40	50	84
Rubber Tired Dozers	168	Dozer	0	40	50	82
Graders	1206	Grader	1	40	50	85
Excavators	1206	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	1206	Backhoe	0	40	50	78
Scrapers	1206	Scraper	0	40	50	84
Rubber Tired Dozers	1206	Dozer	1	40	50	82
Graders	540	Grader	0	40	50	85
Excavators	540	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	540	Backhoe	1	40	50	78
Scrapers	540	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	51.5	55.5
Backhoe	48.5	52.5
Scraper	54.5	58.5
Dozer		
Grader	38.4	42.4
Excavator		
Backhoe		
Scraper		
Dozer	35.4	39.4
Grader		
Excavator	41.4	45.3
Backhoe	38.4	42.3
Scraper	44.4	48.3
Total [1]	**57.4**	**58.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.9	68.0	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	95	Grader	0	40	50	85
Excavators	95	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	95	Backhoe	1	40	50	78
Scrapers	95	Scraper	1	40	50	84
Rubber Tired Dozers	95	Dozer	0	40	50	82
Graders	735	Grader	1	40	50	85
Excavators	735	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	735	Backhoe	0	40	50	78
Scrapers	735	Scraper	0	40	50	84
Rubber Tired Dozers	735	Dozer	1	40	50	82
Graders	330	Grader	0	40	50	85
Excavators	330	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	330	Backhoe	1	40	50	78
Scrapers	300	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	56.4	60.4
Backhoe	53.4	57.4
Scraper	59.4	63.4
Dozer		
Grader	42.7	46.7
Excavator		
Backhoe		
Scraper		
Dozer	39.7	43.7
Grader		
Excavator	45.6	49.6
Backhoe	42.6	46.6
Scraper	49.5	53.4
Total [1]	**62.3**	**63.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	67.2	67.6	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	146	Grader	0	40	50	85
Excavators	146	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	146	Backhoe	1	40	50	78
Scrapers	146	Scraper	1	40	50	84
Rubber Tired Dozers	146	Dozer	0	40	50	82
Graders	422	Grader	1	40	50	85
Excavators	422	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	422	Backhoe	0	40	50	78
Scrapers	422	Scraper	0	40	50	84
Rubber Tired Dozers	422	Dozer	1	40	50	82
Graders	1010	Grader	0	40	50	85
Excavators	1010	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1010	Backhoe	1	40	50	78
Scrapers	1010	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	52.7	56.7
Backhoe	49.7	53.7
Scraper	55.7	59.7
Dozer		
Grader	47.5	51.5
Excavator		
Backhoe		
Scraper		
Dozer	44.5	48.5
Grader		
Excavator	35.9	39.9
Backhoe	32.9	36.9
Scraper	38.9	42.9
Total [1]	**58.8**	**59.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	75.0	75.0	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	102	Grader	0	40	50	85
Excavators	102	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	102	Backhoe	1	40	50	78
Scrapers	102	Scraper	1	40	50	84
Rubber Tired Dozers	102	Dozer	0	40	50	82
Graders	265	Grader	1	40	50	85
Excavators	265	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	265	Backhoe	0	40	50	78
Scrapers	265	Scraper	0	40	50	84
Rubber Tired Dozers	265	Dozer	1	40	50	82
Graders	1002	Grader	0	40	50	85
Excavators	1002	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1002	Backhoe	1	40	50	78
Scrapers	1002	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	55.8	59.8
Backhoe	52.8	56.8
Scraper	58.8	62.8
Dozer		
Grader	51.5	55.5
Excavator		
Backhoe		
Scraper		
Dozer	48.5	52.5
Grader		
Excavator	36.0	40.0
Backhoe	33.0	37.0
Scraper	39.0	43.0
Total [1]	**61.9**	**62.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	65.4	65.8	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	85	Grader	0	40	50	85
Excavators	85	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	85	Backhoe	1	40	50	78
Scrapers	85	Scraper	1	40	50	84
Rubber Tired Dozers	85	Dozer	0	40	50	82
Graders	405	Grader	1	40	50	85
Excavators	405	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	405	Backhoe	0	40	50	78
Scrapers	405	Scraper	0	40	50	84
Rubber Tired Dozers	405	Dozer	1	40	50	82
Graders	1055	Grader	0	40	50	85
Excavators	1055	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1055	Backhoe	1	40	50	78
Scrapers	1055	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	57.4	61.4
Backhoe	54.4	58.4
Scraper	60.4	64.4
Dozer		
Grader	47.9	51.8
Excavator		
Backhoe		
Scraper		
Dozer	44.9	48.8
Grader		
Excavator	35.5	39.5
Backhoe	32.5	36.5
Scraper	38.5	42.5
Total [1]	**63.1**	**64.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	67.0	67.6	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	133	Grader	0	40	50	85
Excavators	133	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	133	Backhoe	1	40	50	78
Scrapers	133	Scraper	1	40	50	84
Rubber Tired Dozers	133	Dozer	0	40	50	82
Graders	668	Grader	1	40	50	85
Excavators	668	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	668	Backhoe	0	40	50	78
Scrapers	668	Scraper	0	40	50	84
Rubber Tired Dozers	668	Dozer	1	40	50	82
Graders	1108	Grader	0	40	50	85
Excavators	1108	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	1108	Backhoe	1	40	50	78
Scrapers	1108	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	63.5	67.5
Backhoe	60.5	64.5
Scraper	66.5	70.5
Dozer		
Grader	53.5	57.5
Excavator		
Backhoe		
Scraper		
Dozer	50.5	54.5
Grader		
Excavator	45.1	49.1
Backhoe	42.1	46.1
Scraper	48.1	52.1
Total [1]	**69.2**	**70.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	72.5	73.2	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	116	Grader	0	40	50	85
Excavators	116	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	116	Backhoe	1	40	50	78
Scrapers	116	Scraper	1	40	50	84
Rubber Tired Dozers	116	Dozer	0	40	50	82
Graders	678	Grader	1	40	50	85
Excavators	678	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	678	Backhoe	0	40	50	78
Scrapers	678	Scraper	0	40	50	84
Rubber Tired Dozers	678	Dozer	1	40	50	82
Graders	815	Grader	0	40	50	85
Excavators	815	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	815	Backhoe	1	40	50	78
Scrapers	815	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Leve Dozer

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	64.7	68.7
Backhoe	61.7	65.7
Scraper	67.7	71.7
Dozer		
Grader	53.4	57.4
Excavator		
Backhoe		
Scraper		
Dozer	50.4	54.4
Grader		
Excavator	47.8	51.8
Backhoe	44.8	48.8
Scraper	50.8	54.8
Total [1]	**70.4**	**71.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	76.0	76.4	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime

La Brea Tar Pits Master Plan
Grading - Mitigated Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Graders	683	Grader	0	40	50	85
Excavators	683	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	683	Backhoe	1	40	50	78
Scrapers	683	Scraper	1	40	50	84
Rubber Tired Dozers	683	Dozer	0	40	50	82
Graders	1223	Grader	1	40	50	85
Excavators	1223	Excavator	0	40	50	81
Tractors/Loaders/Backhoes	1223	Backhoe	0	40	50	78
Scrapers	1223	Scraper	0	40	50	84
Rubber Tired Dozers	1223	Dozer	1	40	50	82
Graders	418	Grader	0	40	50	85
Excavators	418	Excavator	1	40	50	81
Tractors/Loaders/Backhoes	418	Backhoe	1	40	50	78
Scrapers	418	Scraper	1	40	50	84

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Le Dozer

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Grader		
Excavator	49.3	53.3
Backhoe	46.3	50.3
Scraper	52.3	56.3
Dozer		
Grader	48.3	52.2
Excavator		
Backhoe		
Scraper		
Dozer	45.3	49.2
Grader		
Excavator	53.6	57.6
Backhoe	50.6	54.6
Scraper	56.6	60.6
Total [1]	**60.8**	**60.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	68.0	68.0	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	820	Front End Loader	1	40	50	79
Generator Sets	820	Generator	0	50	50	81
Cranes	820	Crane	0	16	50	81
Welders	820	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	820	Backhoe	1	40	50	78
Forklifts	959	Front End Loader	1	40	50	79
Generator Sets	959	Generator	1	50	50	81
Cranes	959	Crane	1	16	50	81
Welders	959	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	959	Backhoe	1	40	50	78
Forklifts	540	Front End Loader	1	40	50	79
Generator Sets	540	Generator	0	50	50	81
Cranes	540	Crane	0	16	50	81
Tractors/Loaders/Backh	540	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	35.7	39.7
Generator		
Crane		
Welder/Torch		
Backhoe	34.7	38.7
Front End Loader	34.4	38.3
Generator	37.3	40.3
Crane	32.4	40.3
Welder/Torch	29.4	33.3
Backhoe	33.4	37.3
Front End Loader	39.4	43.3
Generator		
Crane		
Backhoe	38.4	42.3
Total [1]	**45.4**	**43.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.5	67.5	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	271	Front End Loader	1	40	50	79
Generator Sets	271	Generator	0	50	50	81
Cranes	271	Crane	0	16	50	81
Welders	271	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	271	Backhoe	1	40	50	78
Forklifts	735	Front End Loader	1	40	50	79
Generator Sets	735	Generator	1	50	50	81
Cranes	735	Crane	1	16	50	81
Welders	735	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	735	Backhoe	1	40	50	78
Forklifts	518	Front End Loader	1	40	50	79
Generator Sets	518	Generator	0	50	50	81
Cranes	518	Crane	0	16	50	81
Tractors/Loaders/Backh	518	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	45.3	49.3
Generator		
Crane		
Welder/Torch		
Backhoe	44.3	48.3
Front End Loader	36.7	40.7
Generator	39.6	42.7
Crane	34.7	42.7
Welder/Torch	31.7	35.7
Backhoe	35.7	39.7
Front End Loader	39.7	43.7
Generator		
Crane		
Backhoe	38.7	42.7
Total [1]	**50.0**	**49.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	65.6	65.6	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	683	Front End Loader	1	40	50	79
Generator Sets	683	Generator	0	50	50	81
Cranes	683	Crane	0	16	50	81
Welders	683	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	683	Backhoe	1	40	50	78
Forklifts	422	Front End Loader	1	40	50	79
Generator Sets	422	Generator	1	50	50	81
Cranes	422	Crane	1	16	50	81
Welders	422	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	422	Backhoe	1	40	50	78
Forklifts	565	Front End Loader	1	40	50	79
Generator Sets	565	Generator	0	50	50	81
Cranes	565	Crane	0	16	50	81
Tractors/Loaders/Backh	565	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	37.3	41.3
Generator		
Crane		
Welder/Torch		
Backhoe	36.3	40.3
Front End Loader	41.5	45.5
Generator	44.5	47.5
Crane	39.5	47.5
Welder/Torch	36.5	40.5
Backhoe	40.5	44.5
Front End Loader	39.0	42.9
Generator		
Crane		
Backhoe	38.0	41.9
Total [1]	**49.6**	**47.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	74.9	74.9	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	735	Front End Loader	1	40	50	79
Generator Sets	735	Generator	0	50	50	81
Cranes	735	Crane	0	16	50	81
Welders	735	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	735	Backhoe	1	40	50	78
Forklifts	265	Front End Loader	1	40	50	79
Generator Sets	265	Generator	1	50	50	81
Cranes	265	Crane	1	16	50	81
Welders	265	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	265	Backhoe	1	40	50	78
Forklifts	518	Front End Loader	1	40	50	79
Generator Sets	518	Generator	0	50	50	81
Cranes	518	Crane	0	16	50	81
Tractors/Loaders/Backh	518	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	36.7	40.7
Generator		
Crane		
Welder/Torch		
Backhoe	35.7	39.7
Front End Loader	45.5	49.5
Generator	48.5	51.5
Crane	43.6	51.5
Welder/Torch	40.5	44.5
Backhoe	44.5	48.5
Front End Loader	39.7	43.7
Generator		
Crane		
Backhoe	38.7	42.7
Total [1]	**52.9**	**51.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	63.2	63.1	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	890	Front End Loader	1	40	50	79
Generator Sets	890	Generator	0	50	50	81
Cranes	890	Crane	0	16	50	81
Welders	890	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	890	Backhoe	1	40	50	78
Forklifts	405	Front End Loader	1	40	50	79
Generator Sets	405	Generator	1	50	50	81
Cranes	405	Crane	1	16	50	81
Welders	405	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	405	Backhoe	1	40	50	78
Forklifts	636	Front End Loader	1	40	50	79
Generator Sets	636	Generator	0	50	50	81
Cranes	636	Crane	0	16	50	81
Tractors/Loaders/Backh	636	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	35.0	39.0
Generator		
Crane		
Welder/Torch		
Backhoe	34.0	38.0
Front End Loader	41.9	45.8
Generator	44.8	47.8
Crane	39.9	47.8
Welder/Torch	36.9	40.8
Backhoe	40.9	44.8
Front End Loader	37.9	41.9
Generator		
Crane		
Backhoe	36.9	40.9
Total [1]	**49.5**	**47.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	64.9	64.9	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	1038	Front End Loader	1	40	50	79
Generator Sets	1038	Generator	0	50	50	81
Cranes	1038	Crane	0	16	50	81
Welders	1038	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	1038	Backhoe	1	40	50	78
Forklifts	668	Front End Loader	1	40	50	79
Generator Sets	668	Generator	1	50	50	81
Cranes	668	Crane	1	16	50	81
Welders	668	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	668	Backhoe	1	40	50	78
Forklifts	798	Front End Loader	1	40	50	79
Generator Sets	798	Generator	0	50	50	81
Cranes	798	Crane	0	16	50	81
Tractors/Loaders/Backh	798	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	43.7	47.7
Generator		
Crane		
Welder/Torch		
Backhoe	42.7	46.7
Front End Loader	47.5	51.5
Generator	50.5	53.5
Crane	45.5	53.5
Welder/Torch	42.5	46.5
Backhoe	46.5	50.5
Front End Loader	46.0	49.9
Generator		
Crane		
Backhoe	45.0	48.9
Total [1]	**55.8**	**53.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	70.0	69.9	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	805	Front End Loader	1	40	50	79
Generator Sets	805	Generator	0	50	50	81
Cranes	805	Crane	0	16	50	81
Welders	805	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	805	Backhoe	1	40	50	78
Forklifts	678	Front End Loader	1	40	50	79
Generator Sets	678	Generator	1	50	50	81
Cranes	678	Crane	1	16	50	81
Welders	678	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	678	Backhoe	1	40	50	78
Forklifts	671	Front End Loader	1	40	50	79
Generator Sets	671	Generator	0	50	50	81
Cranes	671	Crane	0	16	50	81
Tractors/Loaders/Backh	671	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	45.9	49.9
Generator		
Crane		
Welder/Torch		
Backhoe	44.9	48.9
Front End Loader	47.4	51.4
Generator	50.3	53.4
Crane	45.4	53.4
Welder/Torch	42.4	46.4
Backhoe	46.4	50.4
Front End Loader	47.5	51.4
Generator		
Crane		
Backhoe	46.5	50.4
Total [1]	**56.3**	**53.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.7	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Building Construction - Mitigated Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Forklifts	660	Front End Loader	1	40	50	79
Generator Sets	660	Generator	0	50	50	81
Cranes	660	Crane	0	16	50	81
Welders	660	Welder/Torch	0	40	50	74
Tractors/Loaders/Backh	660	Backhoe	1	40	50	78
Forklifts	1223	Front End Loader	1	40	50	79
Generator Sets	1223	Generator	1	50	50	81
Cranes	1223	Crane	1	16	50	81
Welders	1223	Welder/Torch	1	40	50	74
Tractors/Loaders/Backh	1223	Backhoe	1	40	50	78
Forklifts	1031	Front End Loader	1	40	50	79
Generator Sets	1031	Generator	0	50	50	81
Cranes	1031	Crane	0	16	50	81
Tractors/Loaders/Backh	1031	Backhoe	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Front End Loader	47.6	51.6
Generator		
Crane		
Welder/Torch		
Backhoe	46.6	50.6
Front End Loader	42.3	46.2
Generator	45.2	48.2
Crane	40.3	48.2
Welder/Torch	37.3	41.2
Backhoe	41.3	45.2
Front End Loader	43.7	47.7
Generator		
Crane		
Backhoe	42.7	46.7
Total [1]	**53.5**	**51.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.3	67.2	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	1094	Paver	2	50	50	77
Roller	1094	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	35.2	38.2
Roller	34.2	41.2
Total [1]	**37.8**	**41.2**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.5	67.5	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	622	Paver	2	50	50	77
Roller	622	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	40.1	43.1
Roller	39.1	46.1
Total [1]	**42.7**	**46.1**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	65.5	65.5	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	338	Paver	2	50	50	77
Roller	338	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	45.4	48.4
Roller	44.4	51.4
Total [1]	**48.0**	**51.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	74.9	74.9	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	346	Paver	2	50	50	77
Roller	346	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	45.2	48.2
Roller	44.2	51.2
Total [1]	**47.7**	**51.2**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	62.9	63.1	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	571	Paver	2	50	50	77
Roller	571	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	40.8	43.9
Roller	39.9	46.9
Total [1]	**43.4**	**46.9**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	64.8	64.9	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	836	Paver	2	50	50	77
Roller	836	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	47.5	50.5
Roller	46.6	53.5
Total [1]	**50.1**	**53.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	69.8	69.9	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	824	Paver	2	50	50	77
Roller	824	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	47.7	50.7
Roller	46.7	53.7
Total [1]	**50.2**	**53.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.6	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Paving - Mitigated Construction
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Pavers	1264	Paver	2	50	50	77
Roller	1264	Roller	2	20	50	80

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Paver	43.9	47.0
Roller	43.0	50.0
Total [1]	**46.5**	**50.0**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.1	67.2	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	540	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	38.4	42.3
Total [1]	**38.4**	**42.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.5	67.5	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	271	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	44.3	48.3
Total [1]	**44.3**	**48.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	65.5	65.6	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	422	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	40.5	44.5
Total [1]	**40.5**	**44.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	74.9	74.9	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	265	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	44.5	48.5
Total [1]	**44.5**	**48.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	62.9	63.0	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	405	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	40.9	44.8
Total [1]	**40.9**	**44.8**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

[3] Assumes an estimated noise reduction of 10 dBA due to noise barrier/wall.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	64.8	64.8	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	668	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	46.5	50.5
Total [1]	**46.5**	**50.5**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	69.8	69.9	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	671	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	46.5	50.4
Total [1]	**46.5**	**50.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.6	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Architectural Coating - Construction Mitigated
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor[1]	Noise Level Reference Distance [1]	Sound Pressure Level @
	feet			%/hr.	(feet)	(dBA)
Air Compressor	660	Compressor (air)	1	40	50	78

[1] FHWA -Construction Noise Handbook - Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2,3]	
	Leq (dBA)	L_{Max} (dBA)
Compressor (air)	46.6	50.6
Total [1]	**46.6**	**50.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Assumes an estimated noise shielding of 5 dBA

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.1	67.2	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

Construction Traffic Noise - Demolition

Station	Traffic values			Control	Road surface	Gradient
	Vehicles type	Veh/h	Speed km/h			Min / Max %
1 Traffic direction: In entry direction	Total	30	-	None	Average (of DGAC and PCC)	-0.9 / -0.1
	Automobiles	25	56			
	Medium trucks	1	56			
	Heavy trucks	4	56			
	Buses	-	56			
	Motorcycles	-	56			
	Auxiliary vehicle	-	-			

Construction Traffic Noise - Site Preparation

Station	Traffic values			Control	Road surface	Gradient
	Vehicles type	Veh/h	Speed km/h			Min / Max %
1 Traffic direction: In entry direction	Total	11	-	None	Average (of DGAC and PCC)	-0.9 / -0.1
	Automobiles	10	56			
	Medium trucks	-	56			
	Heavy trucks	1	56			
	Buses	-	56			
	Motorcycles	-	56			
	Auxiliary vehicle	-	-			

Construction Traffic Noise - Grading

Station	Traffic values			Control	Road surface	Gradient
	Vehicles type	Veh/h	Speed km/h			Min / Max %
1 Traffic direction: In entry direction	Total	69	-	None	Average (of DGAC and PCC)	-0.9 / -0.1
	Automobiles	38	56			
	Medium trucks	2	56			
	Heavy trucks	30	56			
	Buses	-	56			
	Motorcycles	-	56			
	Auxiliary vehicle	-	-			

Construction Traffic Noise - Building Construction

Station	Traffic values			Control	Road surface	Gradient
	Vehicles type	Veh/h	Speed km/h			Min / Max %
1 Traffic direction: In entry direction	Total	106	-	None	Average (of DGAC and PCC)	-0.9 / -0.1
	Automobiles	100	56			
	Medium trucks	3	56			
	Heavy trucks	4	56			
	Buses	-	56			
	Motorcycles	-	56			
	Auxiliary vehicle	-	-			

Construction Traffic Noise - Paving

Station	Traffic values			Control	Road surface	Gradient
	Vehicles type	Veh/h	Speed km/h			Min / Max %
1 Traffic direction: In entry direction	Total	10	-	None	Average (of DGAC and PCC)	-0.9 / -0.1
	Automobiles	8	56			
	Medium trucks	1	56			
	Heavy trucks	2	56			
	Buses	-	56			
	Motorcycles	-	56			
	Auxiliary vehicle	-	-			

Construction Traffic Noise - Architectural Coating

Station	Traffic values			Control	Road surface	Gradient
	Vehicles type	Veh/h	Speed km/h			Min / Max %
1 Traffic direction: In entry direction	Total	10	-	None	Average (of DGAC and PCC)	-0.9 / -0.1
	Automobiles	8	56			
	Medium trucks	1	56			
	Heavy trucks	2	56			
	Buses	-	56			
	Motorcycles	-	56			
	Auxiliary vehicle	-	-			

APPENDIX C

Operational Noise Calculations

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	951		6	100	3	73
Page Museum - HVAC	1213		10	100	3	73
Support Building - HVAC	711		1	100	3	73
New Museum Building - Emergency Generator	951	Generator	0	50	50	81
Page Museum - Emergency Generator	1213	Generator	0	50	50	81
Support Building - Emergency Generator	711	Generator	1	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.

[b] Assumes only one generator is operating simultaneously.

Sound Levels at NSA ST2

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	30.8	30.8
Page Museum - HVAC	30.9	30.9
Support Building - HVAC	25.5	25.5
Generator		
Generator		
Generator	49.9	52.9
Total [1]	**50.1**	**52.9**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.6	67.6	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	498		6	100	3	73
Page Museum - HVAC	772		10	100	3	73
Support Building - HVAC	247		1	100	3	73
New Museum Building - Emergency Generator	498	Generator	0	50	50	81
Page Museum - Emergency Generator	772	Generator	0	50	50	81
Support Building - Emergency Generator	247	Generator	1	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.
[b] Assumes only one generator is operating simultaneously.
[c] Assumes an estimated noise shielding of 5 dBA

Sound Levels at NSA ST3

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	36.4	36.4
Page Museum - HVAC	34.8	34.8
Support Building - HVAC	34.7	34.7
Generator		
Generator		
Generator	59.1	62.1
Total [1]	**59.2**	**62.1**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	66.4	67.1	65.5	65.5	Yes

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels.

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	561		6	100	3	73
Page Museum - HVAC	508		10	100	3	73
Support Building - HVAC	693		1	100	3	73
New Museum Building - Emergency Generator	561	Generator	0	50	50	81
Page Museum - Emergency Generator	508	Generator	1	50	50	81
Support Building - Emergency Generator	693	Generator	0	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.

[b] Assumes only one generator is operating simultaneously.

Sound Levels at NSA ST5

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	35.3	35.3
Page Museum - HVAC	38.4	38.4
Support Building - HVAC	25.7	25.7
Generator		
Generator	52.9	55.9
Generator		
Total [1]	**53.1**	**55.9**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	74.9	75.0	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	509		6	100	3	73
Page Museum - HVAC	313		8	100	3	73
Support Building - HVAC	730		1	100	3	73
New Museum Building - Emergency Generator	509	Generator	0	50	50	81
Page Museum - Emergency Generator	313	Generator	1	50	50	81
Support Building - Emergency Generator	730	Generator	0	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.

[b] Assumes only one generator is operating simultaneously.

Sound Levels at NSA ST6

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	36.2	36.2
Page Museum - HVAC	41.7	41.7
Support Building - HVAC	25.3	25.3
Generator		
Generator	57.1	60.1
Generator		
Total [1]	**57.2**	**60.1**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	63.9	64.7	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	614		6	100	3	73
Page Museum - HVAC	346		10	100	3	73
Support Building - HVAC	876		1	100	3	73
New Museum Building - Emergency Generator	614	Generator	0	50	50	81
Page Museum - Emergency Generator	346	Generator	1	50	50	81
Support Building - Emergency Generator	876	Generator	0	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.

[b] Assumes only one generator is operating simultaneously.

Sound Levels at NSA ST7

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	34.6	34.6
Page Museum - HVAC	41.8	41.8
Support Building - HVAC	23.7	23.7
Generator		
Generator	56.2	59.2
Generator		
Total [1]	**56.4**	**59.2**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	65.4	65.9	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	785		6	100	3	73
Page Museum - HVAC	565		10	100	3	73
Support Building - HVAC	1030		1	100	3	73
New Museum Building - Emergency Generator	785	Generator	0	50	50	81
Page Museum - Emergency Generator	565	Generator	1	50	50	81
Support Building - Emergency Generator	1030	Generator	0	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.

[b] Assumes only one generator is operating simultaneously.

Sound Levels at NSA ST8

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	32.4	32.4
Page Museum - HVAC	37.5	37.5
Support Building - HVAC	22.3	22.3
Generator		
Generator	51.9	54.9
Generator		
Total [1]	**52.1**	**54.9**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	69.9	69.9	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	677		6	100	3	73
Page Museum - HVAC	573		10	100	3	73
Support Building - HVAC	864		1	100	3	73
New Museum Building - Emergency Generator	677	Generator	0	50	50	81
Page Museum - Emergency Generator	573	Generator	1	50	50	81
Support Building - Emergency Generator	864	Generator	0	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.

[b] Assumes only one generator is operating simultaneously.

Sound Levels at NSA ST9

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	33.7	33.7
Page Museum - HVAC	37.4	37.4
Support Building - HVAC	23.8	23.8
Generator		
Generator	51.8	54.8
Generator		
Total [1]	**52.0**	**54.8**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.6	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Mechanical - Operation
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b,c]
	feet			%/hr.	(feet)	(dBA)
New Museum Building - HVAC	1024		6	100	3	73
Page Museum - HVAC	1158		10	100	3	73
Support Building - HVAC	983		1	100	3	73
New Museum Building - Emergency Generator	1024	Generator	0	50	50	81
Page Museum - Emergency Generator	1158	Generator	0	50	50	81
Support Building - Emergency Generator	983	Generator	1	50	50	81

[a] A reference noise level of 73 dBA at 3 feet was assumed for a 5 ton HVAC unit.
[b] Assumes only one generator is operating simultaneously.

Sound Levels at NSA ST10

Equipment	Construction Levels [1]	
	Leq (dBA)	L_{Max} (dBA)
New Museum Building - HVAC	30.1	30.1
Page Museum - HVAC	31.3	31.3
Support Building - HVAC	22.7	22.7
Generator		
Generator		
Generator	47.1	50.1
Total [1]	**47.3**	**50.1**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.1	67.2	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.
[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	1213		1	100	50	66
Waste Compactor - New Museum Building	930		1	100	50	66
Loading Dock - Page Museum	1213		1	100	50	71
Loading Dock - New Museum Building	930		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	38.3	38.3
Waste Compactor - New Museum Building	40.6	40.6
Loading Dock - Page Museum	43.3	43.3
Loading Dock - New Museum Building	45.6	45.6
Total [1]	**48.8**	**45.6**
Max 1-hr	**45.6**	**45.6**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	67.5	67.5	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	734		1	100	50	66
Waste Compactor - New Museum Building	460		1	100	50	66
Loading Dock - Page Museum	734		1	100	50	71
Loading Dock - New Museum Building	460		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	42.7	42.7
Waste Compactor - New Museum Building	46.7	46.7
Loading Dock - Page Museum	47.7	47.7
Loading Dock - New Museum Building	51.7	51.7
Total [1]	**54.4**	**51.7**
Max 1-hr	**51.7**	**51.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	65.7	65.7	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	338		1	100	50	66
Waste Compactor - New Museum Building	508		1	100	50	66
Loading Dock - Page Museum	338		1	100	50	71
Loading Dock - New Museum Building	508		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	49.4	49.4
Waste Compactor - Pit 91		
Waste Compactor - New Museum Building	45.9	45.9
Loading Dock - Page Museum	54.4	54.4
Loading Dock - Pit 91		
Loading Dock - New Museum Building	50.9	50.9
Total [1]	**57.2**	**54.4**
Max 1-hr	**54.4**	**54.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	74.9	74.9	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	248		1	100	50	66
Waste Compactor - New Museum Building	522		1	100	50	66
Loading Dock - Page Museum	248		1	100	50	71
Loading Dock - New Museum Building	522		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	52.1	52.1
Waste Compactor - Pit 91		
Waste Compactor - New Museum Building	45.6	45.6
Loading Dock - Page Museum	57.1	57.1
Loading Dock - Pit 91		
Loading Dock - New Museum Building	50.6	50.6
Total [1]	**59.2**	**57.1**
Max 1-hr	**57.1**	**57.1**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	63.8	63.8	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	432		1	100	50	66
Waste Compactor - New Museum Building	631		1	100	50	66
Loading Dock - Page Museum	432		1	100	50	71
Loading Dock - New Museum Building	631		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	47.3	47.3
Waste Compactor - Pit 91		
Waste Compactor - New Museum Building	44.0	44.0
Loading Dock - Page Museum	52.3	52.3
Loading Dock - Pit 91		
Loading Dock - New Museum Building	49.0	49.0
Total [1]	**55.1**	**52.3**
Max 1-hr	**52.3**	**52.3**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	65.0	65.0	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	689		1	100	50	66
Waste Compactor - New Museum Building	783		1	100	50	66
Loading Dock - Page Museum	689		1	100	50	71
Loading Dock - New Museum Building	783		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	43.2	43.2
Waste Compactor - Pit 91		
Waste Compactor - New Museum Building	42.1	42.1
Loading Dock - Page Museum	48.2	48.2
Loading Dock - Pit 91		
Loading Dock - New Museum Building	47.1	47.1
Total [1]	**51.9**	**48.2**
Max 1-hr	**48.2**	**48.2**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	69.8	69.8	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	722		1	100	50	66
Waste Compactor - New Museum Building	675		1	100	50	66
Loading Dock - Page Museum	722		1	100	50	71
Loading Dock - New Museum Building	675		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	42.8	42.8
Waste Compactor - Pit 91		
Waste Compactor - New Museum Building	43.4	43.4
Loading Dock - Page Museum	47.8	47.8
Loading Dock - Pit 91		
Loading Dock - New Museum Building	48.4	48.4
Total [1]	**52.3**	**48.4**
Max 1-hr	**48.4**	**48.4**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	74.6	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Loading and Trash Compactor - Operation
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance [a,b]
	feet			%/hr.	(feet)	(dBA)
Waste Compactor- Page Museum	1269		1	100	50	66
Waste Compactor - New Museum Building	1038		1	100	50	66
Loading Dock - Page Museum	1269		1	100	50	71
Loading Dock - New Museum Building	1038		1	100	50	71

[a] Waste Compactor noise level - British Standard BS 5228-1:2009, Table C8

[b] Loading Dock noise level - AES 2017 LACMA Building for the Permanent Collection

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Waste Compactor- Page Museum	37.9	37.9
Waste Compactor - Pit 91		
Waste Compactor - New Museum Building	39.7	39.7
Loading Dock - Page Museum	42.9	42.9
Loading Dock - Pit 91		
Loading Dock - New Museum Building	44.7	44.7
Total [1]	**48.1**	**44.7**
Max 1-hr	**44.7**	**44.7**

[1] Noise Level assumes all equipment is operating simultaneously.

[2] Represents the loudest individual noise generating source

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
	67.1	67.1	67.1	72.1	No

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST2

NSA #:	ST2

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.5

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	1189		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	1189		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a,b]	535		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91 [a,b]	535		48	100	3.28	62
Amplified Sound System	1189		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST2

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	35.2	35.2
Speaking, Normal Voice, Female - Roof Top Page Museum	32.2	32.2
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	37.6	37.6
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	34.6	34.6
Amplified Sound System	37.0	37.0
Total [1]	**42.7**	**37.6**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST2	67.5	67.5	67.5	72.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST3

NSA #:	ST3

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
65.5

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	764		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	764		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a,b]	316		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91 [a]	316		48	100	3.28	62
Amplified Sound System	764		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST3

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	39.0	39.0
Speaking, Normal Voice, Female - Roof Top Page Museum	36.0	36.0
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	42.1	42.1
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	39.1	39.1
Amplified Sound System	40.9	40.9
Total [1]	**46.9**	**42.1**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST3	65.6	65.5	65.5	70.5	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST5

NSA #:	ST5

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.9

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	488		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	488		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a,b]	976		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91 [a,b]	976		48	100	3.28	62
Amplified Sound System	488		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST5

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	42.9	42.9
Speaking, Normal Voice, Female - Roof Top Page Museum	39.9	39.9
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	32.3	32.3
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	29.3	29.3
Amplified Sound System	44.8	44.8
Total [1]	**47.9**	**44.8**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST5	74.9	74.9	74.9	79.9	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST6

NSA #:	ST6

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
62.8

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	310		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	310		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a,]	984		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	984		48	100	3.28	62
Amplified Sound System	310		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST6

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	46.9	46.9
Speaking, Normal Voice, Female - Roof Top Page Museum	43.9	43.9
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	32.3	32.3
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	29.3	29.3
Amplified Sound System	48.7	48.7
Total [1]	**51.8**	**48.7**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST6	63.1	63.0	62.8	67.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST7

NSA #:	ST7

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
64.8

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	352		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	352		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a,b]	1008		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91 [a]	1008		48	100	3.28	62
Amplified Sound System	352		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST7

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	45.8	45.8
Speaking, Normal Voice, Female - Roof Top Page Museum	42.8	42.8
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	32.1	32.1
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	29.1	29.1
Amplified Sound System	47.6	47.6
Total [1]	**50.7**	**47.6**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST7	65.0	64.9	64.8	69.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST8

NSA #:	ST8

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
69.8

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	580		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	580		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a]	1081		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	1081		48	100	3.28	62
Amplified Sound System	580		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST8

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	41.4	41.4
Speaking, Normal Voice, Female - Roof Top Page Museum	38.4	38.4
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	31.5	31.5
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	28.5	28.5
Amplified Sound System	43.3	43.3
Total [1]	**46.4**	**43.3**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST8	69.8	69.8	69.8	74.8	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST9

NSA #:	ST9

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
74.6

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	576		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	576		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a,b]	819		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91 [a,b]	819		48	100	3.28	62
Amplified Sound System	576		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST9

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	41.5	41.5
Speaking, Normal Voice, Female - Roof Top Page Museum	38.5	38.5
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	33.9	33.9
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	30.9	30.9
Amplified Sound System	43.3	43.3
Total [1]	**46.7**	**43.3**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST9	74.6	74.6	74.6	79.6	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

La Brea Tar Pits Master Plan
Outdoor Space - Operation
Noise Impact Assessment
NSA: ST10

NSA #:	ST10

Baseline Noise

Representative Existing Conditions
LAeq
(dBA)
67.1

Sources

Description	Distance to Receptor	Modeled As	Quantity [c]	Acoustical Usage Factor	Noise Level Reference Distance	Sound Pressure Level @ reference distance
	feet			%/hr.	(feet)	(dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum [a,b]	1165		137.5	100	3.28	65
Speaking, Normal Voice, Female - Roof Top Page Museum [a,b]	1165		137.5	100	3.28	62
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91 [a,b]	679		48	100	3.28	65
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91 [a,b]	679		48	100	3.28	62
Amplified Sound System	1165		1	100	15	75

[a] A reference sound power noise level of 65 dBA was assumed for 1 male speaking in a normal voice, or 62 dBA for one female speaking in a normal voice.

[b] It was assumed that 50% of the people would be talking at the same time.

[c] The estimated total number of people is based on 15 square feet per person.

Sound Levels at NSA ST10

Equipment	Construction Levels [1,2]	
	Leq (dBA)	L_{Max} (dBA)
Speaking, Normal Voice, Male - Roof Top Page Museum	35.4	35.4
Speaking, Normal Voice, Female - Roof Top Page Museum	32.4	32.4
Speaking, Normal Voice, Male - Outdoor Classroom Pit 10 and 91	35.5	35.5
Speaking, Normal Voice Female - Outdoor Classroom Pit 10 and 91	32.5	32.5
Amplified Sound System	37.2	37.2
Total [1]	**42.0**	**37.2**

[1] Noise Level assumes all equipment is operating simultaneously.

NSA #	Construction, Leq	Construction, Lmax [1]	Measured Ambient Noise Level, Leq	Significance Threshold, Leq [2]	Significant Impact?
	(dBA)	(dBA)	(dBA)	(dBA)	
ST10	67.1	67.1	67.1	72.1	No

[1] Calculated Lmax is the loudest individual value.

[2] Threshold is equivalent to the measured daytime ambient noise levels plus 5 dBA.

Existing Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction					
	Total	826	-	none	Average (of DGAC and PCC)
	Automobiles	809	56		
	Medium trucks	-	-		
	Heavy trucks	17	56		
	Buses	-	-		
	Motorcycles	-	-		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction					
	Total	844	-	none	Average (of DGAC and PCC)
	Automobiles	827	56		
	Medium trucks	-	56		
	Heavy trucks	17	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction					
	Total	809	-	none	Average (of DGAC and PCC)
	Automobiles	793	56		
	Medium trucks	-	56		
	Heavy trucks	16	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction					
	Total	812	-	none	Average (of DGAC and PCC)
	Automobiles	812	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction					
	Total	629	-	none	Average (of DGAC and PCC)
	Automobiles	628	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction					
	Total	627	-	none	Average (of DGAC and PCC)
	Automobiles	614	56		
	Medium trucks	-	56		
	Heavy trucks	13	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction					
	Total	619	-	none	Average (of DGAC and PCC)
	Automobiles	607	56		
	Medium trucks	-	56		
	Heavy trucks	12	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction					
	Total	543	-	none	Average (of DGAC and PCC)
	Automobiles	543	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	39	-	none	Average (of DGAC and PCC)
	Automobiles	38	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	19	-	none	Average (of DGAC and PCC)
	Automobiles	19	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	99	-	none	Average (of DGAC and PCC)
	Automobiles	97	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	2	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	130	-	none	Average (of DGAC and PCC)
	Automobiles	127	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	358	-		
	Automobiles	351	56		

Existing Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
	Medium trucks	-	56	none	Average (of DGAC and PCC)
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction					
	Total	354	-	none	Average (of DGAC and PCC)
	Automobiles	347	56		
	Medium trucks	-	56		
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction					
	Total	448	-	none	Average (of DGAC and PCC)
	Automobiles	439	56		
	Medium trucks	-	56		
	Heavy trucks	9	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction					
	Total	64	-	none	Average (of DGAC and PCC)
	Automobiles	63	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction					
	Total	361	-	none	Average (of DGAC and PCC)
	Automobiles	354	56		
	Medium trucks	-	56		
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	233	-	none	Average (of DGAC and PCC)
	Automobiles	228	56		
	Medium trucks	-	56		
	Heavy trucks	5	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	642	-	none	Average (of DGAC and PCC)
	Automobiles	629	56		
	Medium trucks	-	56		
	Heavy trucks	13	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	617	-	none	Average (of DGAC and PCC)
	Automobiles	605	56		
	Medium trucks	-	56		
	Heavy trucks	12	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Ogden Dr WB T Traffic direction: In entry direction					
	Total	1073	-	none	Average (of DGAC and PCC)
	Automobiles	1052	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Ogden Dr EB T Traffic direction: In entry direction					
	Total	956	-	none	Average (of DGAC and PCC)
	Automobiles	937	56		
	Medium trucks	-	56		
	Heavy trucks	19	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	534	-	none	Average (of DGAC and PCC)
	Automobiles	523	56		
	Medium trucks	-	56		
	Heavy trucks	11	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	553	-	none	Average (of DGAC and PCC)
	Automobiles	542	56		
	Medium trucks	-	56		
	Heavy trucks	11	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-6th Street NB W Traffic direction: In entry direction					
	Total	138	-	none	Average (of DGAC and PCC)
	Automobiles	135	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		

Existing Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-6th Street SB W Traffic direction: In entry direction					
	Total	134	-	none	Average (of DGAC and PCC)
	Automobiles	131	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street SB W Traffic direction: In entry direction					
	Total	51	-	none	Average (of DGAC and PCC)
	Automobiles	50	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street NB W Traffic direction: In entry direction					
	Total	30	-	none	Average (of DGAC and PCC)
	Automobiles	29	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction					
	Total	418	-	none	Average (of DGAC and PCC)
	Automobiles	410	56		
	Medium trucks	-	56		
	Heavy trucks	8	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street EB S Traffic direction: In entry direction					
	Total	199	-	none	Average (of DGAC and PCC)
	Automobiles	195	56		
	Medium trucks	-	56		
	Heavy trucks	4	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		
Ogden Dr-6th Street NB E Traffic direction: In entry direction					
	Total	145	-	none	Average (of DGAC and PCC)
	Automobiles	142	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-	-		

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	70.3	68.5	65.5	60.8	69.8
	Between Ogden Dr. and Curson Ave.	Residential	68.2	66.4	63.4	58.7	67.7
	East of Curson Ave.	Residential	68.2	66.4	63.4	58.7	67.7
Ogden Drive	North of 6th St.	Residential	61.3	59.5	56.5	51.8	60.8
	South of Wilshire Blvd.	Commercial	61.3	59.5	56.5	51.8	60.8
Spaulding Avenue	South of Wilshire Blvd.	Commercial	63.7	61.9	58.9	54.2	63.2
Curson Avenue	North of 6th St.	Residential	65.3	63.5	60.5	55.8	64.8
	Between 6th St. and Wilshire Blvd.	Residential	68.1	66.3	63.3	58.6	67.6
	South of Wilshire Blvd.	Residential	69.6	67.8	64.8	60.1	69.1
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	66.5	64.7	61.7	57.0	66.0
	Between Ogden Dr. and Spaulding Ave.	Commercial	65.6	63.8	60.8	56.1	65.1
	Between Spaulding. and Curson Ave.	Museum	67.5	65.7	62.7	58.0	67.0
	East of Curson Ave.	Commercial	66.3	64.5	61.5	56.8	65.8

Existing Roadway Traffic Noise Levels - Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction							
	Total	554	954	1594	-	none	Average (of DGAC and PCC)
	Automobiles	543	935	1562	56		
	Medium trucks	-	-	-	-		
	Heavy trucks	11	19	32	56		
	Buses	-	-	-	-		
	Motorcycles	-	-	-	-		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction							
	Total	561	961	1599	-	none	Average (of DGAC and PCC)
	Automobiles	550	942	1567	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	11	19	32	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction							
	Total	629	905	1591	-	none	Average (of DGAC and PCC)
	Automobiles	616	887	1559	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	13	18	32	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction							
	Total	742	942	1533	-	none	Average (of DGAC and PCC)
	Automobiles	742	942	1533	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction							
	Total	1164	675	663	-	none	Average (of DGAC and PCC)
	Automobiles	1163	673	661	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	2	2	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction							
	Total	1176	673	645	-	none	Average (of DGAC and PCC)
	Automobiles	1152	660	632	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	24	13	13	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1131	665	635	-	none	Average (of DGAC and PCC)
	Automobiles	1108	652	622	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	23	13	13	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction							
	Total	1021	640	681	-	none	Average (of DGAC and PCC)
	Automobiles	1021	640	681	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	9	24	53	-	none	Average (of DGAC and PCC)
	Automobiles	9	24	52	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	9	12	48	-	none	Average (of DGAC and PCC)
	Automobiles	9	12	47	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	115	65	78	-	none	Average (of DGAC and PCC)
	Automobiles	113	64	76	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	2	1	2	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	77	75	63	-	none	Average (of DGAC and PCC)
	Automobiles	75	74	62	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	549	300	323	-		
	Automobiles	538	294	317	56		

Existing Roadway Traffic Noise Levels - Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
	Medium trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Heavy trucks	11	6	6	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction							
	Total	382	264	352	-	none	Average (of DGAC and PCC)
	Automobiles	374	259	345	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	8	5	7	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction							
	Total	843	524	556	-	none	Average (of DGAC and PCC)
	Automobiles	826	514	545	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	17	10	11	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction							
	Total	104	82	82	-	none	Average (of DGAC and PCC)
	Automobiles	102	80	80	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	2	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction							
	Total	352	260	258	-	none	Average (of DGAC and PCC)
	Automobiles	345	255	253	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	7	5	5	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	324	157	245	-	none	Average (of DGAC and PCC)
	Automobiles	318	154	240	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	6	3	5	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1751	638	739	-	none	Average (of DGAC and PCC)
	Automobiles	1716	625	724	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	35	13	15	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1942	675	687	-	none	Average (of DGAC and PCC)
	Automobiles	1903	662	673	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	39	14	14	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Ogden Dr WB T Traffic direction: In entry direction							
	Total	1926	925	741	-	none	Average (of DGAC and PCC)
	Automobiles	1887	907	726	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	39	19	15	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Ogden Dr EB T Traffic direction: In entry direction							
	Total	500	768	910	-	none	Average (of DGAC and PCC)
	Automobiles	490	753	892	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	10	15	18	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	541	573	943	-	none	Average (of DGAC and PCC)
	Automobiles	530	562	924	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	11	11	19	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	607	610	1167	-	none	Average (of DGAC and PCC)
	Automobiles	595	598	1144	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	12	12	23	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-6th Street NB W Traffic direction: In entry direction							
	Total	166	129	213	-	none	Average (of DGAC and PCC)
	Automobiles	163	126	209	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	3	3	4	56		
	Buses	-	-	-	56		

Existing Roadway Traffic Noise Levels - Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-6th Street SB W Traffic direction: In entry direction							
	Total	269	122	171	-	none	Average (of DGAC and PCC)
	Automobiles	264	120	168	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	5	2	3	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street SB W Traffic direction: In entry direction							
	Total	90	24	37	-	none	Average (of DGAC and PCC)
	Automobiles	88	24	36	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street NB W Traffic direction: In entry direction							
	Total	26	19	45	-	none	Average (of DGAC and PCC)
	Automobiles	25	19	44	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction							
	Total	486	346	434	-	none	Average (of DGAC and PCC)
	Automobiles	476	339	425	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	10	7	9	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street EB S Traffic direction: In entry direction							
	Total	36	61	33	-	none	Average (of DGAC and PCC)
	Automobiles	35	60	32	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	1	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		
Ogden Dr-6th Street NB E Traffic direction: In entry direction							
	Total	8	76	114	-	none	Average (of DGAC and PCC)
	Automobiles	8	74	112	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	2	2	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-	-		

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	71.8	70.0	67.0	62.3	71.3
	Between Ogden Dr. and Curson Ave.	Residential	72.2	70.4	67.4	62.7	71.7
	East of Curson Ave.	Residential	71.5	69.7	66.7	62.0	71.0
Ogden Drive	North of 6th St.	Residential	63.1	61.3	58.3	53.6	62.6
	South of Wilshire Blvd.	Commercial	63.4	61.6	58.6	53.9	62.9
Spaulding Avenue	South of Wilshire Blvd.	Commercial	65.4	63.6	60.6	55.9	64.9
Curson Avenue	North of 6th St.	Residential	67.8	66.0	63.0	58.3	67.3
	Between 6th St. and Wilshire Blvd.	Residential	68.6	66.8	63.8	59.1	68.1
	South of Wilshire Blvd.	Residential	71.5	69.7	66.7	62.0	71.0
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	68.8	67.0	64.0	59.3	68.3
	Between Ogden Dr. and Spaulding Ave.	Commercial	67.7	65.9	62.9	58.2	67.2
	Between Spaulding. and Curson Ave.	Museum	69.9	68.1	65.1	60.4	69.4
	East of Curson Ave.	Commercial	68.3	66.5	63.5	58.8	67.8

Project Only Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction					
	Total	32	56	none	Average (of DGAC and PCC)
	Automobiles	31	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction					
	Total	32	56	none	Average (of DGAC and PCC)
	Automobiles	31	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction					
	Total	32	56	none	Average (of DGAC and PCC)
	Automobiles	31	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction					
	Total	27	56	none	Average (of DGAC and PCC)
	Automobiles	27	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction					
	Total	47	56	none	Average (of DGAC and PCC)
	Automobiles	47	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction					
	Total	47	56	none	Average (of DGAC and PCC)
	Automobiles	46	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction					
	Total	47	56	none	Average (of DGAC and PCC)
	Automobiles	46	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction					
	Total	13	56	none	Average (of DGAC and PCC)
	Automobiles	13	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	15	56	none	Average (of DGAC and PCC)
	Automobiles	15	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction					
	Total	32	56	none	Average (of DGAC and PCC)
	Automobiles	31	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Project Only Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction					
	Total	13	56	none	Average (of DGAC and PCC)
	Automobiles	13	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction					
	Total	59	56	none	Average (of DGAC and PCC)
	Automobiles	58	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	8	56	none	Average (of DGAC and PCC)
	Automobiles	8	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction					
	Total	58	56	none	Average (of DGAC and PCC)
	Automobiles	57	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction					
	Total	77	56	none	Average (of DGAC and PCC)
	Automobiles	75	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	8	56	none	Average (of DGAC and PCC)
	Automobiles	8	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	8	56	none	Average (of DGAC and PCC)
	Automobiles	8	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Project Only Roadway Traffic Noise Levels - Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction					
	Total	45	56		
	Automobiles	45	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-		none	Average (of DGAC and PCC)
Ogden Dr-6th Street EB S Traffic direction: In entry direction					
	Total	36	56		
	Automobiles	35	56		
	Medium trucks	-	56		
	Heavy trucks	1	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB E Traffic direction: In entry direction					
	Total	35	56		
	Automobiles	34	56		
	Medium trucks	-	56		
	Heavy trucks	1	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	58.2	56.4	53.4	48.7	57.7
	Between Ogden Dr. and Curson Ave.	Residential	45.4	43.6	40.6	35.9	44.9
	East of Curson Ave.	Residential	50.7	48.9	45.9	41.2	50.2
Ogden Drive	North of 6th St.	Residential	46.0	44.2	41.2	36.5	45.5
	South of Wilshire Blvd.	Commercial	48.2	46.4	43.4	38.7	47.7
Spaulding Avenue	South of Wilshire Blvd.	Commercial	50.4	48.6	45.6	40.9	49.9
Curson Avenue	North of 6th St.	Residential	48.3	46.5	43.5	38.8	47.8
	Between 6th St. and Wilshire Blvd.	Residential	58.5	56.7	53.7	49.0	58.0
	South of Wilshire Blvd.	Residential	56.4	54.6	51.6	46.9	55.9
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	53.4	51.6	48.6	43.9	52.9
	Between Ogden Dr. and Spaulding Ave.	Commercial	52.5	50.7	47.7	43.0	52.0
	Between Spaulding. and Curson Ave.	Museum	54.5	52.7	49.7	45.0	54.0
	East of Curson Ave.	Commercial	51.8	50.0	47.0	42.3	51.3

Description	Off-Site Receptor	Nearest Noise Land Use(s)	Coordinates		Leq	Daytime	Evening	Nighttime	CNEL
			X	Y	dBA	dBA	dBA	dBA	dBA
Multi-family residence on the north side of West 6th Street, northwest of the project site.	ST2	Multi-Family Residential	11374577.61	3770195.09	53.4	51.6	48.6	43.9	52.9
Multi-family residence on the north side of West 6th Street, northwest of the project site.	ST3	Multi-Family Residential	11374737.35	3770194.94	44.4	42.6	39.6	34.9	43.9
Multi-family residence on the north side of West 6th Street, northeast of the project site.	ST5	Multi-Family Residential	11374999.12	3770191.44	51.3	49.5	46.5	41.8	50.8
Multi-family residence on the east side of Curson Avenue, east of the project site.	ST6	Multi-Family Residential	11375004.59	3770097.23	54.6	52.8	49.8	45.1	54.1
Mixed-use commercial building on the east side of Curson Avenue, east of the project site.	ST7	Commercial	11375000.15	3769984.29	55.2	53.4	50.4	45.7	54.7
Office building on the south side of Wilshire Boulevard, southeast of the project site.	ST8	Commercial	11374965.74	3769888.53	55.2	53.4	50.4	45.7	54.7
Commercial building on the south side of Wilshire Boulevard, south of the project site.	ST9	Commercial	11374857.07	3769896.35	54.4	52.6	49.6	44.9	53.9
Commercial building on the south side of Wilshire Boulevard, southwest of the project site.	ST10	Commercial	11374597.98	3769921.79	52.8	51.0	48.0	43.3	52.3

Project Only Roadway Traffic Noise Levels - Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction							
	Total	3	24	4	56	none	Average (of DGAC and PCC)
	Automobiles	3	24	4	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction							
	Total	3	24	4	56	none	Average (of DGAC and PCC)
	Automobiles	3	24	4	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction							
	Total	3	24	4	56	none	Average (of DGAC and PCC)
	Automobiles	3	24	4	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction							
	Total	-	34	11	56	none	Average (of DGAC and PCC)
	Automobiles	-	34	11	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction							
	Total	-	67	23	56	none	Average (of DGAC and PCC)
	Automobiles	-	67	23	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	0	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction							
	Total	-	67	23	56	none	Average (of DGAC and PCC)
	Automobiles	-	66	23	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	1	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction							
	Total	-	67	24	56	none	Average (of DGAC and PCC)
	Automobiles	-	66	24	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	1	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction							
	Total	1	10	1	56	none	Average (of DGAC and PCC)
	Automobiles	1	10	1	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	-	-	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	-	-	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	-	-	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	-	-	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	-	16	5	56	none	Average (of DGAC and PCC)
	Automobiles	-	16	5	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	0	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction							
	Total	3	24	4	56	none	Average (of DGAC and PCC)
	Automobiles	3	24	4	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction							
	Total	-	-	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Project Only Roadway Traffic Noise Levels - Weekday

Station	Vehicles type	Traffic values AM Veh/h	midday Veh/h	PM Veh/h	Speed km/h	Control	Road surface
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction							
	Total	1	10	1	56		
	Automobiles	1	10	1	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction							
	Total	-	85	29	56		
	Automobiles	-	83	28	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	2	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1	6	1	56		
	Automobiles	1	6	1	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction							
	Total	-	82	29	56		
	Automobiles	-	80	28	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	2	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction							
	Total	6	57	8	56		
	Automobiles	6	56	8	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	1	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	-	12	4	56		
	Automobiles	-	12	4	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	-	12	4	56		
	Automobiles	-	12	4	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-		none	Average (of DGAC and PCC)
Ogden Dr-6th Street EB S Traffic direction: In entry direction							
	Total	3	27	4	56		
	Automobiles	3	26	4	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	1	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Project Only Roadway Traffic Noise Levels - Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Ogden Dr-6th Street NB E Traffic direction: In entry direction							
	Total	-	50	17	56	none	Average (of DGAC and PCC)
	Automobiles	-	49	17	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	1	0	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	58.7	56.9	53.9	49.2	58.2
	Between Ogden Dr. and Curson Ave.	Residential	46.8	45.0	42.0	37.3	46.3
	East of Curson Ave.	Residential	50.8	49.0	46.0	41.3	50.3
Ogden Drive	North of 6th St.	Residential	46.4	44.6	41.6	36.9	45.9
	South of Wilshire Blvd.	Commercial	48.6	46.8	43.8	39.1	48.1
Spaulding Avenue	South of Wilshire Blvd.	Commercial	50.8	49.0	46.0	41.3	50.3
Curson Avenue	North of 6th St.	Residential	49.1	47.3	44.3	39.6	48.6
	Between 6th St. and Wilshire Blvd.	Residential	57.6	55.8	52.8	48.1	57.1
	South of Wilshire Blvd.	Residential	56.8	55.0	52.0	47.3	56.3
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	53.6	51.8	48.8	44.1	53.1
	Between Ogden Dr. and Spaulding Ave.	Commercial	52.8	51.0	48.0	43.3	52.3
	Between Spaulding. and Curson Ave.	Museum	54.6	52.8	49.8	45.1	54.1
	East of Curson Ave.	Commercial	52.3	50.5	47.5	42.8	51.8

Description	Off-Site Receptor	Nearest Noise Land Use(s)	Coordinates		Leq	Daytime	Evening	Nighttime	CNEL
			X	Y	dBA	dBA	dBA	dBA	dBA
Multi-family residence on the north side of West 6th Street, northwest of the project site.	ST2	Multi-Family Residential	11374577.61	3770195.09	52.9	51.1	48.1	43.4	52.4
Multi-family residence on the north side of West 6th Street, northwest of the project site.	ST3	Multi-Family Residential	11374737.35	3770194.94	42.9	41.1	38.1	33.4	42.4
Multi-family residence on the north side of West 6th Street, northeast of the project site.	ST5	Multi-Family Residential	11374999.12	3770191.44	51.1	49.3	46.3	41.6	50.6
Multi-family residence on the east side of Curson Avenue, east of the project site.	ST6	Multi-Family Residential	11375004.59	3770097.23	54.9	53.1	50.1	45.4	54.4
Mixed-use commercial building on the east side of Curson Avenue, east of the project site.	ST7	Commercial	11375000.15	3769984.29	55.3	53.5	50.5	45.8	54.8
Office building on the south side of Wilshire Boulevard, southeast of the project site.	ST8	Commercial	11374965.74	3769888.53	54.6	52.8	49.8	45.1	54.1
Commercial building on the south side of Wilshire Boulevard, south of the project site.	ST9	Commercial	11374857.07	3769896.35	54.3	52.5	49.5	44.8	53.8
Commercial building on the south side of Wilshire Boulevard, southwest of the project site.	ST10	Commercial	11374597.98	3769921.79	52.5	50.7	47.7	43.0	52.0

Roadway Traffic Noise Levels - Related Projects Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction					
	Total	113	56	none	Average (of DGAC and PCC)
	Automobiles	111	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction					
	Total	109	56	none	Average (of DGAC and PCC)
	Automobiles	107	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction					
	Total	109	56	none	Average (of DGAC and PCC)
	Automobiles	107	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction					
	Total	330	56	none	Average (of DGAC and PCC)
	Automobiles	330	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction					
	Total	229	56	none	Average (of DGAC and PCC)
	Automobiles	228	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction					
	Total	225	56	none	Average (of DGAC and PCC)
	Automobiles	221	56		
	Medium trucks	-	56		
	Heavy trucks	5	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction					
	Total	225	56	none	Average (of DGAC and PCC)
	Automobiles	221	56		
	Medium trucks	-	56		
	Heavy trucks	5	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction					
	Total	31	56	none	Average (of DGAC and PCC)
	Automobiles	31	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	8	56	none	Average (of DGAC and PCC)
	Automobiles	8	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	8	56	none	Average (of DGAC and PCC)
	Automobiles	8	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	674	56	none	Average (of DGAC and PCC)
	Automobiles	661	56		
	Medium trucks	-	56		
	Heavy trucks	13	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction					
	Total	337	56	none	Average (of DGAC and PCC)
	Automobiles	330	56		
	Medium trucks	-	56		
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Traffic Noise Levels - Related Projects Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction					
	Total	30	56	none	Average (of DGAC and PCC)
	Automobiles	29	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction					
	Total	80	56	none	Average (of DGAC and PCC)
	Automobiles	78	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	1	56	none	Average (of DGAC and PCC)
	Automobiles	1	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	6	56	none	Average (of DGAC and PCC)
	Automobiles	6	56		
	Medium trucks	-	56		
	Heavy trucks	0	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	180	56	none	Average (of DGAC and PCC)
	Automobiles	176	56		
	Medium trucks	-	56		
	Heavy trucks	4	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction					
	Total	201	56	none	Average (of DGAC and PCC)
	Automobiles	197	56		
	Medium trucks	-	56		
	Heavy trucks	4	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction					
	Total	99	56	none	Average (of DGAC and PCC)
	Automobiles	97	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	84	56	none	Average (of DGAC and PCC)
	Automobiles	82	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	167	56	none	Average (of DGAC and PCC)
	Automobiles	164	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction					
	Total	-	56	none	Average (of DGAC and PCC)
	Automobiles	-	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Traffic Noise Levels - Related Projects Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction					
	Total	337	56		
	Automobiles	330	56		
	Medium trucks	-	56		
	Heavy trucks	7	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-		none	Average (of DGAC and PCC)
Ogden Dr-6th Street EB S Traffic direction: In entry direction					
	Total	20	56		
	Automobiles	20	56		
	Medium trucks	-	56		
	Heavy trucks	0	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB E Traffic direction: In entry direction					
	Total	26	56		
	Automobiles	25	56		
	Medium trucks	-	56		
	Heavy trucks	1	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	62.4	60.6	57.6	52.9	61.9
	Between Ogden Dr. and Curson Ave.	Residential	62.2	60.4	57.4	52.7	61.7
	East of Curson Ave.	Residential	59.4	57.6	54.6	49.9	58.9
Ogden Drive	North of 6th St.	Residential	51.3	49.5	46.5	41.8	50.8
	South of Wilshire Blvd.	Commercial	54.7	52.9	49.9	45.2	54.2
Spaulding Avenue	South of Wilshire Blvd.	Commercial	56.6	54.8	51.8	47.1	56.1
Curson Avenue	North of 6th St.	Residential	57.3	55.5	52.5	47.8	56.8
	Between 6th St. and Wilshire Blvd.	Residential	65.7	63.9	60.9	56.2	65.2
	South of Wilshire Blvd.	Residential	64.6	62.8	59.8	55.1	64.1
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	59.6	57.8	54.8	50.1	59.1
	Between Ogden Dr. and Spaulding Ave.	Commercial	58.7	56.9	53.9	49.2	58.2
	Between Spaulding. and Curson Ave.	Museum	60.6	58.8	55.8	51.1	60.1
	East of Curson Ave.	Commercial	61.0	59.2	56.2	51.5	60.5

Roadway Traffic Noise Levels - Related Projects Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction							
	Total	952	1182	1923	56		
	Automobiles	933	1158	1885	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	24	38	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction							
	Total	333	126	164	56		
	Automobiles	326	123	161	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	7	3	3	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction							
	Total	333	126	164	56		
	Automobiles	326	123	161	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	7	3	3	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction							
	Total	955	389	504	56		
	Automobiles	955	389	504	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction							
	Total	117	268	347	56		
	Automobiles	117	267	346	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	1	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction							
	Total	120	265	340	56		
	Automobiles	118	260	333	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	5	7	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction							
	Total	128	265	340	56		
	Automobiles	125	260	333	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	3	5	7	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction							
	Total	73	36	42	56		
	Automobiles	73	36	42	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	10	6	3	56		
	Automobiles	10	6	3	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	9	-	-	56		
	Automobiles	9	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	328	798	1035	56		
	Automobiles	321	782	1014	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	7	16	21	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction							
	Total	82	399	517	56		
	Automobiles	80	391	507	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	8	10	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction							
	Total	73	36	42	56		
	Automobiles	72	35	41	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	1	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Traffic Noise Levels - Related Projects Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction							
	Total	423	95	123	56		
	Automobiles	415	93	121	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	8	2	2	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	1	2	2	56		
	Automobiles	1	2	2	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	7	6	6	56		
	Automobiles	7	6	6	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	49	212	273	56		
	Automobiles	48	208	268	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	4	5	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction							
	Total	47	228	301	56		
	Automobiles	46	223	295	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	5	6	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction							
	Total	453	111	133	56		
	Automobiles	444	109	130	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	9	2	3	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	430	99	128	56		
	Automobiles	421	97	125	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	9	2	3	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	47	197	255	56		
	Automobiles	46	193	250	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	4	5	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction							
	Total	-	-	-	56		
	Automobiles	-	-	-	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction							
	Total	82	399	517	56		
	Automobiles	80	391	507	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	8	10	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-		none	Average (of DGAC and PCC)
Ogden Dr-6th Street EB S Traffic direction: In entry direction							
	Total	26	16	9	56		
	Automobiles	25	16	9	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	0	0	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Traffic Noise Levels - Related Projects Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Ogden Dr-6th Street NB E Traffic direction: In entry direction							
	Total	1	20	32	56	none	Average (of DGAC and PCC)
	Automobiles	1	20	31	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	1	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	64.1	62.3	59.3	54.6	63.6
	Between Ogden Dr. and Curson Ave.	Residential	64.0	62.2	59.2	54.5	63.5
	East of Curson Ave.	Residential	61.2	59.4	56.4	51.7	60.7
Ogden Drive	North of 6th St.	Residential	53.1	51.3	48.3	43.6	52.6
	South of Wilshire Blvd.	Commercial	57.9	56.1	53.1	48.4	57.4
Spaulding Avenue	South of Wilshire Blvd.	Commercial	58.5	56.7	53.7	49.0	58.0
Curson Avenue	North of 6th St.	Residential	59.6	57.8	54.8	50.1	59.1
	Between 6th St. and Wilshire Blvd.	Residential	67.6	65.8	62.8	58.1	67.1
	South of Wilshire Blvd.	Residential	66.5	64.7	61.7	57.0	66.0
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	68.7	66.9	63.9	59.2	68.2
	Between Ogden Dr. and Spaulding Ave.	Commercial	60.9	59.1	56.1	51.4	60.4
	Between Spaulding. and Curson Ave.	Museum	63.3	61.5	58.5	53.8	62.8
	East of Curson Ave.	Commercial	64.8	63.0	60.0	55.3	64.3

Roadway Traffic Noise Levels - Opening Year without Project Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction					
	Total	1025	56	none	Average (of DGAC and PCC)
	Automobiles	1005	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction					
	Total	1041	56	none	Average (of DGAC and PCC)
	Automobiles	1020	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction					
	Total	1003	56	none	Average (of DGAC and PCC)
	Automobiles	983	56		
	Medium trucks	-	56		
	Heavy trucks	20	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction					
	Total	1227	56	none	Average (of DGAC and PCC)
	Automobiles	1227	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction					
	Total	924	56	none	Average (of DGAC and PCC)
	Automobiles	923	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction					
	Total	918	56	none	Average (of DGAC and PCC)
	Automobiles	900	56		
	Medium trucks	-	56		
	Heavy trucks	18	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction					
	Total	909	56	none	Average (of DGAC and PCC)
	Automobiles	891	56		
	Medium trucks	-	56		
	Heavy trucks	18	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction					
	Total	631	56	none	Average (of DGAC and PCC)
	Automobiles	631	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	51	56	none	Average (of DGAC and PCC)
	Automobiles	50	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	29	56	none	Average (of DGAC and PCC)
	Automobiles	28	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	109	56	none	Average (of DGAC and PCC)
	Automobiles	107	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	2	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	144	56	none	Average (of DGAC and PCC)
	Automobiles	141	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	1069	56	none	Average (of DGAC and PCC)
	Automobiles	1048	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction					
	Total	728	56	none	Average (of DGAC and PCC)
	Automobiles	713	56		
	Medium trucks	-	56		
	Heavy trucks	15	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Traffic Noise Levels - Opening Year without Project Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction					
	Total	525	56	none	Average (of DGAC and PCC)
	Automobiles	515	56		
	Medium trucks	-	56		
	Heavy trucks	11	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction					
	Total	71	56	none	Average (of DGAC and PCC)
	Automobiles	70	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction					
	Total	479	56	none	Average (of DGAC and PCC)
	Automobiles	469	56		
	Medium trucks	-	56		
	Heavy trucks	10	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	259	56	none	Average (of DGAC and PCC)
	Automobiles	254	56		
	Medium trucks	-	56		
	Heavy trucks	5	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	716	56	none	Average (of DGAC and PCC)
	Automobiles	702	56		
	Medium trucks	-	56		
	Heavy trucks	14	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	1342	56	none	Average (of DGAC and PCC)
	Automobiles	1315	56		
	Medium trucks	-	56		
	Heavy trucks	27	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction					
	Total	1386	56	none	Average (of DGAC and PCC)
	Automobiles	1358	56		
	Medium trucks	-	56		
	Heavy trucks	28	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction					
	Total	1155	56	none	Average (of DGAC and PCC)
	Automobiles	1132	56		
	Medium trucks	-	56		
	Heavy trucks	23	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	1081	56	none	Average (of DGAC and PCC)
	Automobiles	1059	56		
	Medium trucks	-	56		
	Heavy trucks	22	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	777	56	none	Average (of DGAC and PCC)
	Automobiles	761	56		
	Medium trucks	-	56		
	Heavy trucks	16	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction					
	Total	153	56	none	Average (of DGAC and PCC)
	Automobiles	150	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction					
	Total	148	56	none	Average (of DGAC and PCC)
	Automobiles	145	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction					
	Total	57	56	none	Average (of DGAC and PCC)
	Automobiles	56	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction					
	Total	34	56	none	Average (of DGAC and PCC)
	Automobiles	33	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Traffic Noise Levels - Opening Year without Project Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction					
	Total	799	56		
	Automobiles	783	56		
	Medium trucks	-	56		
	Heavy trucks	16	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-		none	Average (of DGAC and PCC)
Ogden Dr-6th Street EB S Traffic direction: In entry direction					
	Total	239	56		
	Automobiles	234	56		
	Medium trucks	-	56		
	Heavy trucks	5	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB E Traffic direction: In entry direction					
	Total	186	56		
	Automobiles	182	56		
	Medium trucks	-	56		
	Heavy trucks	4	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	71.4	69.6	66.6	61.9	70.9
	Between Ogden Dr. and Curson Ave.	Residential	71.4	69.6	66.6	61.9	70.9
	East of Curson Ave.	Residential	69.4	67.6	64.6	59.9	68.9
Ogden Drive	North of 6th St.	Residential	62.7	60.9	57.9	53.2	62.2
	South of Wilshire Blvd.	Commercial	62.5	60.7	57.7	53.0	62.0
Spaulding Avenue	South of Wilshire Blvd.	Commercial	64.8	63.0	60.0	55.3	64.3
Curson Avenue	North of 6th St.	Residential	67.3	65.5	62.5	57.8	66.8
	Between 6th St. and Wilshire Blvd.	Residential	70.4	68.6	65.6	60.9	69.9
	South of Wilshire Blvd.	Residential	71.1	69.3	66.3	61.6	70.6
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	67.6	65.8	62.8	58.1	67.1
	Between Ogden Dr. and Spaulding Ave.	Commercial	66.8	65.0	62.0	57.3	66.3
	Between Spaulding. and Curson Ave.	Museum	68.7	66.9	63.9	59.2	68.2
	East of Curson Ave.	Commercial	67.8	66.0	63.0	58.3	67.3

Roadway Traffic Noise Levels - Opening Year without Project Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction							
	Total	952	1182	1923	56		
	Automobiles	933	1158	1885	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	24	38	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction							
	Total	952	1187	1930	56		
	Automobiles	933	1163	1891	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	24	39	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction							
	Total	945	1167	1936	56		
	Automobiles	926	1144	1897	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	23	39	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction							
	Total	1775	1429	2197	56		
	Automobiles	1775	1429	2197	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction							
	Total	1403	1014	1079	56		
	Automobiles	1401	1012	1076	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	3	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction							
	Total	1418	1009	1052	56		
	Automobiles	1390	989	1031	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	28	20	21	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1369	1000	1041	56		
	Automobiles	1342	980	1020	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	27	20	21	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction							
	Total	1201	744	794	56		
	Automobiles	1201	744	794	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	10	34	69	56		
	Automobiles	10	33	68	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	1	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	20	19	56	56		
	Automobiles	20	19	55	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	127	72	86	56		
	Automobiles	124	71	84	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	3	1	2	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	85	83	69	56		
	Automobiles	83	81	68	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	934	1129	1392	56		
	Automobiles	915	1106	1364	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	23	28	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction							
	Total	504	691	906	56		
	Automobiles	494	677	888	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	10	14	18	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction							
	Total	1003	613	654	56		
	Automobiles	983	601	641	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	20	12	13	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Traffic Noise Levels - Opening Year without Project Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction							
	Total	115	91	91	56		
	Automobiles	113	89	89	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	2	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction							
	Total	812	383	408	56		
	Automobiles	796	375	400	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	16	8	8	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	359	176	272	56		
	Automobiles	352	172	267	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	7	4	5	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1941	712	822	56		
	Automobiles	1902	698	806	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	39	14	16	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	2184	1224	1041	56		
	Automobiles	2140	1200	1020	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	44	24	21	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction							
	Total	2175	1238	1120	56		
	Automobiles	2132	1213	1098	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	44	25	22	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction							
	Total	1006	989	1139	56		
	Automobiles	986	969	1116	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	20	20	23	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	1003	971	1174	56		
	Automobiles	983	952	1151	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	20	19	23	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	728	871	1544	56		
	Automobiles	713	854	1513	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	15	17	31	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction							
	Total	183	143	235	56		
	Automobiles	179	140	230	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	4	3	5	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction							
	Total	297	135	189	56		
	Automobiles	291	132	185	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	6	3	4	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction							
	Total	100	26	41	56		
	Automobiles	98	25	40	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	1	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction							
	Total	29	21	50	56		
	Automobiles	28	21	49	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	0	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction							
	Total	650	688	994	56		
	Automobiles	637	674	974	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	13	14	20	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street EB S Traffic direction: In entry direction							
	Total	66	113	45	56		
	Automobiles	65	111	44	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	1	2	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Traffic Noise Levels - Opening Year without Project Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Ogden Dr-6th Street NB E Traffic direction: In entry direction							
	Total	10	104	158	56	none	Average (of DGAC and PCC)
	Automobiles	10	102	155	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	2	3	56		
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	72.7	70.9	67.9	63.2	72.2
	Between Ogden Dr. and Curson Ave.	Residential	73.0	71.2	68.2	63.5	72.5
	East of Curson Ave.	Residential	72.1	70.3	67.3	62.6	71.6
Ogden Drive	North of 6th St.	Residential	63.9	62.1	59.1	54.4	63.4
	South of Wilshire Blvd.	Commercial	64.6	62.8	59.8	55.1	64.1
Spaulding Avenue	South of Wilshire Blvd.	Commercial	66.6	64.8	61.8	57.1	66.1
Curson Avenue	North of 6th St.	Residential	68.8	67.0	64.0	59.3	68.3
	Between 6th St. and Wilshire Blvd.	Residential	71.0	69.2	66.2	61.5	70.5
	South of Wilshire Blvd.	Residential	73.0	71.2	68.2	63.5	72.5
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	69.8	68.0	65.0	60.3	69.3
	Between Ogden Dr. and Spaulding Ave.	Commercial	68.9	67.1	64.1	59.4	68.4
	Between Spaulding. and Curson Ave.	Museum	71.0	69.2	66.2	61.5	70.5
	East of Curson Ave.	Commercial	69.7	67.9	64.9	60.2	69.2

Mechanical Equipment Noise Calculations

Off-Site Receptor	Estimated Noise Levels from Mechanical Equipment				
	L_{eq}	CNEL[a]	Ld	Le	Ln
	dBA	dBA	dBA	dBA	dBA
ST2	50.1	51.3	50.1	50.1	40.6
ST3	59.2	60.4	59.2	59.2	49.7
ST5	53.1	54.3	53.1	53.1	43.6
ST6	57.2	58.4	57.2	57.2	47.7
ST7	56.4	57.6	56.4	56.4	46.9
ST8	52.1	53.3	52.1	52.1	42.6
ST9	52.0	53.2	52.0	52.0	42.5
ST10	47.3	48.5	47.3	47.3	37.8

[a] Assumes a daily operation from 6:00 a.m. to 10:00 p.m.

Off-Site Receptor	Ambient	Ambient plus Project	Increase	Ambient	Ambient plus Project	Increase
	L_{eq}	L_{eq}	L_{eq}	CNEL	CNEL	CNEL
	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	67.6	0.1	68.1	68.2	0.1
ST3	65.5	66.4	0.9	66.4	67.4	1.0
ST5	74.9	74.9	0.0	75.1	75.1	0.0
ST6	62.8	63.9	1.1	64.4	65.4	1.0
ST7	64.8	65.4	0.6	65.9	66.5	0.6
ST8	69.8	69.9	0.1	70.2	70.3	0.1
ST9	74.6	74.6	0.0	74.8	74.8	0.0
ST10	67.1	67.1	0.0	67.8	67.9	0.1

Traffic Noise Calculations

Off-Site Receptor	Estimated Traffic Noise Levels, CNEL			
	Project Only	Existing	Project plus Existing	Increase
	dBA	dBA	dBA	dBA
ST2	52.9	68.1	68.2	0.1
ST3	43.9	66.4	66.4	0.0
ST5	50.8	75.1	75.1	0.0
ST6	54.1	64.4	64.8	0.4
ST7	54.7	65.9	66.2	0.3
ST8	54.7	70.2	70.3	0.1
ST9	53.9	74.8	74.8	0.0
ST10	52.3	67.8	67.9	0.1

Loading and Trash Compactor Activities Noise Calculations

Off-Site Receptor	Estimated Noise Levels from Loading and Trash Compactor Activities				
	L_{eq}	CNEL [a]	Ld [b]	Le [b]	Ln [a]
	dBA	dBA	dBA	dBA	dBA
ST2	48.8	46.0	42.8	48.8	0.0
ST3	54.4	51.6	48.4	54.4	0.0
ST5	57.2	54.4	51.2	57.2	0.0
ST6	59.2	56.4	53.2	59.2	0.0
ST7	55.1	52.3	49.1	55.1	0.0
ST8	51.9	49.1	45.9	51.9	0.0
ST9	52.3	49.5	46.3	52.3	0.0
ST10	48.1	45.3	42.1	48.1	0.0

[a] Assumes a daily operation from 7:00 a.m. to 10:00 p.m.

[b] Loading and trash compactor activities will occur a maximum of 3 hours per day.

Off-Site Receptor	Ambient	Ambient plus Project	Increase	Ambient	Ambient plus Project	Increase
	L_{eq}	L_{eq}	L_{eq}	CNEL	CNEL	CNEL
	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	67.6	0.1	68.1	68.1	0.0
ST3	65.5	65.8	0.3	66.4	66.5	0.1
ST5	74.9	75.0	0.1	75.1	75.1	0.0
ST6	62.8	64.4	1.6	64.4	65.0	0.6
ST7	64.8	65.2	0.4	65.9	66.1	0.2
ST8	69.8	69.9	0.1	70.2	70.2	0.0
ST9	74.6	74.6	0.0	74.8	74.8	0.0
ST10	67.1	67.1	0.1	67.8	67.8	0.0

Parking Noise Calculations

Off-Site Receptor	Estimated Noise Levels from Parking				
	L_{eq}	CNEL[a]	Ld	Le	Ln
	dBA	dBA	dBA	dBA	dBA
ST2	29.0	30.2	29.0	29.0	19.5
ST3	37.1	38.3	37.1	37.1	27.6
ST5	42.2	43.4	42.2	42.2	32.7
ST6	43.8	45.0	43.8	43.8	34.3
ST7	33.4	34.6	33.4	33.4	23.9
ST8	26.2	27.4	26.2	26.2	16.7
ST9	28.2	29.4	28.2	28.2	18.7
ST10	24.5	25.7	24.5	24.5	15.0

[a] Assumes a daily operation from 6:00 a.m. to 10:00 p.m.

Off-Site Receptor	Ambient	Ambient plus Project	Increase	Ambient	Ambient plus Project	Increase
	L_{eq}	L_{eq}	L_{eq}	CNEL	CNEL	CNEL
	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	67.5	0.0	68.1	68.1	0.0
ST3	65.5	65.5	0.0	66.4	66.4	0.0
ST5	74.9	74.9	0.0	75.1	75.1	0.0
ST6	62.8	62.9	0.1	64.4	64.4	0.0
ST7	64.8	64.8	0.0	65.9	65.9	0.0
ST8	69.8	69.8	0.0	70.2	70.2	0.0
ST9	74.6	74.6	0.0	74.8	74.8	0.0
ST10	67.1	67.1	0.0	67.8	67.8	0.0

Outdoor Activities Noise Calculations

Off-Site Receptor	Estimated Noise Levels from Outdoor Activities				
	L_{eq}	CNEL[a]	Ld	Le	Ln
	dBA	dBA	dBA	dBA	dBA
ST2	42.7	39.7	42.7	0.0	0.0
ST3	46.9	43.9	46.9	0.0	0.0
ST5	47.9	44.9	47.9	0.0	0.0
ST6	51.8	48.8	51.8	0.0	0.0
ST7	50.7	47.7	50.7	0.0	0.0
ST8	46.4	43.4	46.4	0.0	0.0
ST9	46.7	43.7	46.7	0.0	0.0
ST10	42.0	39.0	42.0	0.0	0.0

[a] Assumes a daily operation from 7:00 a.m. to 7:00 p.m.

Off-Site Receptor	Ambient	Ambient plus Project	Increase	Ambient	Ambient plus Project	Increase
	L_{eq}	L_{eq}	L_{eq}	CNEL	CNEL	CNEL
	dBA	dBA	dBA	dBA	dBA	dBA
ST2	67.5	67.5	0.0	68.1	68.1	0.0
ST3	65.5	65.6	0.1	66.4	66.4	0.0
ST5	74.9	74.9	0.0	75.1	75.1	0.0
ST6	62.8	63.1	0.3	64.4	64.5	0.1
ST7	64.8	65.0	0.2	65.9	66.0	0.1
ST8	69.8	69.8	0.0	70.2	70.2	0.0
ST9	74.6	74.6	0.0	74.8	74.8	0.0
ST10	67.1	67.1	0.0	67.8	67.8	0.0

Project Composite Noise Calculations

Off-Site Receptor	Estimated Noise Levels								
	Ambient	Traffic	Mechanical	Parking	Trash Compactor and Loading	Outdoor	Project Composite	Ambient plus Project	Increase
	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL	CNEL
	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA	dBA
ST2	68.1	52.9	51.3	30.2	46.0	39.7	55.8	68.3	0.2
ST3	66.4	43.9	60.4	38.3	51.6	43.9	61.1	67.5	1.1
ST5	75.1	50.8	54.3	43.4	54.4	44.9	58.5	75.2	0.1
ST6	64.4	54.1	58.4	45.0	56.4	48.8	61.7	66.3	1.9
ST7	65.9	54.7	57.6	34.6	52.3	47.7	60.4	67.0	1.1
ST8	70.2	54.7	53.3	27.4	49.1	43.4	57.8	70.4	0.2
ST9	74.8	53.9	53.2	29.4	49.5	43.7	57.5	74.9	0.1
ST10	67.8	52.3	48.5	25.7	45.3	39.0	54.5	68.0	0.2

Roadway Traffic Noise Levels - Opening Year with Project Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction					
	Total	1057	56	none	Average (of DGAC and PCC)
	Automobiles	1036	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction					
	Total	1073	56	none	Average (of DGAC and PCC)
	Automobiles	1052	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction					
	Total	1035	56	none	Average (of DGAC and PCC)
	Automobiles	1014	56		
	Medium trucks	-	56		
	Heavy trucks	21	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction					
	Total	1254	56	none	Average (of DGAC and PCC)
	Automobiles	1254	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction					
	Total	971	56	none	Average (of DGAC and PCC)
	Automobiles	969	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction					
	Total	965	56	none	Average (of DGAC and PCC)
	Automobiles	946	56		
	Medium trucks	-	56		
	Heavy trucks	19	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction					
	Total	956	56	none	Average (of DGAC and PCC)
	Automobiles	937	56		
	Medium trucks	-	56		
	Heavy trucks	19	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction					
	Total	644	56	none	Average (of DGAC and PCC)
	Automobiles	644	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	51	56	none	Average (of DGAC and PCC)
	Automobiles	50	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	29	56	none	Average (of DGAC and PCC)
	Automobiles	28	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	109	56	none	Average (of DGAC and PCC)
	Automobiles	107	56		
	Medium trucks	-	56		
	Heavy trucks	-	56		
	Buses	2	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	144	56	none	Average (of DGAC and PCC)
	Automobiles	141	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction					
	Total	1084	56	none	Average (of DGAC and PCC)
	Automobiles	1062	56		
	Medium trucks	-	56		
	Heavy trucks	22	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction					
	Total	760	56	none	Average (of DGAC and PCC)
	Automobiles	745	56		
	Medium trucks	-	56		
	Heavy trucks	15	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Traffic Noise Levels - Opening Year with Project Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction					
	Total	525	56	none	Average (of DGAC and PCC)
	Automobiles	515	56		
	Medium trucks	-	56		
	Heavy trucks	11	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction					
	Total	84	56	none	Average (of DGAC and PCC)
	Automobiles	82	56		
	Medium trucks	-	56		
	Heavy trucks	2	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction					
	Total	538	56	none	Average (of DGAC and PCC)
	Automobiles	527	56		
	Medium trucks	-	56		
	Heavy trucks	11	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction					
	Total	259	56	none	Average (of DGAC and PCC)
	Automobiles	254	56		
	Medium trucks	-	56		
	Heavy trucks	5	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	724	56	none	Average (of DGAC and PCC)
	Automobiles	710	56		
	Medium trucks	-	56		
	Heavy trucks	14	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction					
	Total	1365	56	none	Average (of DGAC and PCC)
	Automobiles	1338	56		
	Medium trucks	-	56		
	Heavy trucks	27	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction					
	Total	1444	56	none	Average (of DGAC and PCC)
	Automobiles	1415	56		
	Medium trucks	-	56		
	Heavy trucks	29	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction					
	Total	1232	56	none	Average (of DGAC and PCC)
	Automobiles	1207	56		
	Medium trucks	-	56		
	Heavy trucks	25	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	1122	56	none	Average (of DGAC and PCC)
	Automobiles	1100	56		
	Medium trucks	-	56		
	Heavy trucks	22	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction					
	Total	785	56	none	Average (of DGAC and PCC)
	Automobiles	769	56		
	Medium trucks	-	56		
	Heavy trucks	16	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction					
	Total	147	56	none	Average (of DGAC and PCC)
	Automobiles	144	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction					
	Total	148	56	none	Average (of DGAC and PCC)
	Automobiles	145	56		
	Medium trucks	-	56		
	Heavy trucks	3	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction					
	Total	57	56	none	Average (of DGAC and PCC)
	Automobiles	56	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction					
	Total	34	56	none	Average (of DGAC and PCC)
	Automobiles	33	56		
	Medium trucks	-	56		
	Heavy trucks	1	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Traffic Noise Levels - Opening Year with Project Weekend

Station	Traffic values			Control	Road surface
	Vehicles type	Saturday	Speed		
		Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction					
	Total	844	56		
	Automobiles	827	56		
	Medium trucks	-	56		
	Heavy trucks	17	56		
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-		none	Average (of DGAC and PCC)
Ogden Dr-6th Street EB S Traffic direction: In entry direction					
	Total	275	56		
	Automobiles	270	56		
	Medium trucks	-	56		
	Heavy trucks	6	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			
Ogden Dr-6th Street NB E Traffic direction: In entry direction					
	Total	221	56		
	Automobiles	217	56		
	Medium trucks	-	56		
	Heavy trucks	4	56	none	Average (of DGAC and PCC)
	Buses	-	56		
	Motorcycles	-	56		
	Auxiliary vehicle	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	71.6	69.8	66.8	62.1	71.1
	Between Ogden Dr. and Curson Ave.	Residential	71.5	69.7	66.7	62.0	71.0
	East of Curson Ave.	Residential	69.4	67.6	64.6	59.9	68.9
Ogden Drive	North of 6th St.	Residential	62.8	61.0	58.0	53.3	62.3
	South of Wilshire Blvd.	Commercial	62.7	60.9	57.9	53.2	62.2
Spaulding Avenue	South of Wilshire Blvd.	Commercial	65.0	63.2	60.2	55.5	64.5
Curson Avenue	North of 6th St.	Residential	67.4	65.6	62.6	57.9	66.9
	Between 6th St. and Wilshire Blvd.	Residential	70.7	68.9	65.9	61.2	70.2
	South of Wilshire Blvd.	Residential	71.2	69.4	66.4	61.7	70.7
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	67.8	66.0	63.0	58.3	67.3
	Between Ogden Dr. and Spaulding Ave.	Commercial	67.0	65.2	62.2	57.5	66.5
	Between Spaulding. and Curson Ave.	Museum	68.9	67.1	64.1	59.4	68.4
	East of Curson Ave.	Commercial	67.9	66.1	63.1	58.4	67.4

Roadway Traffic Noise Levels - Opening Year with Project Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Wilshire Boulevard - Ogden Dr EB T Traffic direction: In entry direction							
	Total	955	1206	1927	56		
	Automobiles	936	1182	1888	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	24	39	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue EB T Traffic direction: In entry direction							
	Total	955	1216	1934	56		
	Automobiles	936	1192	1895	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	24	39	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T Traffic direction: In entry direction							
	Total	1031	1191	1940	56		
	Automobiles	1010	1167	1901	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	21	24	39	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue EB T2 Traffic direction: In entry direction							
	Total	1775	1463	2208	56		
	Automobiles	1775	1463	2208	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard - Ogden Dr WB T Traffic direction: In entry direction							
	Total	1403	1081	1102	56		
	Automobiles	1401	1079	1099	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	3	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Spaulding Avenue WB T Traffic direction: In entry direction							
	Total	1418	1076	1088	56		
	Automobiles	1390	1054	1066	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	28	22	22	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1369	1067	1071	56		
	Automobiles	1342	1046	1050	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	27	21	21	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 Traffic direction: In entry direction							
	Total	1202	755	795	56		
	Automobiles	1202	755	795	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	10	34	69	56		
	Automobiles	10	33	68	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	1	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Drive-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	20	19	56	56		
	Automobiles	20	19	55	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	0	0	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	127	72	86	56		
	Automobiles	124	71	84	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	3	1	2	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Spaulding Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	85	83	69	56		
	Automobiles	83	81	68	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	1	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB E Traffic direction: In entry direction							
	Total	934	1145	1397	56		
	Automobiles	915	1122	1369	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	19	23	28	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB W1 Traffic direction: In entry direction							
	Total	507	715	910	56		
	Automobiles	497	701	892	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	10	14	18	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Wilshire Boulevard-Curson Avenue WB T1 1 Traffic direction: In entry direction							
	Total	1003	613	654	56		
	Automobiles	983	601	641	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	20	12	13	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Traffic Noise Levels - Opening Year with Project Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Curson Avenue-Wilshire Boulevard NB W2 Traffic direction: In entry direction							
	Total	116	101	92	56		
	Automobiles	114	99	90	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	2	2	2	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard SB Traffic direction: In entry direction							
	Total	822	468	437	56		
	Automobiles	806	459	428	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	16	9	9	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard EB S Traffic direction: In entry direction							
	Total	359	176	272	56		
	Automobiles	352	172	267	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	7	4	5	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	1942	718	823	56		
	Automobiles	1903	704	807	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	39	14	16	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue WB T Traffic direction: In entry direction							
	Total	2184	1256	1053	56		
	Automobiles	2140	1231	1032	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	44	25	21	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr WB T Traffic direction: In entry direction							
	Total	2175	1320	1149	56		
	Automobiles	2132	1294	1126	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	44	26	23	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Ogden Dr EB T Traffic direction: In entry direction							
	Total	1012	1046	1924	56		
	Automobiles	992	1025	1886	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	20	21	38	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction							
	Total	1028	1001	1801	56		
	Automobiles	1007	981	1765	56		
	Medium trucks	-	-	-	56		
	Heavy trucks	21	20	36	56	none	Average (of DGAC and PCC)
	Buses	-	-	-	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
6th Street-Curson Avenue EB T Traffic direction: In entry direction		-	-	-			
	Total				56		
	Automobiles	728	883	1548	56		
	Medium trucks	713	865	1517	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	15	18	31	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street NB W Traffic direction: In entry direction		-	-	-			
	Total				56		
	Automobiles	183	143	235	56		
	Medium trucks	179	140	230	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	4	3	5	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-6th Street SB W Traffic direction: In entry direction		-	-	-			
	Total				56		
	Automobiles	297	135	189	56		
	Medium trucks	291	132	185	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	6	3	4	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street SB W Traffic direction: In entry direction		-	-	-			
	Total				56		
	Automobiles	100	26	41	56		
	Medium trucks	98	25	40	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	2	1	1	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street NB W Traffic direction: In entry direction		-	-	-			
	Total				56		
	Automobiles	29	21	171	56		
	Medium trucks	28	21	168	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	1	0	3	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Curson Avenue-Wilshire Boulevard NB Traffic direction: In entry direction		-	-	-			
	Total				56		
	Automobiles	650	688	994	56		
	Medium trucks	637	674	974	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	13	14	20	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
Ogden Dr-6th Street EB S Traffic direction: In entry direction		-	-	-			
	Total				56		
	Automobiles	69	140	72	56		
	Medium trucks	68	137	71	56		
	Heavy trucks	-	-	-	56	none	Average (of DGAC and PCC)
	Buses	1	3	1	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			

Roadway Traffic Noise Levels - Opening Year with Project Weekday

Station	Traffic values					Control	Road surface
	Vehicles type	AM	midday	PM	Speed		
		Veh/h	Veh/h	Veh/h	km/h		
Ogden Dr-6th Street NB E Traffic direction: In entry direction		-	-	-			
	Total				56	none	Average (of DGAC and PCC)
	Automobiles	10	154	175	56		
	Medium trucks	10	151	172	56		
	Heavy trucks	-	-	-	56		
	Buses	0	3	4	56		
	Motorcycles	-	-	-	56		
	Auxiliary vehicle	-	-	-			
		-	-	-			

Roadway Segment		Adjacent Land Use	Leq	Daytime	Evening	Nighttime	CNEL
			dBA	dBA	dBA	dBA	dBA
6th Street	Between Fairfax Ave. and Ogden Dr.	Residential	72.7	70.9	67.9	63.2	72.2
	Between Ogden Dr. and Curson Ave.	Residential	73.1	71.3	68.3	63.6	72.6
	East of Curson Ave.	Residential	72.1	70.3	67.3	62.6	71.6
Ogden Drive	North of 6th St.	Residential	64.2	62.4	59.4	54.7	63.7
	South of Wilshire Blvd.	Commercial	64.6	62.8	59.8	55.1	64.1
Spaulding Avenue	South of Wilshire Blvd.	Commercial	66.6	64.8	61.8	57.1	66.1
Curson Avenue	North of 6th St.	Residential	68.8	67.0	64.0	59.3	68.3
	Between 6th St. and Wilshire Blvd.	Residential	71.0	69.2	66.2	61.5	70.5
	South of Wilshire Blvd.	Residential	73.0	71.2	68.2	63.5	72.5
Wilshire Boulevard	Between Fairfax Ave. and Ogden Dr.	Museum	69.9	68.1	65.1	60.4	69.4
	Between Ogden Dr. and Spaulding Ave.	Commercial	68.9	67.1	64.1	59.4	68.4
	Between Spaulding. and Curson Ave.	Museum	71.0	69.2	66.2	61.5	70.5
	East of Curson Ave.	Commercial	69.8	68.0	65.0	60.3	69.3

APPENDIX D

Construction Vibration Calculations

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST2

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST2	Residential	168

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	168
Excavator	0.011	0.00275	68.79	168

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 168 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 168 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0051	0.2	62	80
Excavator	0.0051		62	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST3

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST3	Residential	300

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	300
Excavator	0.011	0.00275	68.79	300

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 300 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 300 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0021	0.2	54	80
Excavator	0.0021		54	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST5

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST5	Residential	245

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	245
Excavator	0.011	0.00275	68.79	245

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 245 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 245 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0029	0.2	57	80
Excavator	0.0029		57	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST6

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST6	Residential	137

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	137
Excavator	0.011	0.00275	68.79	137

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 137 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 137 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0069	0.5	65	80
Excavator	0.0069		65	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST7

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST7	Residential	135

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	135
Excavator	0.011	0.00275	68.79	135

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 135 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 135 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0070	0.5	65	80
Excavator	0.0070		65	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST8

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST8	Commercial	133

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	133
Excavator	0.011	0.00275	68.79	133

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 133 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 133 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0072	0.5	65	80
Excavator	0.0072		65	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST9

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST9	Commercial	116

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	116
Excavator	0.011	0.00275	68.79	116

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 116 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 116 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0088	0.3	67	80
Excavator	0.0088		67	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Engineered concrete and masonry (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Demolition - Construction
Vibration Impact Assessment
NSA: ST10

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST10	Commercial	418

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	418
Excavator	0.011	0.00275	68.79	418

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 418 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 418 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0013	0.5	50	80
Excavator	0.0013		50	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST2

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST2	Residential	168

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	168
Backhoe	0.011	0.00275	68.79	168

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 168 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 168 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0051	0.2	62	80
Backhoe	0.0051		62	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST3

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST3	Residential	95

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	95
Backhoe	0.011	0.00275	68.79	95

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 95 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 95 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0119	0.2	69	80
Backhoe	0.0119		69	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST5

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST5	Residential	146

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	146
Backhoe	0.011	0.00275	68.79	146

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 146 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 146 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0062	0.2	64	80
Backhoe	0.0062		64	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST6

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST6	Residential	102

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	102
Backhoe	0.011	0.00275	68.79	102

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 102 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 102 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0107	0.3	69	80
Backhoe	0.0107		69	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Engineered Concrete and Masonry. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST7

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST7	Residential	85

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	85
Backhoe	0.011	0.00275	68.79	85

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 85 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 85 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0140	0.3	71	80
Backhoe	0.0140		71	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Engineered Concrete and Masonry. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST8

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST8	Commercial	133

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	133
Backhoe	0.011	0.00275	68.79	133

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 133 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 133 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0072	0.3	65	80
Backhoe	0.0072		65	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Engineered Concrete and Masonry. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST9

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST9	Commercial	116

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	116
Backhoe	0.011	0.00275	68.79	116

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 116 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 116 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0088	0.3	67	80
Backhoe	0.0088		67	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Engineered concrete and masonry (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Site Preparation - Construction
Vibration Impact Assessment
NSA: ST10

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST10	Commercial	418

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Dozer	0.011	0.00275	68.79	418
Backhoe	0.011	0.00275	68.79	418

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 418 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 418 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Dozer	0.0013	0.3	50	80
Backhoe	0.0013		50	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Engineered Concrete and Masonry. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST2

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST2	Residential	168

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	168
Excavator	0.011	0.00275	68.79	168
Backhoe	0.011	0.00275	68.79	168
Dozer	0.011	0.00275	68.79	168
Scraper	0.000375	0.00009375	39.44	168

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 168 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 168 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0051	0.2	62	80
Excavator	0.0051		62	
Backhoe	0.0051		62	
Dozer	0.0051		62	
Scraper	0.0002		33	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST3

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST3	Residential	95

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	95
Excavator	0.011	0.00275	68.79	95
Backhoe	0.011	0.00275	68.79	95
Dozer	0.011	0.00275	68.79	95
Scraper	0.000375	0.00009375	39.44	95

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 95 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 95 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0119	0.2	69	80
Excavator	0.0119		69	
Backhoe	0.0119		69	
Dozer	0.0119		69	
Scraper	0.0004		40	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST5

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST5	Residential	146

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	146
Excavator	0.011	0.00275	68.79	146
Backhoe	0.011	0.00275	68.79	146
Dozer	0.011	0.00275	68.79	146
Scraper	0.000375	0.00009375	39.44	146

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 146 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 146 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0062	0.2	64	80
Excavator	0.0062		64	
Backhoe	0.0062		64	
Dozer	0.0062		64	
Scraper	0.0002		35	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST6

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST6	Residential	102

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	102
Excavator	0.011	0.00275	68.79	102
Backhoe	0.011	0.00275	68.79	102
Dozer	0.011	0.00275	68.79	102
Scraper	0.000375	0.00009375	39.44	102

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 102 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 102 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0107	0.2	69	80
Excavator	0.0107		69	
Backhoe	0.0107		69	
Dozer	0.0107		69	
Scraper	0.0004		39	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST7

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST7	Residential	85

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	85
Excavator	0.011	0.00275	68.79	85
Backhoe	0.011	0.00275	68.79	85
Dozer	0.011	0.00275	68.79	85
Scraper	0.000375	0.00009375	39.44	85

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 85 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 85 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0140	0.2	71	80
Excavator	0.0140		71	
Backhoe	0.0140		71	
Dozer	0.0140		71	
Scraper	0.0005		42	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST8

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST8	Commercial	133

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	133
Excavator	0.011	0.00275	68.79	133
Backhoe	0.011	0.00275	68.79	133
Dozer	0.011	0.00275	68.79	133
Scraper	0.000375	0.00009375	39.44	133

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 133 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 133 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0072	0.2	65	80
Excavator	0.0072		65	
Backhoe	0.0072		65	
Dozer	0.0072		65	
Scraper	0.0002		36	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST9

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST9	Commercial	116

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	116
Excavator	0.011	0.00275	68.79	116
Backhoe	0.011	0.00275	68.79	116
Dozer	0.011	0.00275	68.79	116
Scraper	0.000375	0.00009375	39.44	116

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 116 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 116 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0088	0.2	67	80
Excavator	0.0088		67	
Backhoe	0.0088		67	
Dozer	0.0088		67	
Scraper	0.0003		38	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Engineered concrete and masonry (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Grading - Construction
Vibration Impact Assessment
NSA: ST10

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST10	Commercial	418

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Grader	0.011	0.00275	68.79	418
Excavator	0.011	0.00275	68.79	418
Backhoe	0.011	0.00275	68.79	418
Dozer	0.011	0.00275	68.79	418
Scraper	0.000375	0.00009375	39.44	418

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 418 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 418 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Grader	0.0013	0.2	50	80
Excavator	0.0013		50	
Backhoe	0.0013		50	
Dozer	0.0013		50	
Scraper	0.0000		21	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST2

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST2	Residential	1094

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	1094
Vibratory Roller (large)	0.059	0.01475	83.38	1094

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 1094 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 1094 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0003	0.2	37	80
Vibratory Roller (large)	0.0016		52	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST3

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST3	Residential	622

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	622
Vibratory Roller (large)	0.059	0.01475	83.38	622

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 622 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 622 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0006	0.2	44	80
Vibratory Roller (large)	0.0038		60	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST5

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST5	Residential	338

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	338
Vibratory Roller (large)	0.059	0.01475	83.38	338

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 338 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 338 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0016	0.2	52	80
Vibratory Roller (large)	0.0095		68	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST6

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST6	Residential	346

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	346
Vibratory Roller (large)	0.059	0.01475	83.38	346

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 346 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 346 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0016	0.2	52	80
Vibratory Roller (large)	0.0092		67	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST7

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST7	Residential	571

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	571
Vibratory Roller (large)	0.059	0.01475	83.38	571

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 571 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 571 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0007	0.2	45	80
Vibratory Roller (large)	0.0043		61	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST8

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST8	Commercial	836

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	836
Vibratory Roller (large)	0.059	0.01475	83.38	836

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 836 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 836 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0004	0.2	40	80
Vibratory Roller (large)	0.0024		56	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST9

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST9	Commercial	824

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	824
Vibratory Roller (large)	0.059	0.01475	83.38	824

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 824 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 824 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0004	0.2	40	80
Vibratory Roller (large)	0.0025		56	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Engineered concrete and masonry (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST10

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST10	Commercial	1264

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Paver	0.01	0.0025	67.96	1264
Vibratory Roller (large)	0.059	0.01475	83.38	1264

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 1264 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 1264 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Paver	0.0002	0.2	35	80
Vibratory Roller (large)	0.0013		50	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST2

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST2	Residential	540

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	540
Backhoe	0.011	0.00275	68.79	540

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 540 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 540 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0001	0.2	26	80
Backhoe	0.0009		47	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST3

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST3	Residential	271

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	271
Backhoe	0.011	0.00275	68.79	271

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 271 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 271 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0002	0.2	35	80
Backhoe	0.0025		56	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST5

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST5	Residential	422

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	422
Backhoe	0.011	0.00275	68.79	422

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 422 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 422 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0001	0.2	29	80
Backhoe	0.0013		50	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Non-engineered timber and masonry buildings . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST6

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST6	Residential	265

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	265
Backhoe	0.011	0.00275	68.79	265

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 265 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 265 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0002	0.2	35	80
Backhoe	0.0025		56	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST7

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST7	Residential	405

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	405
Backhoe	0.011	0.00275	68.79	405

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 405 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 405 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0001	0.2	30	80
Backhoe	0.0013		51	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST8

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST8	Commercial	668

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	668
Backhoe	0.011	0.00275	68.79	668

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 668 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 668 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0001	0.2	23	80
Backhoe	0.0006		44	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST9

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST9	Commercial	671

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	671
Backhoe	0.011	0.00275	68.79	671

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 671 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 671 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0001	0.2	23	80
Backhoe	0.0006		44	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Engineered concrete and masonry (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

La Brea Tar Pits Master Plan
Building Construction - Construction
Vibration Impact Assessment
NSA: ST10

Receiver

Description	Land Use	Equipment Receptor Distance
		(feet)
ST10	Commercial	660

Construction Equipment - Model Inputs

Description	Reference PPV @ 100 ft.	Reference Vibration Amplitude, Lv,rms *	Reference Vibration Velocity Level, Lv	Equipment Receptor Distance
	(in/sec) [1]	(mm/s) [2]	(VdB)	(feet)
Crane	0.001	0.00025	47.96	660
Backhoe	0.011	0.00275	68.79	660

[1] Reference PPV taken from the final Construction Noise and Vibration Report SR 520, West Connection Bridge Project, Washington State Department of Transportation, and based on measurements from several projects including the Central Artery/Tunnel Project in Boston and from several published sources including the FTA Manual and Dowding's Textbook.

[2] Assumes a crest factor of 4.

Construction Equipment - Model Results

Description	Projected Peak Particle Velocity @ 660 feet	Vibration Impact Criteria: Architectural Damage [2]	Projected Vibration Velocity Level @ 660 feet, Lv	Vibration Impact Criteria: Human annoyance from building vibration
	(in/sec) [1]	(in/sec)	(VdB) [1]	(VdB) [3]
Crane	0.0001	0.2	23	80
Backhoe	0.0006		44	

[1] Bolded values indicate potential exceedance over Criteria

[2] FTA Construction Vibration Damage Criteria for Reinforced-concrete, steel or timber (no plaster) . Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 12, Table 12-3.

[3] Ground-Borne Vibration Impact Criteria for residences and buildings where people normally sleep for infrequent vibration events. Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006, Chapter 8, Table 8-1.

Vibration Impact Assessment
Construction

Equipment Vibration Emission Levels

Equipment Description	Vibration Type Steady or transient	Ref PPV at 100 ft.
3-ton truck at 35 mph	Steady	0.0002
Auger Drill Rig	Steady	0.011125
Backhoe	Steady	0.011
Bar Bender	Steady	N/A
Blasting	Transient	0.75
Boring Jack Power Unit	Steady	N/A
Chain Saw	Steady	N/A
Clam Shovel	Transient	0.02525
Compactor	Steady	0.03
Compressor	Steady	N/A
Concrete Batch Plant	Steady	N/A
Concrete Mixer	Steady	0.01
Concrete Pump	Steady	0.01
Concrete Saw	Steady	N/A
Crane	Steady	0.001
Dozer	Steady	0.011
Dump Truck	Steady	0.01
Excavator	Steady	0.011
Flat Bed Truck	Steady	0.01
Front End Loader	Steady	0.011
Generator	Steady	N/A
Gradall	Steady	0.011
Grader	Steady	0.011
Horizontal Boring Hydraulic Jack	Steady	0.003
Hydra Break Ram	Transient	0.05
Impact Pile Driver	Transient	0.2
Insitu Soil Sampling Rig	Steady	0.011125
Jackhammer	Steady	0.003
Mounted Hammer hoe ram	Transient	0.18975
Paver	Steady	0.01
Pickup Truck	Steady	0.01
Pneumatic Tools	Steady	N/A
Pumps	Steady	N/A
Rock Drill	Steady	0.011125
Scraper	Steady	0.000375
Slurry Trenching Machine	Steady	0.002125
Soil Mix Drill Rig	Steady	0.011125
Tractor	Steady	0.01
Tunnel Boring Machine (rock)	Steady	0.0058
Tunnel Boring Machine (soil)	Steady	0.003
Vibratory Pile Driver	Steady	0.14
Vibratory Roller (large)	Steady	0.059
Vibratory Roller (small)	Steady	0.022
Welder	Steady	N/A

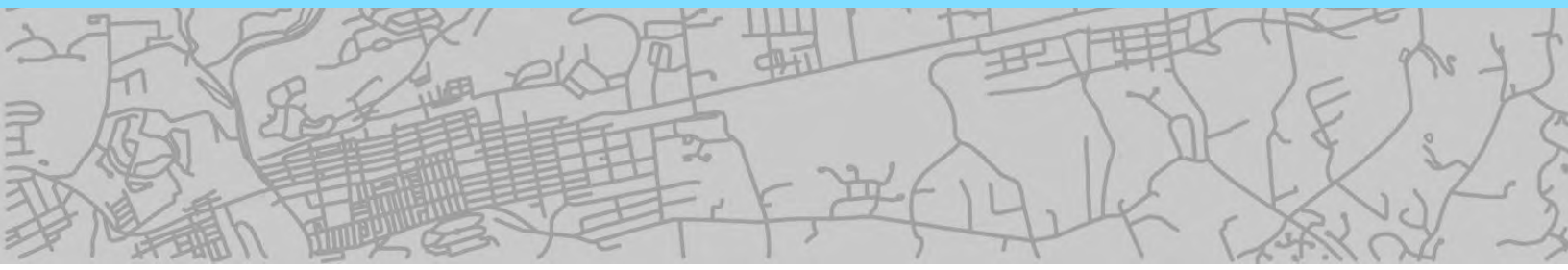
APPENDIX J

Final Transportation Assessment

KITTELSON & ASSOCIATES

LA BREA TAR PITS MASTER PLAN
FINAL
TRANSPORTATION ASSESSMENT
LOS ANGELES, CA

August 8, 2022



Inside front cover

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La Brea Tar Pits Master Plan
Final Transportation Assessment

Los Angeles, CA

Prepared for:
SWCA Environmental Consultants
51 W. Dayton Street
Pasadena, CA 91105

Prepared by:
Kittelson & Associates, Inc.
750 The City Drive South, Suite 410
Orange, CA 92868

Project Manager:
Mychal Loomis
Associate Engineer

Project Principal:
Fernando Sotelo
Associate Engineer

Project Number 26066

August 8, 2022

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Section 1 — Executive Summary

EXECUTIVE SUMMARY

This report presents the results of the California Environmental Quality Act (CEQA) transportation impact analysis and non-CEQA transportation analysis conducted by Kittelson & Associates for the proposed La Brea Tar Pits Master Plan Project (proposed project) located in Los Angeles, California. The analysis has been conducted in accordance with the City's Transportation Assessment Guidelines (TAG) and is based on the approved Memorandum of Understanding (MOU), which is included in the appendix.

The proposed project is located at 5801 Wilshire Boulevard, in the Miracle Mile neighborhood in the City of Los Angeles. The 13-acre project site occupies the eastern and northeastern portions of the 23-acre Hancock Park. The project site broadly encompasses what is known as the La Brea Tar Pits, which includes the George C. Page Museum (Page Museum); the physical tar pit features located within the Hancock Park grounds, some of which are research sites; the concession and public restroom building; a multipurpose lawn, recreation areas, and landscaped features throughout the park; and a surface parking lot.

The proposed project develops a La Brea Tar Pits Master Plan that would renovate the existing Page Museum and add a new two-story Museum building toward the northwest, increasing the total Museum square footage. The two-story new Museum building would be located to the northwest of the Page Museum. The new building would be approximately 40,000 gross square feet, which would increase the total Museum square footage to 105,000 gross square feet. The new museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock. The project is expected to be completed in approximately 7 to 10 years, with phased improvements and construction occurring as funding becomes available.

The renovation includes improving the existing central atrium to allow for additional exhibition, classroom, and laboratory spaces. A café could be added to the outdoor terrace on the western side of the Museum.

The County of Los Angeles (County) is the lead agency. The La Brea Tar Pits and Page Museum are owned by the County but are managed by the non-profit Los Angeles County Museum of Natural History Foundation which includes operations of the Natural History Museums of Los Angeles County (NHMLAC), including the La Brea Tar Pits and Page Museum.

SUMMARY OF CEQA FINDINGS

The results of the transportation impact analysis are summarized below.

THRESHOLD T-1 (CONFLICTING WITH PLANS, PROGRAMS, ORDINANCES, OR POLICIES)

The project may conflict with the Los Angeles Municipal Code (LAMC) requirements for bicycle parking and transportation demand management (TDM). In addition, it was determined that the project would be inconsistent with regional plans related to mobility and greenhouse gas (GHG) reductions. The proposed project would result in a **significant impact** related to consistency with plans, programs, ordinances, or policies. The proposed project would also contribute to a **significant cumulative impact** related to consistency with plans, programs, ordinances, or policies.

Therefore, **Mitigation Measure #1** is proposed, detailed below.

Mitigation Measure #1 Transportation Demand Management (TDM) Program

To reduce Museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare, the proposed project shall prepare and implement a TDM program. The program shall be developed in consultation with Los Angeles Department of Transportation (LADOT).

The proposed project will designate an existing member of staff as the on-site TDM Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT.

Employee Strategies

Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures may be applied to reduce employee vehicle trips and vehicle miles traveled (VMT):

- Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.
- Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.
- Encourage and support participation in LA Metro vanpool, including subsidies for participation.
- Implement paid parking for employees.
- Subsidize transit passes.
- Offer flexible work schedules and telecommuting, when feasible.

Visitor Strategies

Transportation information for visitors should be displayed on the Museum's website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT:

- Advertise and offer discounted Museum tickets for visitors who use public transit or a bicycle to visit the project.
- Provide and maintain secure on-site bicycle parking for visitors, and monitor usage to determine if additional bicycle racks are needed.
    - Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.
    - Ensure bicycle parking is well lit and monitored by staff.
- Continue to have paid parking for visitors.
- Coordinate with LA Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to the Museum, through the following measures:
    - Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and the Museum.
    - Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by Museum visitors.
    - Coordinate with LA Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection.
- Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site, and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and 6th Street.

Implementation of Mitigation Measure #1 would encourage employees and visitors to reduce their vehicle trips, and contribute to VMT and GHG reduction goals. This measure also supports multimodal connectivity

in the study area. With the implementation of Mitigation Measure #1, the impact related to consistency with plans, programs, ordinances, or policies would be reduced to **less than significant with mitigation**. In addition, the cumulative impact related to consistency with plans, programs, ordinances, or policies would be reduced to **less than significant with mitigation**.

THRESHOLD T-2 (CAUSING SUBSTANTIAL VEHICLE MILES TRAVELED),

Given that the project would result in a net increase in VMT, the proposed project would result in a **significant impact** related to causing substantial vehicle miles traveled, and would contribute to a **significant cumulative impact** related to causing substantial vehicle miles traveled.

Mitigation Measure #1, which requires the project to implement a TDM program and coordinate on multimodal improvements in the study area, can help reduce employee and visitor VMT and support multimodal connectivity.

Given the magnitude of VMT that would need to be reduced due to visitor trips being 196% longer than average regional recreation trips, Mitigation Measure #1 would be insufficient to reduce VMT to less-than-significant levels. Therefore, even with the implementation of Mitigation Measure #1, the impact related to causing substantial vehicle miles traveled would remain **significant and unavoidable** after mitigation. In addition, the cumulative impact related to causing substantial vehicle miles traveled would remain **significant and unavoidable** after mitigation.

THRESHOLD T-3 (SUBSTANTIALLY INCREASING HAZARDS DUE TO A GEOMETRIC DESIGN FEATURE OR INCOMPATIBLE USE

Based on the proposed site plan and evaluation of geometric design and uses, the proposed project would result in a **less than significant impact** when considering increasing hazards. The proposed project would also result in a **less than significant cumulative impact** when considering increasing hazards based on the geometric design and uses of the proposed project.

No mitigation measures are needed to address potential hazards for the proposed project.

SUMMARY OF NON-CEQA ASSESSMENT RECOMMENDATIONS

The results of the non-CEQA transportation analysis are summarized below.

PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS ASSESSMENT

In order to improve pedestrian and transit access in the study area, the project should coordinate with the City of Los Angeles to explore the feasibility of implementing the following improvements:

- Continental crosswalks at the Curson Avenue/Wilshire Boulevard intersection and frontage road crossing directly to the east of the intersection;
- High-visibility curb ramps with truncated domes at the Spaulding Avenue/Wilshire Boulevard intersection, Curson Avenue/Wilshire Boulevard intersection, and frontage road crossing directly to the east of the Curson Avenue/Wilshire Boulevard intersection; and
- Pedestrian recall timing (as opposed to pedestrian push buttons) for the north-south crosswalks at the Curson Avenue/Wilshire Boulevard and Spaulding Avenue/Wilshire Boulevard intersections.

In order to improve transit access in the study area, the project should coordinate with the City of Los Angeles and LA Metro to install shelters at the two Spaulding Avenue/Wilshire Boulevard stops and one Curson Avenue/Wilshire Boulevard stop that currently lack them.

PROJECT ACCESS SAFETY AND CIRCULATION EVALUATION

Several potential deficiencies may arise at the project driveways and in the study area.

- The project is expected to contribute to increased delay at the Curson Avenue/Wilshire Boulevard intersection, which operates at LOS F during the weekday midday, weekday PM, and Saturday midday peak hours. The Curson Avenue/Wilshire Boulevard intersection is utilized by multiple bus routes that run along Wilshire Boulevard.
- The northbound exiting approach from the 6th Street driveway is expected to experience LOS E conditions during the weekday AM and PM peak hours.
- At the Curson Avenue/Wilshire Boulevard intersection, the southbound queues may interfere with the crosswalks at the Curson Avenue/6th Street intersection and the northbound queues may conflict with the crosswalks at the Curson Avenue/8th Street intersection.
- The length of the eastbound and northbound queues at the Curson Avenue/6th Street intersection and southbound queues at the Curson Avenue/Wilshire Boulevard are expected to interfere with accessing the project driveways and may interfere with driveway operations
- Curbside passenger loading along 6th Street could result in conflicts with bicyclists once planned separated bike lanes are implemented.

In order to improve access safety and circulation, the project should coordinate with the City of Los Angeles to explore the feasibility of implementing the following improvements:

- The Curson Avenue/Wilshire Boulevard intersection is built out. Signal timing should be regularly updated to optimize splits. In addition, the weekday AM and PM peak period bus-only lanes on Wilshire could potentially be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection.
- The Curson Avenue/6th Street intersection is built out. Signal timing should be regularly updated to optimize splits. In addition, striping could be improved to extend the northbound left turn lane at the intersection, and/or add an inbound left-turn lane at the project's Curson Avenue driveway.
- Incorporate safety features to accommodate passenger pick-up and drop-off along 6th Street when planned separated bike lanes are implemented.

In addition, driveway operations at Curson Avenue should be monitored.

Mitigation Measure #1, which requires the project to implement a TDM program and coordinate on multimodal improvements in the study area, can help reduce employee and visitor vehicle trips and related effects on project access safety and circulation.

PROJECT CONSTRUCTION

The proposed project's likely impact during construction requires corrective measures. A construction traffic management plan will be required and coordinated with LADOT prior to starting construction on components of the Master Plan that require construction to impact the public right-of-way.

The construction traffic management plan should identify the duration and level of construction activity and consider the following features:

- Develop a detour plan for vehicles, pedestrians, and bicyclists as necessary.
- Consider modification of construction procedures to minimize duration or level of impact.
- Limit major road obstructions to off-peak hours.
- Coordinate with emergency service and public transit providers.
- Provide alternative vehicular, bicycle, and/or pedestrian access to affected parcels.
- Consult with LADOT if temporary closure of a travel lane may be necessary to maintain adequate pedestrian and bicycle access as part of the traffic management plan.
- Consult LADOT's Parking Meters Division regarding revenue recovery costs for the removal of parking meter spaces, if applicable.

- Coordinate access with adjacent property owners and tenants.
- Coordinate with Metro regarding maintenance of ADA access to Metro stations, stops, and transit facilities (e.g., layover zones) during revenue hours.
- Coordinate with transit providers regarding the need to temporarily close or relocate bus stops or reroute service.

RESIDENTIAL STREET CUT-THROUGH ANALYSIS

The proposed project's expected contribution to traffic on residential streets is anticipated to be below the City's thresholds. Therefore, no corrective measures have been recommended.

SPECIAL EVENTS

The proposed project should have corrective measures to address the potential of special events. A special event traffic management plan should be created in coordination with LADOT and confirmed prior to special events hosted at the site.

The special event traffic management plan may consider the following features:

- Vehicle parking supply
- Loading/unloading areas and management
- Traffic control at adjacent intersections and roadways
- Pedestrian circulation and facilities
- Bike parking supply
- Shuttle services

Section 2 — Project Description

PROJECT DESCRIPTION

The proposed project is located at 5801 Wilshire Boulevard, in the Miracle Mile neighborhood in the City of Los Angeles. The 13-acre project site occupies the eastern and northeastern portions of the 23-acre Hancock Park. The project site broadly encompasses what is known as the La Brea Tar Pits, which includes the George C. Page Museum (Page Museum); the physical tar pit features located within the Hancock Park grounds, some of which are research sites; the concession and public restroom building; a multipurpose lawn, recreation areas, and landscaped features throughout the park; and a surface parking lot. The site is bounded by Wilshire Boulevard to the south, West Sixth Street to the north, South Curson Avenue to the east, and Los Angeles County Museum of Art (LACMA) to the west. Also located to the west and just beyond LACMA's facilities are the Academy Museum of Motion Pictures and South Fairfax Avenue.

The proposed project develops a La Brea Tar Pits Master Plan that would renovate the existing Page Museum and add a new two-story Museum building toward the northwest, increasing the total Museum square footage. The two-story new Museum building would be located to the northwest of the Page Museum. The new building would be approximately 40,000 gross square feet, which would increase the total Museum square footage to 105,000 gross square feet. The new Museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock. The project is expected to be completed in approximately 7 to 10 years, with phased improvements and construction occurring as funding becomes available. The conceptual site plan is shown in Figure 1. The project site and study area are shown in Figure 2.

The County of Los Angeles (County) is the lead agency. The La Brea Tar Pits and Page Museum are owned by the County but are managed by the non-profit Los Angeles County Museum of Natural History Foundation which includes operations of the Natural History Museums of Los Angeles County (NHMLAC), including the La Brea Tar Pits and Page Museum. LACMA facilities adjacent to the project site and also partially within Hancock Park; however, LACMA's facilities are not included in the proposed project.

The project is located at assessor's parcel number (APN) 5508-016-902, in City Council District 5.

EXISTING AND PROPOSED USES

The project site currently consists of the 63,000 square foot Page Museum and the La Brea Tar Pits. The proposed project includes renovating the existing Museum and adding a new two-story Museum building. This would increase the total Museum square footage from 63,000 gross square feet to 105,000 gross square feet, a net increase of 42,000 gross square feet or approximately 67%.

The renovation includes improving the existing central atrium to allow for addition exhibition, classroom, and laboratory spaces. A café could be added to the outdoor terrace on the western side of the Museum.

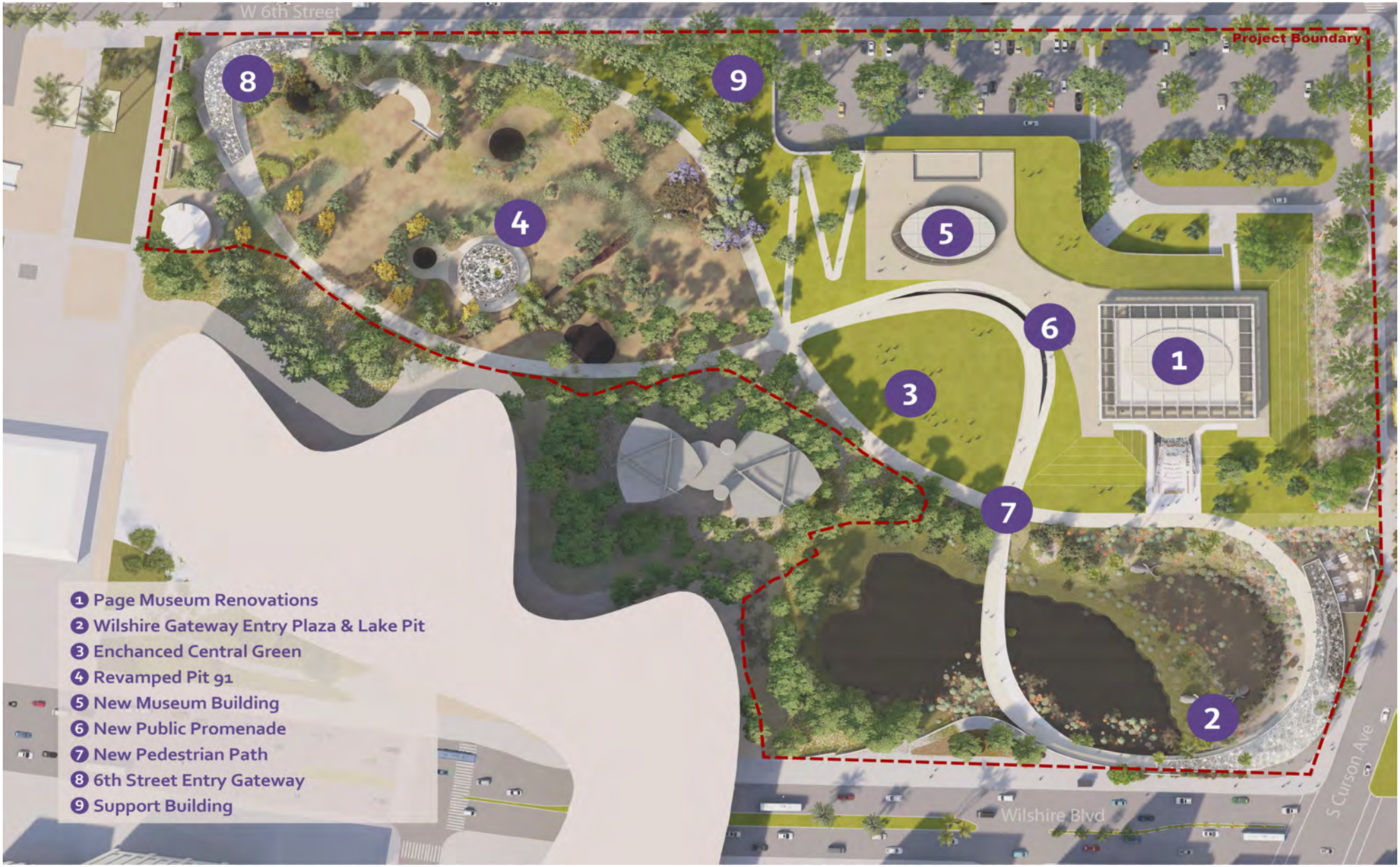
PROPOSED CIRCULATION AND PARKING

The current site includes a 154-space parking lot with a driveway on Curson Avenue. The project proposes to shift the parking lot to the northeast and reconfigure it to incorporate a drop-off area but not have an increase in the on-site parking supply. An additional access driveway to the parking lot from 6th Street is planned on the northwest side of the parking lot and the existing driveway from Curson Avenue would remain.

On-site circulation would be facilitated by the following improvements:

- Pedestrian entrance to the Museum leading from the parking lot.
- Pedestrian path through Hancock Park.

- Wilshire Gateway entry plaza at the southeastern corner of the site.
- 6th Street Gateway entry plaza at the northwestern corner of the site.
- Pedestrian bridge over the Lake Pit.



LA BREA TAR PITS MASTER PLAN

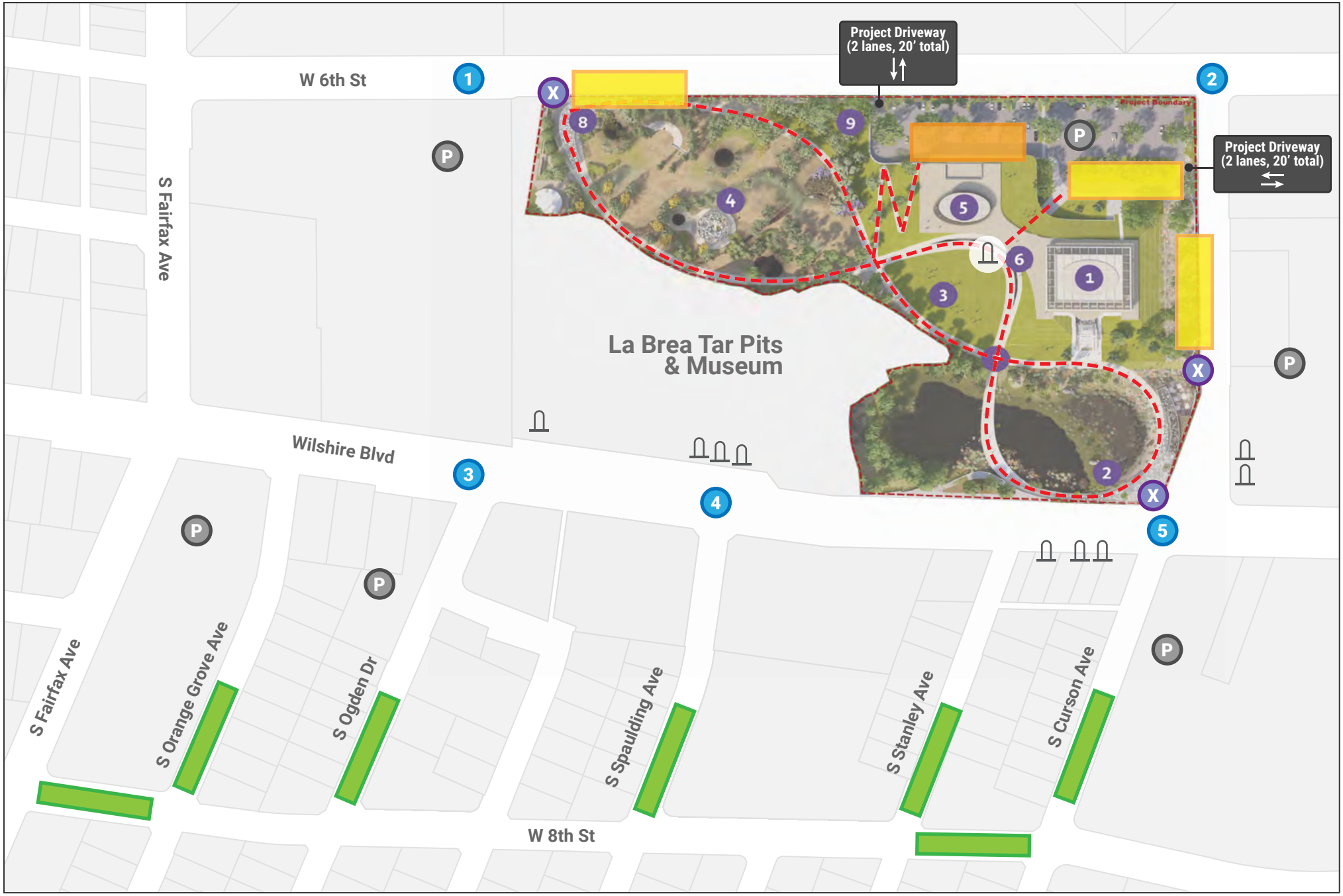
Conceptual Site Plan
Figure 1

Los Angeles County, CA
34.0637°N 118.3576°W

N

Base Map: Weiss/Manfredi, 2021
accessed February 2022
Updated: 2/2/2022
Project No. 63953
Layout: 63953_LaBrea_SitePlan
Aprx: 63953_La_Brea

SWCA
ENVIRONMENTAL CONSULTANTS



Study Intersection
Parking
Pedestrian Entrances
Bike Rack
Study Segment
Passenger Loading Zones
Delivery Loading Zone
Pedestrian Walking Routes

Scale in Feet
0 300
North

Project Site and Study Area

Page Museum | Master Plan EIR

Figure 2

PROPOSED TRANSPORTATION DEMAND MANAGEMENT MEASURES

The following Transportation Demand Management (TDM) measure is included as part of the proposed project:

- Subsidized transit passes for employees

PROJECT TRIP GENERATION

The proposed project's multimodal trip generation estimates are outlined below. The information in this section was prepared for City approval in the Transportation Assessment Memorandum of Understanding (MOU) dated May 2, 2022.

Trip generation for the proposed expansion was prepared by first establishing an existing trip generation rate for the weekday daily, weekday AM peak hour, weekday midday peak hour, weekday PM peak hour, Saturday daily, and Saturday midday peak hour periods using historical data specific to the site and the existing Museum square footage and number of employees. Then, the trip generation rates were applied to the proposed increase in Museum square footage to estimate the net increase in project-generated trips. Trip generation was estimated separately for employees and for visitors.

EMPLOYEE TRIPS

The following employee trip generation rates were developed using mode share information from 2019 Los Angeles County Natural History Museum employee travel surveys. The Museum is typically open from 9:30 AM to 5:00 PM on weekdays and weekends, but closed on Tuesdays. The trip generation rates were developed with the assumption that 100% of all employees arrive at the site during the AM peak hour (in advance of the 9:30 AM opening) and 100% of all employees exit the site during the PM peak hour (shortly after the 5:00 PM closing). Note, since weekend surveys were not available, the same trip generation rates and patterns would be used to estimate Saturday daily and midday peak hour employee trip generation.

- **Daily**: 1.40 vehicle trips per employee
- **AM peak hour**: 0.70 vehicle trips per employee
- **Midday peak hour**: 0.00 vehicle trips per employee
- **PM peak hour**: 0.70 vehicle trips per employee

Currently, the Museum staff consists of 25 employees. The proposed expansion would increase the Museum square footage by approximately 67%. To estimate the net increase in employee trip generation, it was assumed that the number of employees would also increase by 67%, or 17 additional employees. As shown in Table 1, this results in a net employee trip generation of 24 weekday daily trips, 12 weekday AM peak hour inbound trips, 12 weekday PM peak hour outbound trips, and 24 Saturday daily trips.

Table 1: Employee Trip Generation Estimate (Net Increase)

Trip Generation Rates							
Rate	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Per employee	1.40	100%	0%	0.70	0%	100%	0.70
Trip Generation Estimates							
Size	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
17 employees	24	12	0	12	0	12	12

SOURCE: KITTELSON & ASSOCIATES, 2022.

VISITOR TRIPS

Visitor trip generation was developed through the following steps:

1. Estimate person trip generation for the existing Museum
2. Apply mode share adjustments to obtain existing vehicle trip generation
3. Develop existing site trip generation rates
4. Apply existing trip generation rates to the increase in Museum square footage to obtain net vehicle trip generation and bicycle, pedestrian, and transit trip generation

The project applicant provided monthly and daily attendance data for January 2017 through December 2021, which have been attached to this study. Within that timeframe, July 2017 experienced the highest number of visitors (58,248). Therefore, person trip generation was estimated using weekday and Saturday data from that month. The busiest weekdays and Saturdays from that month are listed below.

- Weekdays
  - 7/3 – 2,815 visitors
  - 7/26 – 2,026 visitors
  - 7/28 – 1,998 visitors
- Saturdays
  - 7/15 – 2,473 visitors
  - 7/22 – 2,642 visitors
  - 7/29 – 2,607 visitors

July 26, 2017, was selected for estimating weekday trip generation (July 3rd was part of the long July 4th weekend and would not be representative of typical weekday activity levels). July 22, 2017, was selected for estimating Saturday trip generation.

The ticket counter information provided by the applicant included the time of entry. According to the applicant, the average length of a visit is between approximately 60 and 90 minutes; therefore, 75 minutes was used. With this information, the arrival and departure of visitors throughout the day was able to be estimated.

Existing weekday and Saturday person trip generation were estimated based on the daily total visitors for both days. Weekday midday peak hour, weekday PM peak hour, and Saturday midday peak hour person trip generation and inbound/outbound percentages were developed by examining the highest-volume hours during those peak periods. Weekday AM peak hour trip generation was not estimated since the Museum is closed at that time and did not have any visitors. Existing person-trips and person-trip generation rates for the Museum are detailed in a matrix attached to this study.

The resulting existing person-trip estimates are listed below:

- **Weekday daily**: 4,052 person-trips
- **Weekday midday peak hour**: 977 person-trips
- **Weekday PM peak hour**: 232 person-trips
- **Saturday daily**: 5,284 person-trips
- **Saturday midday peak hour**: 907 person-trips

Data from the California Household Travel Survey (CHTS)[1] was utilized to estimate the mode share and trips by mode for existing site visitors, to then prepare vehicle trip generation rates and other modal trip generation rates for the site. According to the CHTS, mode share for recreational trips for zip codes in the city is as follows:

- **Vehicle Driver**: 42%
- **Vehicle Passenger**: 27%

[1] https://www.nrel.gov/transportation/secure-transportation-data/tsdc-california-travel-survey.html

- **Transit**: 2%
- **Bike**: 1%
- **Walk**: 28%

The CHTS's 28% walking mode share was determined to be too high for this project, given its role as a regional (as opposed to local-serving) recreational attraction. Therefore, the walking mode share assumption was capped at 10%, with the remainder distributed among vehicle driver, vehicle passenger, and transit as shown below:

- **Vehicle Driver**: 47%
- **Vehicle Passenger**: 30%
- **Transit**: 12%
- **Bike**: 1%
- **Walk**: 10%

This mode share assumption also acknowledges the density of existing and future transit service in the area, especially including the Purple Line extension currently under construction.

The detailed existing site trips by mode and modal trip generation rates are provided in the matrix attached to this study. The modal trip generation rates were applied to the net increase in Museum square footage (42,000 square feet) to estimate the net increase in visitor vehicle trips and other modes. Table 2 through Table 5 display the visitor trip generation rates and net trip generation estimates for each mode for the Museum expansion.

Table 2: Visitor Vehicle Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	30.22	35%	65%	7.29	22%	78%	1.73	39.41	51%	49%	6.76
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	1,269	107	199	306	16	57	73	1,655	145	139	284

SOURCE: KITTELSON & ASSOCIATES, 2022.

Table 3: Visitor Transit Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	7.71	35%	65%	1.86	22%	78%	0.44	10.06	51%	49%	1.73
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	324	27	51	78	4	14	18	423	37	36	73

SOURCE: KITTELSON & ASSOCIATES, 2022.

Table 4: Visitor Bike Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	0.65	35%	65%	0.16	22%	78%	0.03	0.84	51%	49%	0.14
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	27	2	5	7	0	1	1	35	3	3	6

SOURCE: KITTELSON & ASSOCIATES, 2022.

Table 5: Visitor Walking Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	6.43	35%	65%	1.56	22%	78%	0.37	8.38	51%	49%	1.44
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	270	23	43	66	4	12	16	352	31	29	60

SOURCE: KITTELSON & ASSOCIATES, 2022.

NET VEHICLE TRIP GENERATION ESTIMATE

The estimated net increase in vehicle trips generated by the Museum expansion is detailed in Table 6, combining the net increases for both employee and visitor vehicle trips.

Table 6: Net Vehicle Trip Generation Estimate

Weekday									
Daily	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
1,293	12	0	12	107	199	306	16	69	85
Saturday									
Daily	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
1,679	*(not analyzed)*			145	139	284	*(not analyzed)*		

SOURCE: KITTELSON & ASSOCIATES, 2022.

Note, the Page Museum is one of a number of museums in the study area. It is expected that a portion of visitors to the study area will visit multiple museums in a single visit. This includes the additional visitors to the area due to the Museum expansion; a portion of the increase in visitors could come from other nearby museums such as LACMA. Therefore, the trip generation detailed in this section and used elsewhere in this report (such as for the traffic operations assessment) is conservative by linearly estimating the net increase in trips associated with the Museum expansion.

Section 3 — Project Context

PROJECT CONTEXT

This chapter details the area surrounding the project site, including existing transportation infrastructure and conditions in the study area.

ROADWAY NETWORK

The roadway system in the study area consists of avenue, collector, and local streets that serve local and regional traffic demand. The roadways in the study area are discussed below. Classifications are illustrated in Figure 3; modal priorities are illustrated in Figure 4.

AVENUE I/II STREETS

In the City's Mobility Plan 2035 (June 2016), Avenue I and Avenue II streets are major thoroughfares that are designed to have 100 feet of right-of-way and 70 feet of roadway width for Avenue I streets and 86 feet of right-of-way and 56 feet of roadway width for Avenue II streets.

Wilshire Boulevard is an Avenue I street on the southern border of the site. The road has a four-lane cross section with a center median that has eastbound left-turn lanes at intersection approaches. Both eastbound and westbound directions have a joint parking lane/bus lane along the curb that allow for vehicle parking except during weekday AM and PM peak periods, where buses and right-turning vehicles have exclusive access to these lanes. The curb-to-curb roadway width is approximately 76 feet and the posted speed limit is 35 miles per hour (MPH). According to the City's Mobility Plan 2035, within the study area Wilshire Boulevard has multiple modal priorities; it is on the Transit Enhanced Network (Comprehensive Transit Enhanced Street), Bicycle Lane Network (Tier 2 Bicycle Lane), and Pedestrian Analysis Network. Wilshire Boulevard (east of Fairfax Avenue) is on the City's Vision Zero High-Injury Network.

Fairfax Avenue is an Avenue II street on the western border of the block that includes the La Brea Tar Pits Museum site as well as LACMA and the Academy Museum of Motion Pictures. The road has a four-lane cross section with a center median that allows for left-turning vehicles at intersections. There are also designated right turn lanes on the northbound approach to W 6th Street and the southbound approach to Wilshire Boulevard. There is limited street parking on the west side of the street. The curb-to-curb roadway width is approximately 60-68 feet (depending on the presence of parking and right-turn lanes), and the posted speed limit is 35 MPH. According to the City's Mobility Plan 2035, within the study area Fairfax Avenue has multiple modal priorities; it is on the Transit Enhanced Network (Moderate Transit Enhanced Street), Bicycle Lane Network (Tier 3 Bicycle Lane), and Pedestrian Analysis Network.

6th Street is an Avenue II street on the northern border of the site. The road has a three-lane cross section (two westbound lanes and one eastbound lane) with a center median that allows for left-turning vehicles at intersections. There are designated right turn lanes at the eastbound approach to the Fairfax Avenue intersection and at the westbound approaches to the LACMA parking garage and Curson Avenue intersections. Street parking is available along most of the north side of the street, except for where the eastbound turn lane at S Fairfax Avenue is, while parking on the south side of the street is provided for portions of the street east of the LACMA parking garage driveway. The curb-to-curb roadway width is approximately 58 feet, and the posted speed limit is 35 MPH. According to the City's Mobility Plan 2035, within the study area 6th Street has multiple modal priorities; it is on the Neighborhood Enhanced Network (Neighborhood Network west of Wilshire Boulevard), Bicycle Enhanced Network (Tier 1 Protected Bicycle Lanes), and Pedestrian Analysis Network. 6th Street (east of Ogden Drive) is on the City's Vision Zero High-Injury Network.

COLLECTOR STREETS

Collector Streets, according to the City's Mobility Plan 2035, are lower-volume roadways (compared to Avenue I/II/III streets) that are designed to have 66 feet of right-of-way and 40 feet of roadway width.

Curson Avenue is a Collector Street on the eastern edge of the site. The road has a two-lane cross section and a northbound left-turn lane at the W 6th Street intersection. There is no on- street parking allowed on either side of the road. The west side of Curson Avenue fronting the project site between the site driveway and the bend in Curson Avenue is a dedicated loading zone for buses. The curb-to-curb roadway width is approximately 36-40 feet (depending on the presence of the northbound left-turn lane), and there is no posted speed limit. According to the City's Mobility Plan 2035, Curson Avenue south of 8th Street is on the Neighborhood Enhanced Network.

8th Street is a Collector Street south of the project site. The road has a two-lane cross section. Between Fairfax Avenue and Curson Avenue, there is diagonal and parallel parking on the north side of the street, and parallel parking on the south side of the street. The curb-to-curb roadway with is approximately 40-55 feet (depending on the presence of diagonal parking), and there is no posted speed limit.

LOCAL STREETS

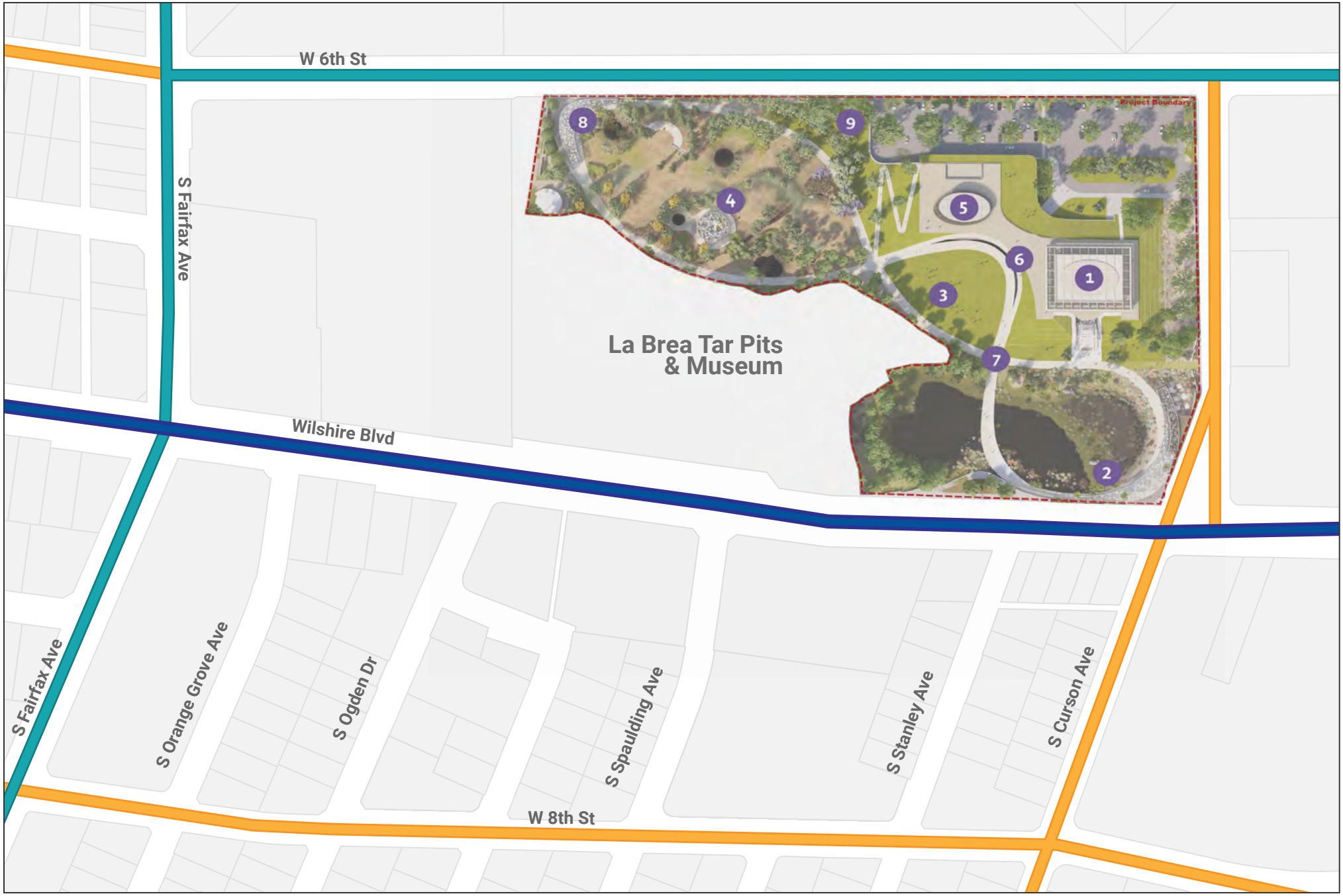
Local Standard streets, according to the City's Mobility Plan 2035, are low volume roadways that are designed to have 60 feet of right-of-way and 36 feet of roadway width.

Ogden Drive is a Local street to the south of the site that intersects with Wilshire Boulevard (Ogden Drive also intersects with 6th Street on the north side of the site, but this is a private roadway with gated access). The road has a two-lane cross section with no marked centerline beyond the immediate intersection area with Wilshire Boulevard, and there are separate northbound left- and right-turn lanes as the street terminates at Wilshire Boulevard. Street parking is allowed on both sides of the street. The curb-to-curb roadway width is approximately 38-48 feet (depending on the presence of turn lanes at Wilshire Boulevard), and there is no posted speed limit.

Spaulding Avenue is a Local street to the south of the site that intersects with Wilshire Boulevard. The road has a two-lane cross section with no marked centerline beyond the immediate intersection area with Wilshire Boulevard. Street parking is allowed on both sides of the street. The curb-to-curb roadway width is approximately 38 feet, and there is no posted speed limit.

Orange Grove Avenue is a Local street south of the project site that intersects with Wilshire Boulevard and with 8th Street. It is a two-lane roadway with no marked centerline. On-street parking is allowed. North of 8th Street, the curb-to-curb with is approximately 35 feet. There is no posted speed limit.

Stanley Avenue is a Local street south of the project site that intersects with Wilshire Boulevard and with 8th Street. It is a two-lane roadway with no marked centerline. On-street parking is allowed. North of 8th Street, the curb-to-curb with is approximately 28 feet. There is no posted speed limit.



Avenue I
Avenue II
Collector

Scale in Feet
0 300
North

LA BREA TAR PITS & MUSEUM

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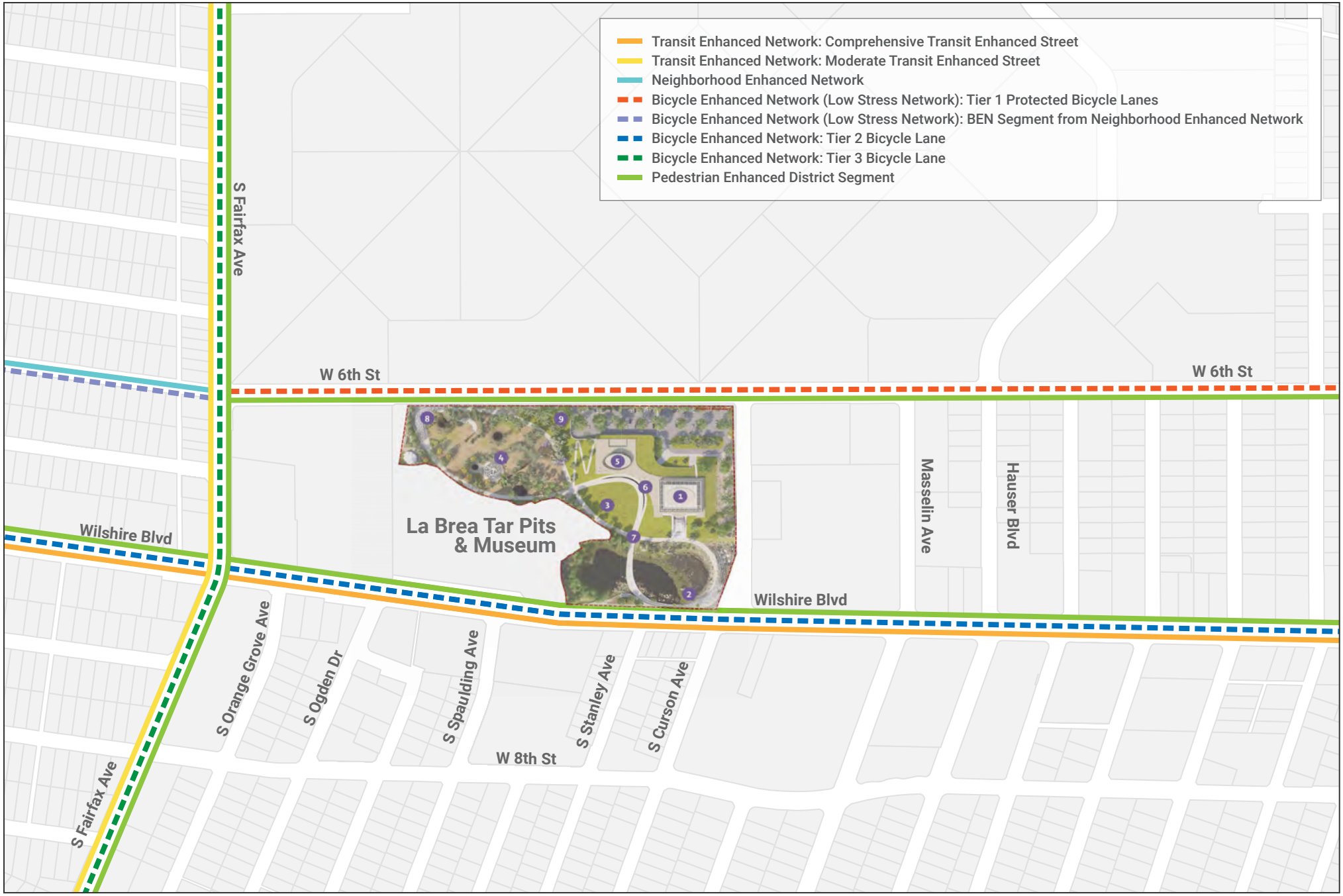
Roadway Classfications

Figure 3



Scale in Feet

0 600

North

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Modal Priorities

Figure 4

PEDESTRIAN FACILITIES

Pedestrian facilities in the study area are shown in Figure 5; pedestrian generators are shown in Figure 6.

The sidewalk network on the site's block and adjacent streets is complete with a mixture of curb-tight and buffered sidewalks around the site. All signalized intersections that touch a portion of the site's block have a complete set of crosswalks, except for the south leg of the Fairfax Avenue/6th Street intersection, where pedestrian crossing is prohibited. There is a midblock crossing with a continental crosswalk and a pedestrian hybrid beacon on 6th Avenue between Ogden Drive and Curson Avenue that aligns with an existing entrance to the La Brea Tar Pits site on the south side of the road. There is also a signalized midblock pedestrian crossing with a continental crosswalk on Wilshire Boulevard west of Fairfax Avenue. The sidewalk network is built out in this area of Los Angeles, including adjacent to the immediate site area.

Crosswalks in the study area are generally high-visibility continental crosswalks. However, all four crosswalks at the Curson Avenue/Wilshire Boulevard intersection are standard crosswalks. High visibility curb ramps with tactile domes are provided at some (but not all) crosswalks in the study area.

LA Metro's Purple (D Line) Extension First Last Mile Plan includes recommendations for pedestrian improvements around the planned Purple Line Wilshire/Fairfax Station. These include:

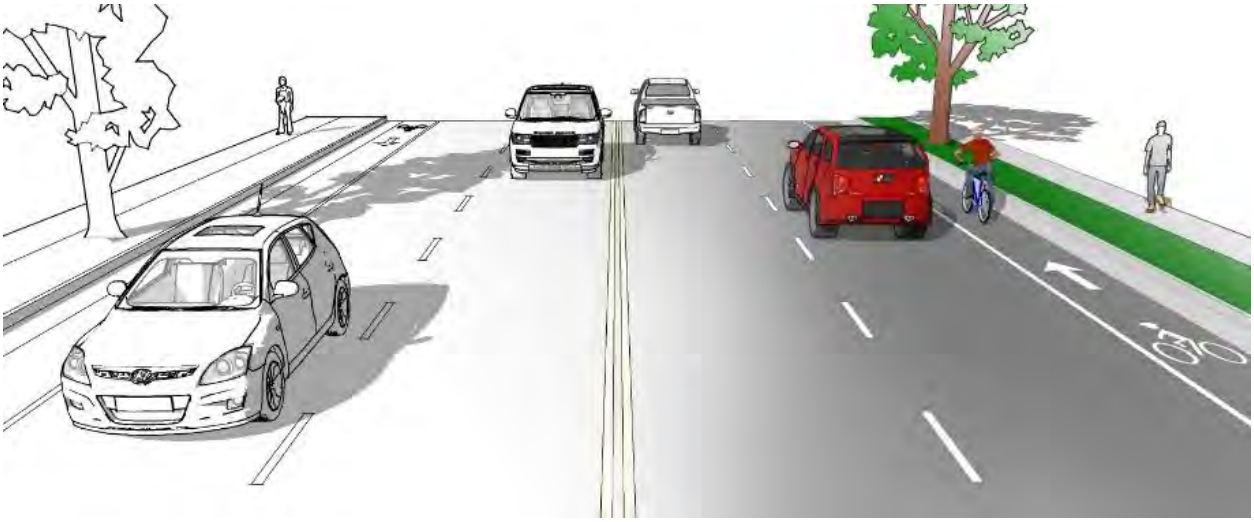
- Improved crosswalks at Ogden/Wilshire and Curson/Wilshire
- Landscaping, shade, pedestrian lighting, and sidewalk/curb extensions along Wilshire Boulevard
- Improved crosswalks at Ogden/8th and Curson/8th; and
- Pedestrian lighting, traffic calming, and wayfinding on 6th Street.

BICYCLE FACILITIES

Bikeways are categorized into four types, as described and depicted in illustrations below.

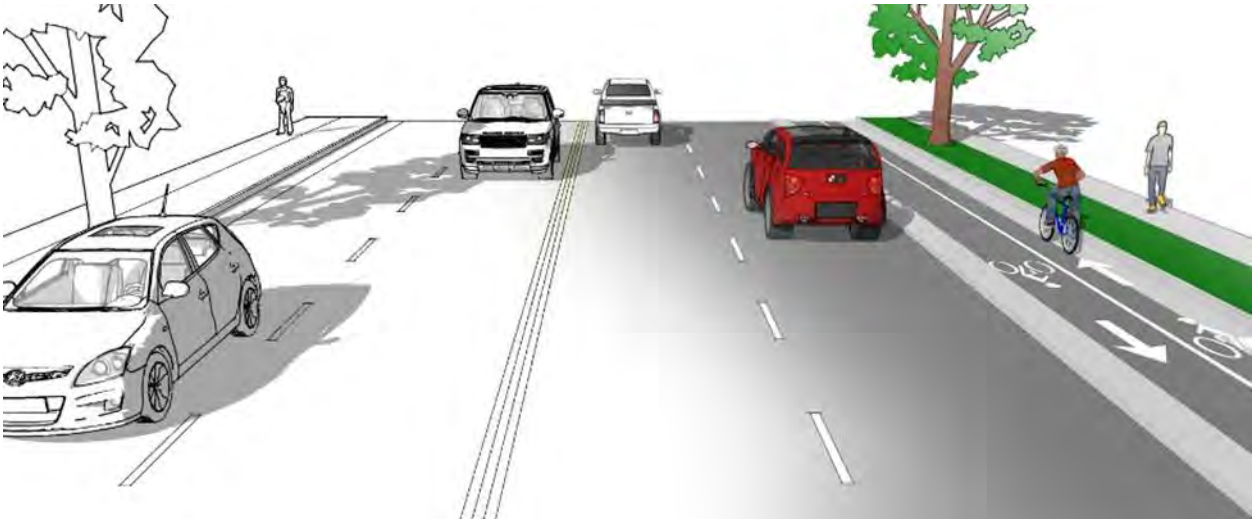
- **Class I Bikeway (Bike Path):** Also known as a shared path or multi-use path, a bike path is a paved right-of-way for bicycle travel that is completely separate from any street or highway (e.g., along a creek or channel).

- **Class II Bikeway (Bike Lane):** A striped and stenciled lane for one-way bicycle travel on a street or highway. This facility could include a buffered space between the bike lane and vehicle lane (referred to as a buffered bike lane) and the bike lane could be adjacent to on-street parking.



- **Class III Bikeway (Bike Route):** A signed route along a street where the bicyclist shares the right-of-way with motor vehicles. This facility can also be augmented using shared-lane markings (also known as sharrows). An enhanced bike route, known as a bicycle boulevard, can include traffic calming treatments to slow down vehicles.

- **Class IV Bikeway (Separated Bike Lane):** Also known as a cycle track or a protected bike lane, this is a bikeway for the exclusive use of bicycles including a separation between the bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking. A cycle track can be one-way or two-way.



As shown in Figure 5, there is currently one bikeway in the study area which are parking-adjacent Class II bike lanes on Hauser Boulevard north of 6th Street. There are several bikeways planned in the area along the following roadways as described below and shown on the figure:

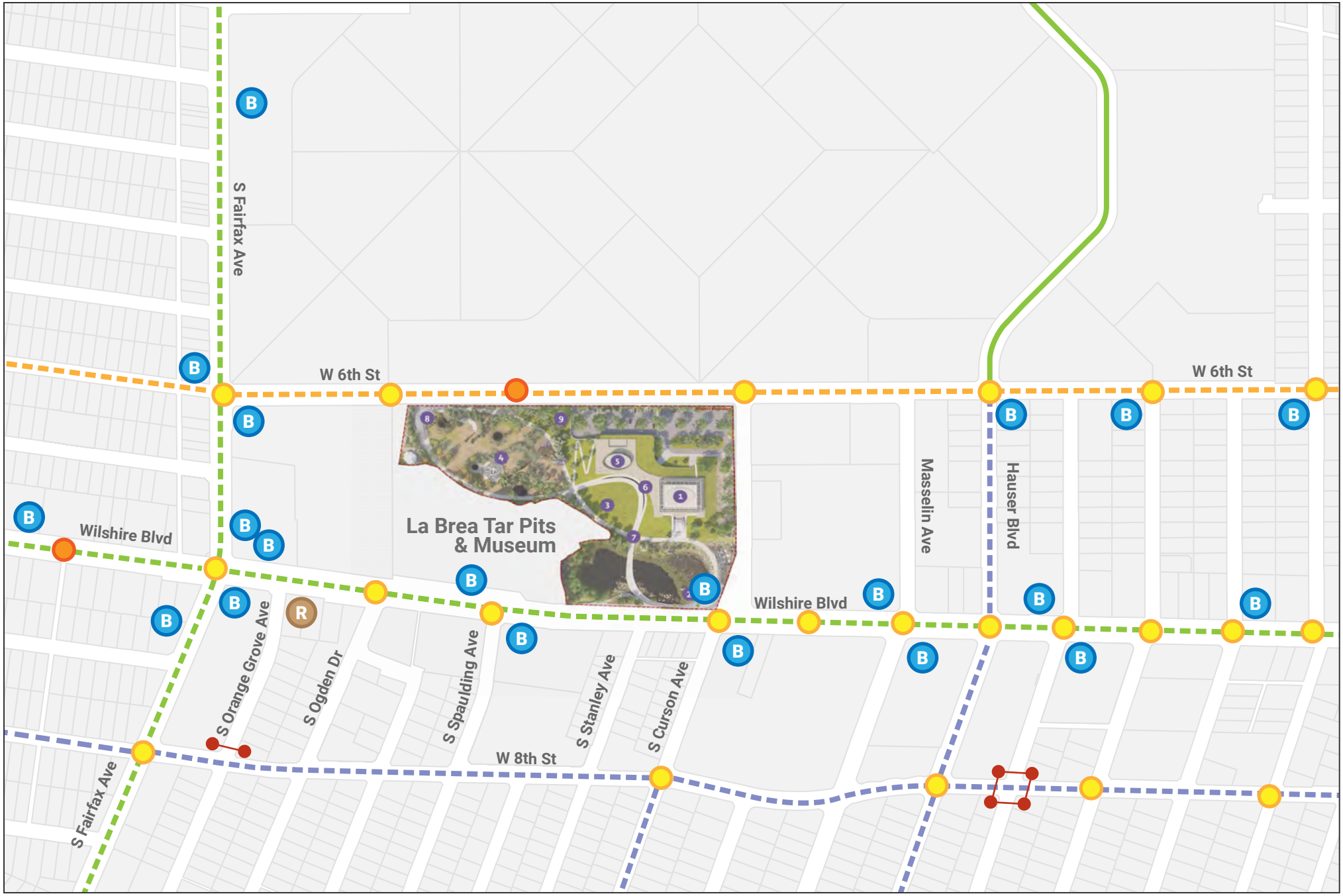
- **6th Street**: Class IV protected bike lanes
- **Wilshire Boulevard**: Class II bike lanes
- **8th Street**: Class III bike route
- **Fairfax Avenue**: Class II bike lanes
- **Curson Avenue**: Class III bike route south of 8th Street
- **Hauser Boulevard**: Class III bike route south of 6th Street

LA Metro's Purple (D Line) Extension First Last Mile Plan includes recommendations for bicycle improvements around the planned Purple Line Wilshire/Fairfax Station. These include:

- Bicycle lanes along 8th Street (this differs from the bike route that is currently proposed)
- Bicycle boulevard along Ogden Drive (the City has not proposed a bikeway along Ogden Drive at this time)
- Bicycle Boulevard along Curson Avenue south of 8th Street (this differs from the bike route that is currently proposed)
- Bicycle friendly intersections at the following intersections: Fairfax/6th, Ogden/6th, Curson/6th, Fairfax/Wilshire, Fairfax/8th, Ogden/8th, and Curson/8th

As shown in Figure 5, there are several bike racks at the site, on the same block as the site, or within a short distance of the site:

- Four inverted-U bike racks on the north side of Wilshire Boulevard between Curson Avenue and Fairfax Avenue;
- Three inverted-U bike racks on the south side of Wilshire Boulevard between Stanley Avenue and Curson Avenue; and
- Two post-and-ring bike racks on the east side of Curson Avenue north of Wilshire Boulevard.



Marked Crosswalk with Traffic Signal
Marked Crosswalk with Pedestrian Signal
Marked Crosswalk with Stop Sign
Existing Bike Lanes
Planned Bike Lanes
Planned Protected Bike Lanes
Planned Bike Routes
Scale in Feet
0
600
North

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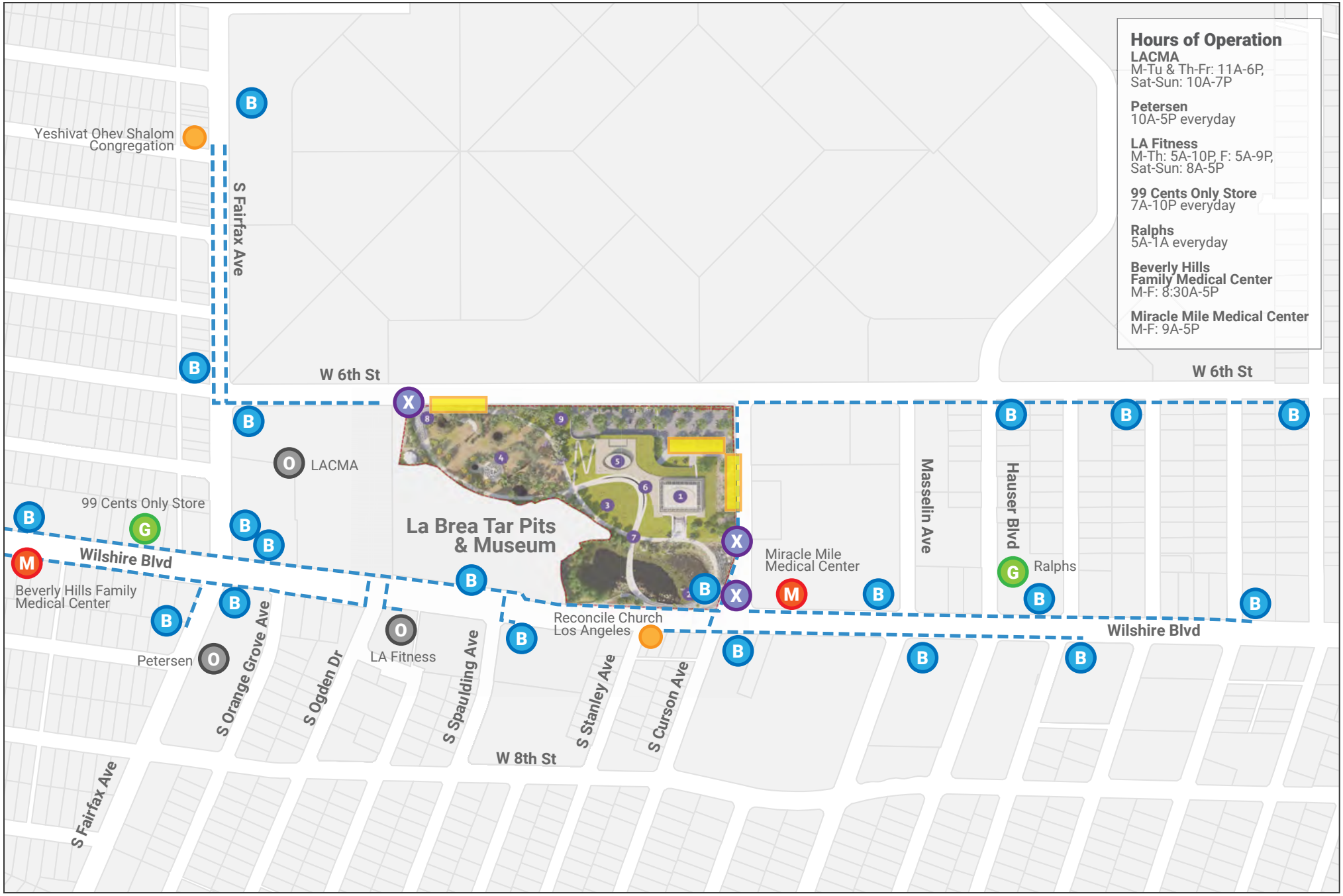
Facilities Inventory

Figure 5



LA BREA TAR PITS & MUSEUM

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Pedestrian Generators

Figure 6

PUBLIC TRANSIT FACILITIES AND SERVICE

The transit system in the study area consists of local bus service, as well as planned heavy rail service. Existing bus stops and the planned rail system are shown in Figure 5.

LA METRO BUS SERVICE

There are three LA Metro bus routes that run on roads that parallel the La Brea Tar Pits Museum site.

- **Line 20 (Downtown LA – Westwood/Santa Monica via Wilshire Boulevard)** runs between Downtown LA and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs seven days a week; the bus runs 24 hours, with 15-minute headways during daylight hours and 30-minute headways during overnight every day of the week. Stops near the Museum site are located at Wilshire/Spaulding and Wilshire/Curson for both directions of travel.
- **Line 217 (Hollywood/Vine Station – La Cienega Station via Hollywood Boulevard-Fairfax Avenue)** runs between Los Angeles' Los Feliz and Baldwin Hills neighborhoods, on Vermont Avenue, Hollywood Boulevard, and Fairfax Avenue along the west side of the site. Service runs seven days a week; the bus runs on 12-15 minute headways for the majority of the day every day of the week, with longer headways at the beginning and end of service. Stops near the Museum site are located at Fairfax/6th and Fairfax/Wilshire for both directions of travel.
- **Line 720 (Santa Monica – Downtown LA via Wilshire Boulevard)** runs between Downtown LA and Santa Monica on Wilshire Boulevard along the entire route between these two destinations. Service runs seven days a week; the bus runs on 5- to 10-minute headways for the majority of the day, with 15-minute headways during overnight hours of service. This is an express bus with limited stops, so the closest bus stops to the Museum site are at Wilshire/Cloverdale and at Wilshire/Crescent Heights.

As of June 2022, one-way fares for LA Metro buses and trains are $1.75, and a day-pass is $3.50. The table below provides more information on LA Metro fares.

Table 7: LA Metro Fare Information

Pass Type	One-Way Fare	Day Pass	30-Day Pass
Regular Fare	$1.75	$3.50	$50.00
Students (K-12)	$1.00	--	$24.00
College/Vocational	$1.75	--	$43.00
Seniors (62+)	$0.75 (peak) $0.35 (off-peak)	$2.50	$20.00
Persons with Disabilities	$0.75 (peak) $0.35 (off-peak)	$2.50	$20.00
Low-Income	Application-based, fare type will vary based on age, disability, and vocation		

SOURCE: LA METRO, JUNE 2022.

LADOT DASH BUS SERVICE

Los Angeles Department of Transportation (LADOT) runs DASH Fairfax service on Wilshire Boulevard and Fairfax Avenue, connecting to Melrose Avenue and the Cedars-Sinai Medical Center. Service runs seven days a week on 30-minute headways. Weekday service operates from 6:00 AM to 7:30 PM, and weekend service operates from 9:00 AM to 7:00 PM. DASH Fairfax services only westbound on Wilshire Boulevard and northbound on Fairfax Avenue. Stops near the Museum site are located at Wilshire/Curson, Wilshire/Ogden, Wilshire/Fairfax, and Fairfax/6th.

As of June 2022, regular one-way cash fare on DASH services are $0.50 ($0.35 with a TAP card). A 7-day DASH pass is $5.00 and a 31-day DASH pass is $18.00. Seniors, people with disabilities, and Medicare

cardholders can ride DASH for $0.25 one-way ($0.15 with a TAP card). Children can ride DASH services for free.

ANTELOPE VALLEY TRANSIT AUTHORITY

The Antelope Valley Transit Authority, based in the Lancaster and Palmdale area within Los Angeles County's Antelope Valley, provides commuter bus service from Lancaster and Palmdale into Los Angeles. Route 786 (Century City/West Los Angeles) provides four runs from Lancaster and Palmdale into Los Angeles during the morning commute time period, and it provide four runs from Los Angeles to Palmdale and Lancaster during the evening commute time period. The closest stop to the Museum site is located at Wilshire/La Cienega to the west.

As of June 2022, a one-way trip on Route 786 is $10.75, with one-way for seniors, people with disabilities, and Medicare cardholders costing $5.25.

EXISTING BUS STOPS

Existing bus stops in the study area are shown in Figure 5. Bus stops are provided in regular succession along Wilshire Boulevard. The closest bus stop to the project site is located at the northwest corner of the Curson Avenue/Wilshire Boulevard intersection, on the north side of Wilshire Boulevard 65 feet west of the intersection. This stop serves LA Metro Route 20 and LADOT DASH Fairfax service. Passenger amenities consist of a bench, trash can, and shade structure, as well as nearby wayfinding for Hancock Park. Bus stops amenities along Wilshire Boulevard in the study area generally include benches, trash cans, and enhanced crosswalks, but lack shelters, wayfinding, and pedestrian-oriented lighting.

FUTURE HEAVY RAIL SERVICE

LA Metro's D Line subway (formerly known as the Purple Line) is under construction to extend service west along Wilshire Boulevard, with service eventually connecting to the UCLA campus. The project includes tunnels within Wilshire Boulevard right-of-way, adjacent to the project site. When completed, the D Line will operate peak service as often as every six minutes in both directions. Trains may operate 24 hours a day, seven days a week.

The first phase of the D Line extension, which is slated to open in 2024, will include a new stop at Ogden Drive and Wilshire Boulevard (branded as the Wilshire/Fairfax stop). This subway stop will be located directly to the southeast of the Museum site and will be accessible via sidewalks and crosswalks along Wilshire Boulevard.

In addition, LA Metro's Purple (D Line) Extension First Last Mile Plan includes recommendations for to enhance bus stops along Wilshire Boulevard.

EXISTING VEHICLE VOLUMES

Weekday and weekend multimodal (vehicle, bicycle, and pedestrian) counts were collected within the study area to establish the existing transportation context, and to help support the subsequent CEQA and non-CEQA transportation analyses. The study intersections and roadway segments are shown in Figure 2.

EXISTING INTERSECTION VOLUMES

Automobile turning movement counts were collected at the five intersections shown in Table 8. Counts were collected on Thursday, May 12, 2022, during the weekday morning (7:00 AM to 9:00 AM), midday (12:00 PM to 2:00 PM), and evening (4:00 PM to 6:00 PM) peak periods. Counts were also collected on Saturday, May 14, 2022, during the Saturday midday (12:00 PM to 2:00 PM) peak period. These count periods were selected in consultation with City staff.

Table 8: Study Intersections

ID	Intersection	Traffic Control
1	S Ogden Drive/Parking Garage/W 6th Street	Signalized
2	S Curson Avenue/W 6th Street	Signalized
3	S Ogden Drive/Wilshire Boulevard	Signalized
4	S Spaulding Avenue/Wilshire Boulevard	Signalized
5	S Curson Avenue/Wilshire Boulevard	Signalized

Because of the ongoing changes to travel patterns since the start of the COVID-19 pandemic in spring 2020, as well as construction on Wilshire Boulevard during the weekday morning and midday periods, the counts were generally lower than historical counts. The May 2022 intersection counts were compared to data collected between 2012 and 2015. It was found that the weekday AM peak hour counts were an average of 51% higher in previous years compared to 2022; weekday midday counts were 35% higher, weekday PM counts were 28% higher, and Saturday midday counts were 70% higher. Therefore, it was concluded that:

- 51% growth would be applied uniformly to the May 2022 weekday AM peak hour intersection volumes to obtain the adjusted existing conditions volumes.
- 35% growth would be applied uniformly to the May 2022 weekday midday peak hour intersection volumes to obtain the adjusted existing conditions volumes. The exception is the Curson Avenue/6th Street intersection, where May 2022 counts would be used for the weekday midday peak hour since those were higher than historical counts.
- 28% growth would be applied uniformly to the May 2022 weekday PM peak hour intersection volumes to obtain the adjusted existing conditions volumes.
- 70% growth would be applied uniformly to the May 2022 Saturday midday peak hour intersection volumes to obtain the adjusted existing conditions volumes. The exception is the Curson Avenue/6th Street intersection, where May 2022 counts would be used for the Saturday midday peak hour since those were higher than historical counts.

This adjustment methodology was verified and approved by City staff. Traffic count sheets are provided in the appendix.

Figure 7 shows existing traffic controls and lane geometries. The adjusted intersection volumes for each of the four peak periods are shown in Figure 8 through Figure 11.

Figure 7: Existing Traffic Controls and Lane Geometries

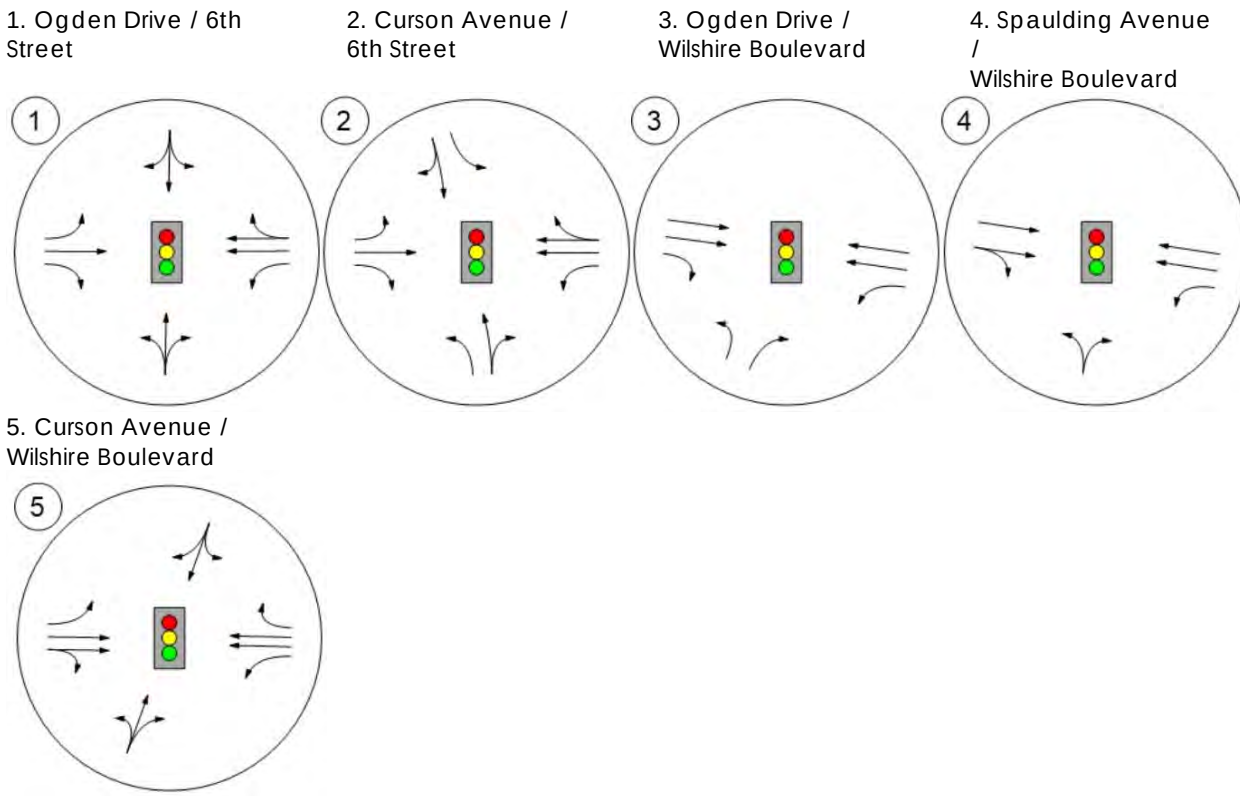


Figure 8: Existing (2022) Weekday AM Peak Hour Traffic Volumes

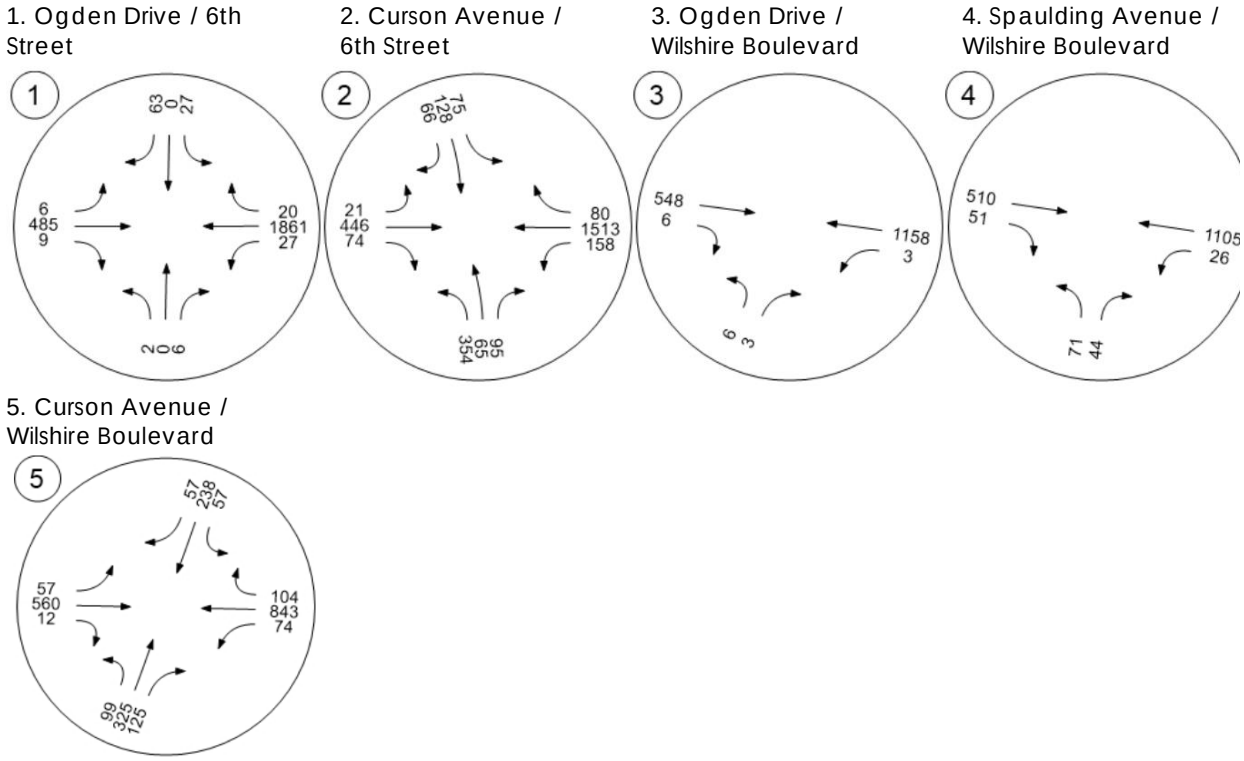


Figure 9: Existing (2022) Weekday Midday Peak Hour Traffic Volumes

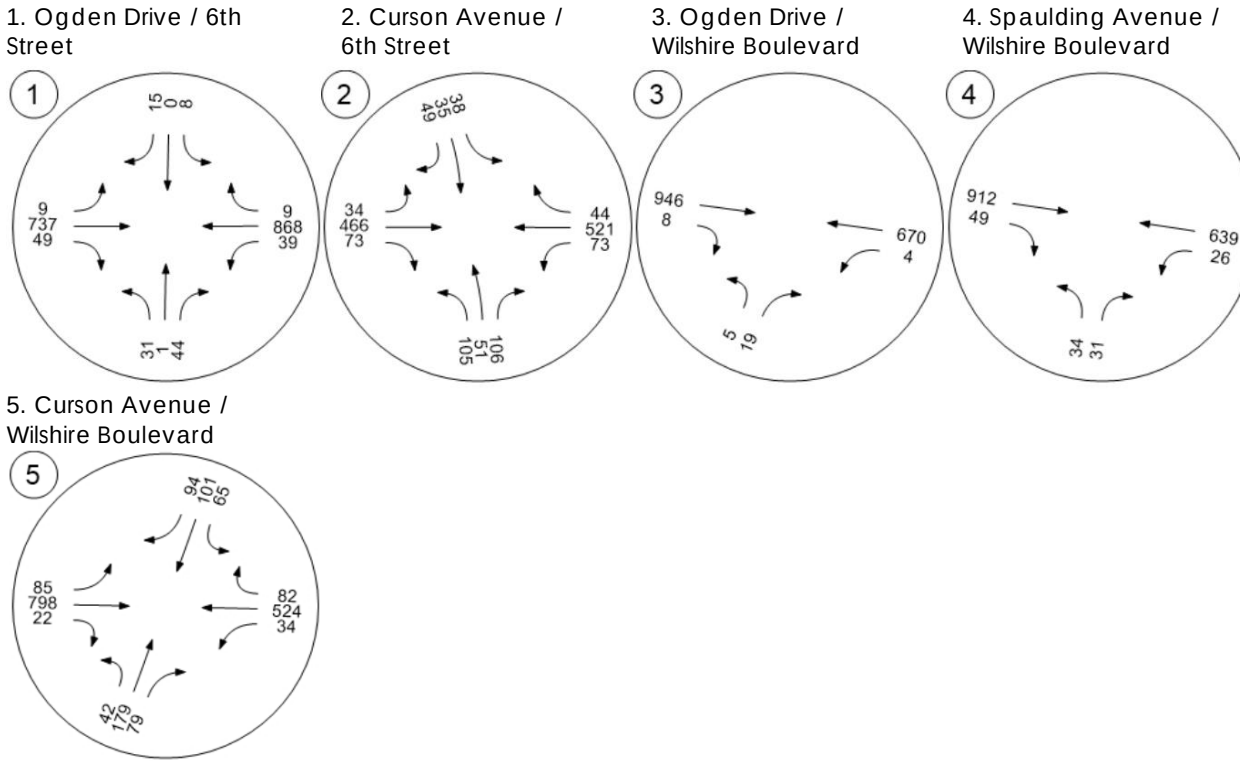


Figure 10: Existing (2022) Weekday PM Peak Hour Traffic Volumes

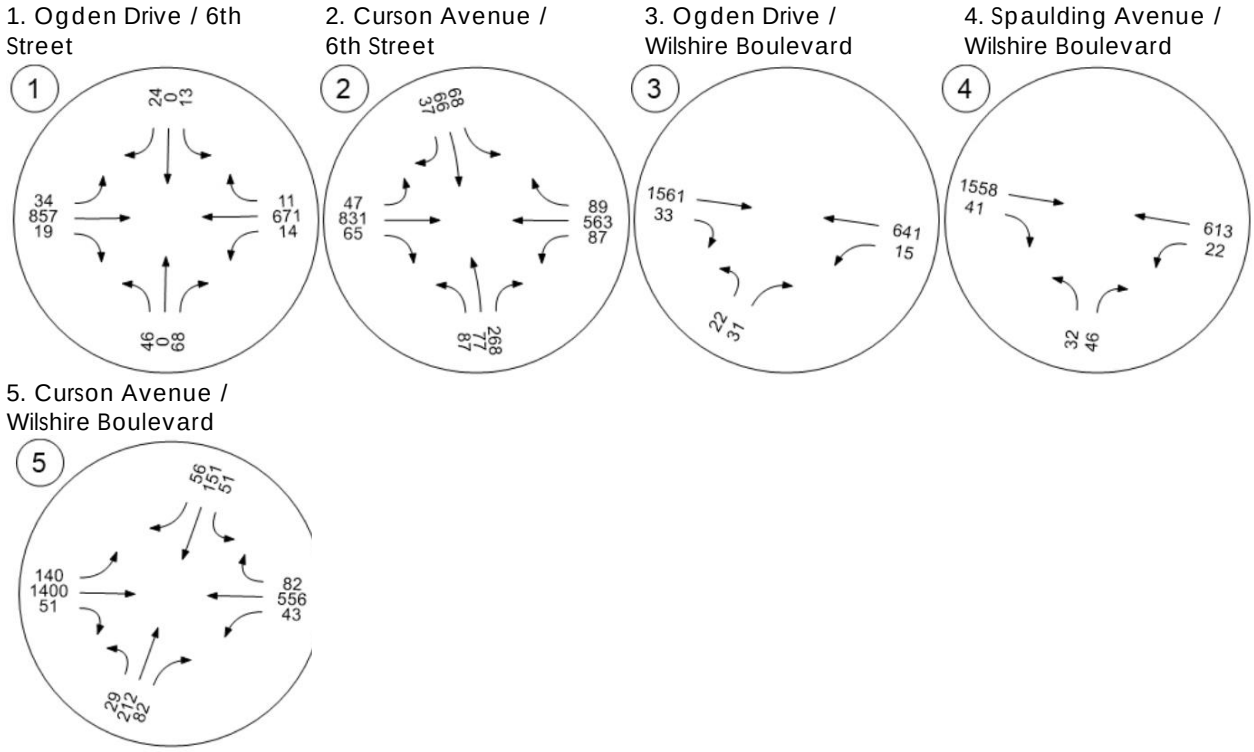
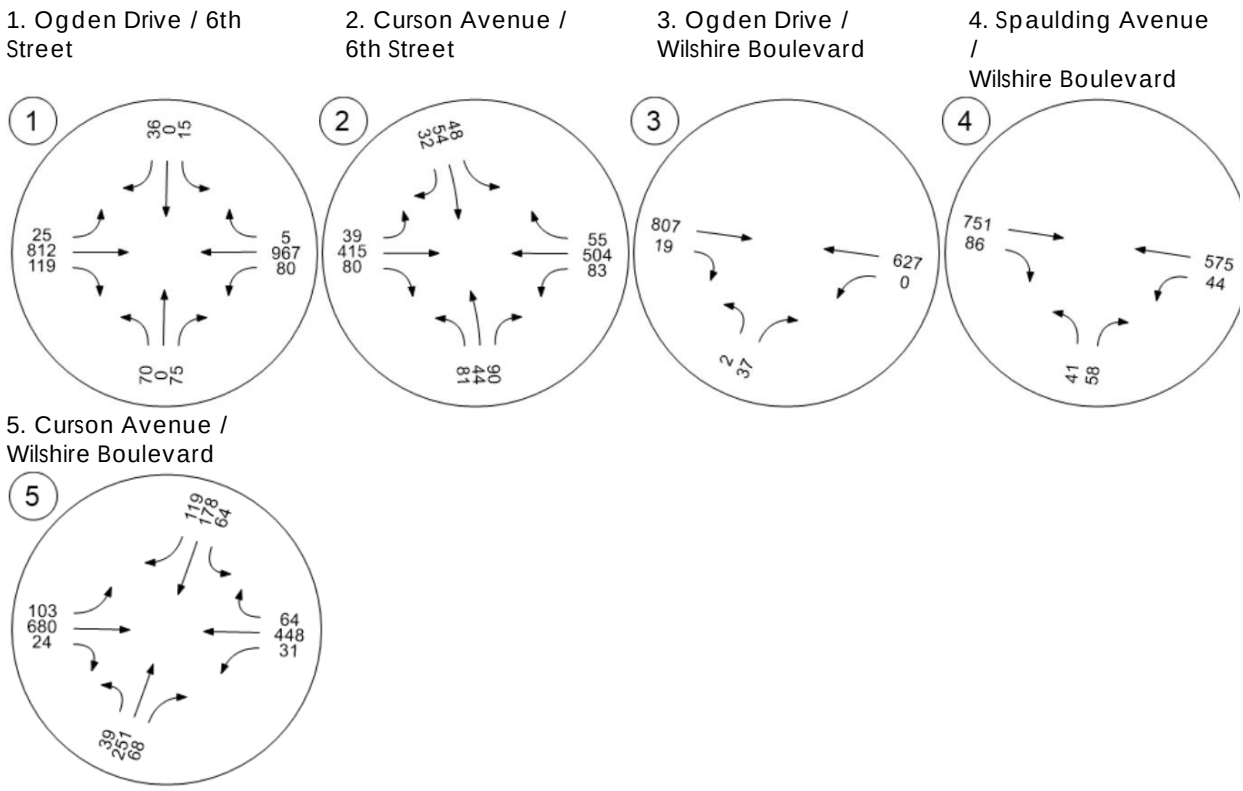


Figure 11: Existing (2022) Saturday Midday Peak Hour Traffic Volumes



EXISTING ROADWAY SEGMENT VOLUMES

24-hour bi-directional vehicle volumes were collected at the seven roadway segments shown in Table 9. Counts were collected on Thursday, May 12, 2022 and Saturday, May 14, 2022. These count periods were selected in consultation with City staff.

Table 9: Study Roadway Segments

Roadway	Extent
8th Street	between Fairfax Avenue and Orange Grove Avenue
8th Street	between Stanley Avenue and Curson Avenue
Orange Grove Avenue	between Wilshire Boulevard and 8th Street
Ogden Drive	between Wilshire Boulevard and 8th Street
Spaulding Avenue	between Wilshire Boulevard and 8th Street
Stanley Avenue	between Wilshire Boulevard and 8th Street
Curson Avenue	between Wilshire Boulevard and 8th Street

Because of the ongoing changes to travel patterns since the start of the COVID-19 pandemic in spring 2020, as well as construction on Wilshire Boulevard during the weekday morning and midday periods, the weekday counts were generally lower than historical counts (historical weekend counts were not available). The May 2022 weekday data was compared to data collected between 2014 and 2016. It was found that the weekday daily volumes along these streets were approximately 36% higher in previous years compared to 2022. Therefore, it was concluded that:

- A 36% growth rate would be applied to the May 2022 weekday daily volumes at locations where historical volumes were higher.

- Since historical weekend counts were not available, the ratio of volumes between weekday and weekend from the 2022 counts was applied to the adjusted weekday volumes.

Traffic count sheets are provided in the appendix. The adjusted weekday and Saturday daily volumes are shown in Table 10.

Table 10: Existing 2022 (Adjusted) Daily Segment Volumes

Roadway	Extent	Weekday Daily Volume	Weekend Daily Volume
8th Street	between Fairfax Avenue and Orange Grove Avenue	7,343	4,780
8th Street	between Stanley Avenue and Curson Avenue	9,262	4,633
Orange Grove Avenue	between Wilshire Boulevard and 8th Street	787	1,154
Ogden Drive	between Wilshire Boulevard and 8th Street	536	931
Spaulding Avenue	between Wilshire Boulevard and 8th Street	2,006	1,372
Stanley Avenue	between Wilshire Boulevard and 8th Street	1,216	784
Curson Avenue	between Wilshire Boulevard and 8th Street	7,013	4,972

SOURCE: NATIONAL DATA AND SURVEYING SERVICES, 2022; KITTELSON & ASSOCIATES, 2022.

EXISTING TRAFFIC OPERATIONS

The adjusted May 2022 intersection volumes were utilized to assess intersection operations for the weekday AM, weekday midday, weekday PM, and Saturday midday peak hours.

EXISTING INTERSECTION LEVELS OF SERVICE

Intersection operations were determined for the study peak hours using the Highway Capacity (HCM) 6th Edition methodology. The HCM methodology assigns a level of service grade to an intersection (LOS) based on the average control delay for vehicles at the intersection, ranging from LOS A to LOS F; LOS A signifies very slight delay with no approach phase fully utilized while LOS F signifies very high delays and congestion, frequent cycle failures, and long queues. For signalized and all-way stop-controlled intersections, the average control delay for all vehicles is assessed; for two-way stop-controlled intersections, the intersection approach with the highest delay is utilized. LOS grades and corresponding delay values under the HCM methodology are provided in the table below.

Table 11: Signalized Intersection Level of Service Standards (HCM Methodology)

Level of Service	Delay Per Vehicle (Seconds)	
	Signalized Intersection	Unsignalized Intersection
A	< 10.0	< 10.0
B	> 10.0 to 20.0	> 10.0 to 15.0
C	> 20.0 to 35.0	> 15.0 to 25.0
D	> 35.0 to 55.0	> 25.0 to 35.0
E	> 55.0 to 80.0	> 35.0 to 50.0
F	> 80.0	> 50.0

SOURCE: HIGHWAY CAPACITY MANUAL.

Existing intersection LOS is provided in Table 12. As shown in the table, all five of the study intersections perform at LOS D or better during the study peak hours.

Table 12: Existing (2022) Intersection Level of Service

Intersection		Peak Hour	Delay (sec)	LOS
1	Ogden/6th	Weekday AM	6.5	A
		Weekday MD	6.5	A
		Weekday PM	7.9	A
		Saturday MD	7.9	A
2	Curson/6th	Weekday AM	35.5	D
		Weekday MD	10.5	B
		Weekday PM	21.8	C
		Saturday MD	10.1	B
3	Ogden/Wilshire	Weekday AM	1.9	A
		Weekday MD	2.6	A
		Weekday PM	4.5	A
		Saturday MD	3.4	A
4	Spaulding/Wilshire	Weekday AM	6.6	A
		Weekday MD	5.0	A
		Weekday PM	6.9	A
		Saturday MD	8.0	A
5	Curson/Wilshire	Weekday AM	24.0	C
		Weekday MD	15.3	B
		Weekday PM	16.3	B
		Saturday MD	18.9	B

SOURCE: KITTELSON & ASSOCIATES, 2022.

EXISTING INTERSECTION QUEUES

In addition to delay-based LOS, existing queues were estimated at the study intersections. Existing queues for each movement for each of the four study periods are shown in Table 13. Storage lengths for turning movements are based on the turn pocket length and excludes the taper. Storage lengths for through movements are measured to the nearest adjacent cross street or crosswalk.

As shown in Table 13, three intersections experience queues that exceed storage for at least one movement (highlighted in yellow). However, these queues do not interfere with any marked crosswalks, nor with bus operations at stops.

Table 13: Existing (2022) Intersection Queuing

Intersection		Movement		Storage (ft.)	AM Queue (ft.)	MD Queue (ft.)	PM Queue (ft.)	Sat. Queue (ft.)
1	Ogden/6th	NB	Left/Thru/Right	70	< 25	46	120	89
		SB	Left/Thru/Right	205	94	< 25	37	30
		EB	Left	100	< 25	< 25	< 25	< 25
			Thru	555	71	161	237	195
			Right	60	< 25	< 25	< 25	< 25
		WB	Left	140	< 25	< 25	< 25	39
			Thru/Right	505	210	72	62	85
2	Curson/6th	NB	Left	110	287	63	44	48
			Thru/Right	790	66	92	181	72
		SB	Left	35	37	< 25	44	29
			Thru/Right	85	81	46	43	44
		EB	Left	100	< 25	< 25	< 25	< 25
			Thru	725	201	119	479	102
			Right	40	27	< 25	< 25	< 25
		WB	Left	95	114	32	89	30
			Thru/Right	575	592	63	118	64
3	Ogden/Wilshire	NB	Left	145	< 25	< 25	< 25	< 25
			Right	145	< 25	< 25	33	42
		EB	Thru	515	< 25	50	161	54
			Right	100	< 25	< 25	< 25	< 25
		WB	Left	115	< 25	< 25	< 25	< 25
			Thru	385	42	31	43	39
4	Spaulding/Wilshire	NB	Left/Right	570	125	70	81	95
		EB	Thru/Right	380	60	104	234	148
		WB	Left	65	< 25	< 25	< 25	< 25
			Thru	500	140	58	59	88
5	Curson/Wilshire	NB	Left/Thru/Right	100	541	258	282	309
		SB	Left/Thru/Right	790	264	232	232	344
		EB	Left	70	49	45	80	63
			Thru/Right	225	166	182	353	175
		WB	Left	105	55	< 25	38	< 25
			Thru	250	247	101	104	99
			Right	50	< 25	< 25	< 25	< 25

SOURCE: KITTELSON & ASSOCIATES, 2022.

BICYCLE AND PEDESTRIAN VOLUMES

Bicycle and pedestrian turning movement counts were also collected at the five study intersections. Counts were collected on Thursday, May 12, 2022, during the weekday morning (7:00 AM to 9:00 AM), midday (12:00 PM to 2:00 PM), and evening (4:00 PM to 6:00 PM) peak periods. Counts were also collected on Saturday, May 14, 2022, during the Saturday midday (12:00 PM to 2:00 PM) peak period. The existing crosswalk-level pedestrian counts and bicycle turning movement counts for the four study periods are shown in Table 14 through Table 17.

Table 14: Pedestrian and Bicycle Volumes (Weekday AM Peak Period)

Intersection		Pedestrian Crossings (by intersection leg)				Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles		
		N	S	E	W	L	T	R	L	T	R	L	T	R	L	T	R
1	Ogden/6th	12	14	4	6	1	0	0	0	0	2	0	5	0	0	13	0
2	Curson/6th	34	61	42	49	0	2	0	1	4	1	1	3	0	2	8	0
3	Ogden/Wilshire	--	72	0	67	1	--	0	--	--	--	--	3	0	0	6	--
4	Spaulding/Wilshire	--	86	21	7	0	--	0	--	--	--	--	1	0	0	5	--
5	Curson/Wilshire	60	58	36	72	1	2	0	0	3	1	0	2	0	1	7	0

SOURCE: NATIONAL DATA AND SURVEYING SERVICES, 2022; KITTELSON & ASSOCIATES, 2022.

Table 15: Pedestrian and Bicycle Volumes (Weekday Midday Peak Period)

Intersection		Pedestrian Crossings (by intersection leg)				Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles		
		N	S	E	W	L	T	R	L	T	R	L	T	R	L	T	R
1	Ogden/6th	62	101	46	11	0	0	0	1	0	1	0	2	0	0	5	0
2	Curson/6th	52	86	54	59	0	4	0	1	5	0	2	0	0	0	3	0
3	Ogden/Wilshire	--	260	12	201	3	--	0	--	--	--	--	5	1	0	4	--
4	Spaulding/Wilshire	--	200	36	48	2	--	0	--	--	--	--	3	1	0	4	--
5	Curson/Wilshire	245	181	123	186	0	1	1	2	4	0	4	2	0	1	4	0

SOURCE: NATIONAL DATA AND SURVEYING SERVICES, 2022; KITTELSON & ASSOCIATES, 2022.

Table 16: Pedestrian and Bicycle Volumes (Weekday PM Peak Period)

Intersection		Pedestrian Crossings (by intersection leg)				Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles		
		N	S	E	W	L	T	R	L	T	R	L	T	R	L	T	R
1	Ogden/6th	64	85	31	28	0	0	0	0	0	0	0	7	0	0	4	0
2	Curson/6th	19	60	20	32	0	5	0	1	2	0	0	8	1	4	4	0
3	Ogden/Wilshire	--	239	9	244	0	--	0	--	--	--	--	19	0	0	9	--
4	Spaulding/Wilshire	--	175	30	63	0	--	0	--	--	--	--	18	1	0	11	--
5	Curson/Wilshire	125	80	76	126	0	6	1	3	4	0	2	17	1	0	10	0

SOURCE: NATIONAL DATA AND SURVEYING SERVICES, 2022; KITTELSON & ASSOCIATES, 2022.

Table 17: Pedestrian and Bicycle Volumes (Saturday Midday Peak Period)

Intersection		Pedestrian Crossings (by intersection leg)				Northbound Bicycles			Southbound Bicycles			Eastbound Bicycles			Westbound Bicycles		
		N	S	E	W	L	T	R	L	T	R	L	T	R	L	T	R
1	Ogden/6th	51	82	24	18	0	0	0	1	0	0	0	5	0	0	6	0
2	Curson/6th	52	110	43	50	0	6	1	0	3	0	0	6	0	2	6	0
3	Ogden/Wilshire	--	196	20	165	0	--	0	--	--	--	--	4	0	0	7	--
4	Spaulding/Wilshire	--	180	101	61	0	--	2	--	--	--	--	4	0	1	8	--
5	Curson/Wilshire	194	127	66	202	0	6	1	0	3	2	1	5	0	1	9	0

SOURCE: NATIONAL DATA AND SURVEYING SERVICES, 2022; KITTELSON & ASSOCIATES, 2022.

RELATED PROJECTS

This transportation study considers the effects of the proposed project in relation to other developments in proximity of the project site that are proposed, approved, or under construction. The related projects were provided by the City as part of the MOU process. Nine related projects are included in this analysis, as shown in Figure 12 and listed below.

1. **LACMA Renovation**: This project is located at 5906 W. Wilshire Blvd., and shares the western half of the block with the proposed project. It proposes replacing four buildings within LACMA East collectively compromising 392,871 gross square feet. Overall, the project would result in a net decrease in the square footage of Museum operations by approximately 5,371 square feet and a reduction in the maximum theater size from over 600 seats to 300 seats.
2. **Mixed-Use Project**: This project is located at 5891 Olympic Boulevard. It will consist of 46 apartments.
3. **Wilshire Curson Project**: This project is located at 5700 -5780 Wilshire Blvd / 712-752 S. Curson Ave / 5721-5773 W. 8th Street / 715-761 S. Masselin. It is currently developed with two, six-story primarily office buildings comprising 1,002,990 square feet of floor area. The project would retain and renovate the southern portion of the existing buildings and would demolish the northern portion of

the two existing office buildings for the addition of approximately 1,923,837 square feet of new floor area consisting of 1,806,237 square feet of office uses and 117,600 square feet of ground floor commercial space. Upon completion, the project would result in a net lot area of 390,092 square feet (8.9 acres) within the project site, with a total floor area of approximately 2,340,552 square feet comprised of 2,222,952 square feet of office floor area and 117,600 square feet of commercial floor area with a floor area ratio (FAR) of 6:1.

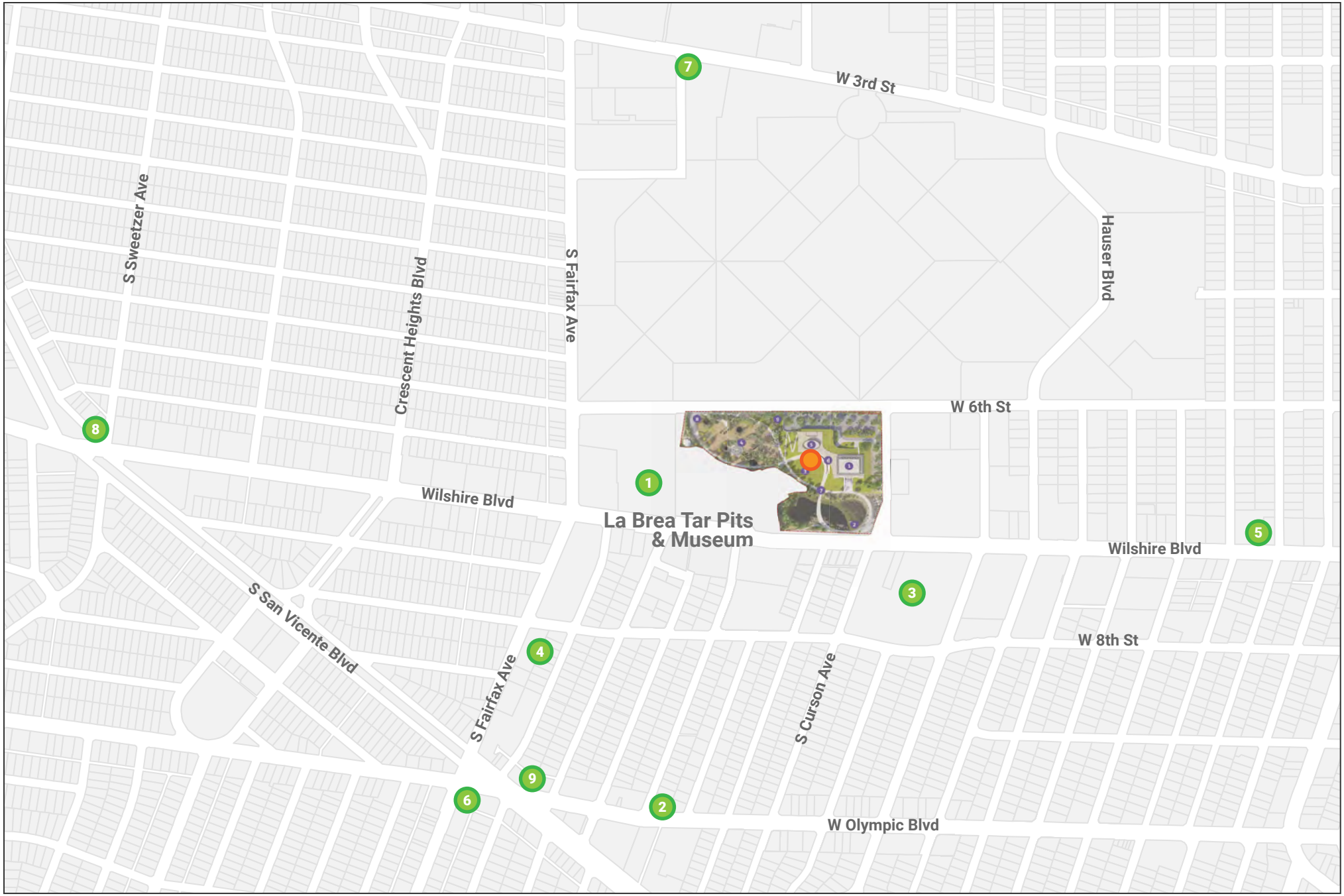
4. **Mixed-Use Residential Project**: This project is located at 800 S Fairfax Avenue. The site currently contains 40 apartments and an existing 3,829 square foot restaurant/lounge. The restaurant/lounge will remain but the existing residential buildings will be replaced with 181 apartments, 28 affordable apartments, and 2,653 square feet of restaurant.
5. **Mixed-Use Residential and Commercial Development**: This project is located at 5411 Wilshire Blvd. It consists of the construction of a new 42-story mixed-use tower including up to 348 dwelling units and approximately 10,176 square feet of ground floor commercial uses. 38 of the dwelling units would be restricted affordable. The project would demolish approximately 38,545 square feet of existing commercial uses.
6. **Olympic + Fairfax Mixed Use Project**: This project is located at 6052-6066 W. Olympic Blvd. It includes construction of a 6-story, mixed-use building containing approximately 5,135 square feet of commercial retail space, 108 apartments, and 12 affordable apartments. It would replace 11,440 square feet of commercial retail uses.
7. **Mixed-Use Project**: This project is located at 6300 W. 3rd Street. It includes demolition of over 150,000 square feet of commercial uses and construction of an 8-story mixed use building consisting of 83,994 square feet of commercial space and 331 dwelling units.
8. **San Vicente Medical/Commercial Project**: This project is located at 650-676 S. San Vicente Blvd. The project proposes 140,305 square feet of medical office space, 4,000 square feet of restaurant/retail space, and 1,000 square feet for other commercial uses, such as a pharmacy. This will include the demolition of an existing 5,738 square-foot, vacant educational building and an 8,225 square foot Big 5 Sporting Goods store.
9. **Olympic Boulevard Mixed-Use Project**: This project is located at 6001-6011 West Olympic Blvd. The proposed project includes the construction of a mixed-use building with 1,596 square feet of ground floor retail, 51 apartments, and 6 affordable apartments. It includes the demolition of 8,488 square feet of retail and 6 apartments.

Estimated trip generation for these nine related projects is provided in Table 18. Trip generation for the related projects were determined through a number of methods:

- Provided by the City during the MOU process
- Obtained from the relevant project transportation studies or memos
- City of Los Angeles-published trip generation rates for affordable housing
- Trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*

Trip generation rates are typically not provided for the weekday midday and Saturday midday peak hours. Therefore, it was assumed that weekday midday trip generation was 77% of the weekday PM trip generation, and Saturday midday trip generation was 65% of weekday PM trip generation based on study area traffic volumes. This assumption was not applied to the LACMA Renovation project since that project's transportation study included weekday and Saturday midday trip generation estimates.

The trip generation for related projects is conservative by not applying negative net new trips and instead assuming those to be zero. Accordingly, a hyphen in a cell of the table denotes that the related project generates either zero or negative net new trips for that specific time period and inbound/outbound trip generation.



LA BREA TAR PITS & MUSEUM

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Related Project Locations

Figure 12

Table 18: Related Projects Trip Generation

Project	Wkdy. Daily	Wkdy. AM			Wkdy. Midday			Wkdy. PM			Sat. Daily	Sat. Midday		
		In	Out	Total	In	Out	Total	In	Out	Total		In	Out	Total
LACMA Renovation	668	43	2	45	27	33	60	15	53	68	763	34	41	75
Mixed-Use Project	310	4	14	18	11	7	18	14	9	23	209	9	6	15
Wilshire Curson Project	17,576	1,692	261	1,953	378	1,283	1,661	491	1,666	2,157	8,176	319	1,083	1,402
Mixed-Use Residential Project	786	27	46	73	36	24	60	48	31	79	913	31	20	51
Mixed-Use Residential and Commercial Development	--	--	41	41	1	--	--	1	--	--	--	1	--	--
Olympic + Fairfax Mixed Use Project	--	--	12	12	3	2	5	3	3	6	--	2	2	4
Mixed-Use Project	1,609	49	93	142	51	16	67	66	21	87	762	43	14	57
San Vicente Medical/Commercial Project	5,374	364	108	472	141	304	445	183	395	578	2,146	119	257	376
Olympic Boulevard Mixed-Use Project	99	6	3	9	4	--	4	5	--	5	30	3	--	3

SOURCE: CITY OF LOS ANGELES; INSTITUTE OF TRANSPORTATION ENGINEERS; KITTELSON & ASSOCIATES, 2022.

NOTE: A HYPHEN DENOTES THAT THE RELATED PROJECT DOES NOT GENERATE NET NEW TRIPS FOR THAT TIME PERIOD AND/OR DIRECTION.

Section 4 — CEQA Analysis

CEQA TRANSPORTATION ANALYSIS

This chapter details the CEQA transportation analysis of potentially significant impacts, based on thresholds and methodologies from Section 2 of the City's TAG. Potentially significant transportation impacts were assessed under the following three thresholds:

- **Threshold T-1:** Conflicting with Plans, Programs, Ordinances, or Policies
- **Threshold T-2:** Causing Substantial Vehicle Miles Traveled
- **Threshold T-3:** Substantially Increasing Hazards Due to a Geometric Design Feature or Incompatible Use

THRESHOLD T-1

Under Threshold T-1 (Conflicting with Plans, Programs, Ordinances, or Policies), proposed projects should be analyzed to identify potential conflicts with adopted City plans and policies. If there is a conflict, improvements that prioritize access for and improve the comfort of people walking, bicycling, and riding transit in order to provide safe and convenient streets for all users should be identified.

The City has prepared criteria to identify which projects must check for consistency with major City plans and policies. The City has also prepared a Plan Consistency Worksheet to guide the plan consistency analysis.

SCREENING

If the proposed project requires a discretionary action, and the answer is yes to at least one of the screening questions under Threshold T-1, then a plan consistency analysis is required.

- Does the project require a discretionary action that requires the decision maker to find that the decision substantially conforms to the purpose, intent and provisions of the General Plan?
- Is the project known to directly conflict with a transportation plan, policy, or program adopted to support multimodal transportation options or public safety?
- Is the project required to or proposing to make any voluntary modifications to the public right-of-way (i.e., dedications and/or improvements in the right-of-way, reconfigurations of curb line, etc.)?

The proposed project requires a discretionary action. It also proposes modifications to the public right-of-way: a new parking lot driveway and loading zone on 6th Street (classified as an Avenue II) and modification to the existing loading zone on Curson Avenue (a Collector). Therefore, further analysis is required.

IMPACT CRITERIA AND METHODOLOGY

Impact Threshold T-1 is as follows:

- **Threshold T-1**: Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities?

The City of Los Angeles has adopted programs, plans, ordinances, and policies that establish the transportation planning framework for all travel modes. The overall goals of these policies are to achieve a safe, accessible, and sustainable transportation system for all users. The City has prepared a Plan Consistency Worksheet with questions to help guide whether the proposed project would conflict with these programs, plans, ordinances, and policies. The worksheet's yes/no questions must be paired with substantiating information to help determine whether a conflict would take place.

The step-by-step impact analysis below is based on the City's consistency worksheet, which is included in the appendix to this report.

IMPACT ANALYSIS

Mobility Plan 2035 PROW Classification Standards for Dedications and Improvements

While the project includes new construction along Wilshire Boulevard (an Avenue I) and 6th Street (an Avenue II), the property is not zoned for R3 or less restrictive zoning. Therefore, the project does not conflict with the dedication and improvement requirements that are needed to comply with the Mobility Plan 2035 Street Designations and Standard Roadway Dimensions.

Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes

Given that the project includes physically modifying the curb placement along Curson Avenue, City plans and policies were reviewed in light of the proposed physical changes to determine if the City would be obstructed from carrying out the plans and policies. Curson Avenue along the project frontage is not on the High Injury Network. It is not a part of one of the designated multimodal networks. There are no existing or planned transit lines, transit stops, or bikeways along this segment. With the proposed change, the existing sidewalk would be maintained. The project proposes to modify the curb line to create a bay for a section of curb that is already designated as a bus zone, in place of the existing landscaped area. This moves loading/unloading out of the travel lanes to separate it from the adjacent travel lane.

The proposed project also includes a new driveway on 6th Street (an Avenue II). However, this does not result in exceeding 1 driveway per every 200 feet along the Avenue II frontage, locating it within 150 feet of the intersecting street, or locating it near a mid-block crosswalk.

The project would not conflict with plans or policies that govern the Public Right-of-Way.

Network Access

The project does not propose to vacate or otherwise restrict public access to a street, alley, or public stairway. It does not create a cul-de-sac and is long located adjacent to an existing cul-de-sac. Therefore, the project would not conflict with a plan or policies that ensures access for all modes of travel.

Parking Supply and Transportation Demand Management

The project would not propose a supply of on-site parking that exceeds the baseline amount as required in the Los Angeles Municipal Code (LAMC), since no increase in the on-site parking supply is anticipated and the overall Museum square footage is increasing. Therefore, the project would not conflict with parking management policies.

The LAMC bicycle parking requirements for institutional uses are 1 short-term parking space per 10,000 of floor area, and 1 long-term parking space per 5,000 square feet of floor area. Since the project includes a net increase of 42,000 square feet, this means that 4 short-term spaces and 8 long-term spaces are required. At this time, the site plan is conceptual and therefore does not indicate the amount nor location of bike parking. Therefore, the project may conflict with the LAMC requirements for bicycle parking.

The TDM Ordinance requires projects between 25,000 and 50,000 square feet to provide a transportation information display with public transit information, contact info for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities. At this time, the site plan is conceptual and does not indicate the location of this required TDM measure. Therefore, the project may conflict with the LAMC requirements for TDM.

Consistency with Regional Plans

The project was reviewed to determine potential inconsistencies with greenhouse gas (GHG) reduction targets forecasted in the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS).

The project was analyzed using a total vehicle miles traveled (VMT) threshold (as opposed to an efficiency-based impact threshold). The detailed VMT analysis is provide under Threshold T-2. The project functions as a regional attraction and would result in a net increase in regional VMT. Since the project would result in a net increase in VMT, further evaluation was necessary to determine whether this project would be inconsistent with VMT and GHG reduction goals of the SCAG RTP/SCS.

It was determined that without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, ensuring safety, maximizing transportation productivity, encouraging active transportation, and improving air quality. The proposed project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements. The relevant RTP/SCS goals that the project may conflict with are as follows:

- Improve mobility, accessibility, reliability, and travel safety for people and goods
- Enhance the preservation, security, and resilience of the regional transportation system
- Increase person and goods movement and travel choices within the transportation system
- Reduce greenhouse gas emissions and improve air quality
- Leverage new transportation technologies and data-driven solutions that result in more efficient travel

Therefore, it was determined that the project would be inconsistent with regional plans related to mobility and GHG reductions.

The proposed project would result in a **significant impact** related to consistency with plans, programs, ordinances, or policies.

CUMULATIVE IMPACT ANALYSIS

The analysis conducted above was reviewed to determine if cumulative impacts may result from the proposed project in combination with related projects in the study area.

- **Mobility Plan 2035 PROW Classification Standards for Dedications and Improvements**: The LACMA Renovation is a related project that shares the block as well as 6th Street and Wilshire Boulevard frontages with the proposed project. However, while the LACMA Renovation also includes new construction along Wilshire Boulevard (an Avenue I) and 6th Street (an Avenue II), the property is not zoned for R3 or less restrictive zoning. Therefore, cumulative conflicts are not anticipated.
- **Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes**: Related projects in the study area do not propose curb modifications and new driveways in close proximity to the proposed project. Therefore, cumulative conflicts are not anticipated.
- **Network Access**: The related projects in the study area do not propose to vacate or restrict public access or create cul-de-sacs in proximity of the proposed project. Therefore, cumulative conflicts are not anticipated.
- **Parking Supply and Transportation Demand Management**: It is not anticipated that related projects in the study area will conflict with the City's parking management policies (either through providing sufficient parking supply or implementing parking management strategies). The potential project shortcomings related to bicycle parking and TDM requirements would be exacerbated by related projects in the study area. Therefore, cumulative conflicts are anticipated.
- **Consistency with Regional Plans**: The LACMA Renovation, located directly to the west of the proposed project and sharing the city block, is similarly a Museum that serves as a regional

attraction and would likely result in a net increase in regional VMT. Therefore, cumulative conflicts with regional plans related to mobility and GHG reductions are anticipated.

The proposed project would contribute to a **significant cumulative impact** related to consistency with plans, programs, ordinances, or policies.

MITIGATION

Given that the project would conflict with regional plans related to mobility and GHG reductions (and potentially with LAMC requirements for bicycle parking and TDM) the proposed project would result in a significant impact related to consistency with plans, programs, ordinances, or policies, and would contribute to a significant cumulative impact related to consistency with plans, programs, ordinances, or policies. Therefore, **Mitigation Measure #1** is proposed, detailed below.

Mitigation Measure #1 Transportation Demand Management (TDM) Program

To reduce Museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare, the proposed project shall prepare and implement a TDM program. The program shall be developed in consultation with LADOT.

The proposed project will designate an existing member of staff as the on-site TDM Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT.

<u>Employee Strategies</u>

Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures may be applied to reduce employee vehicle trips and VMT:

- Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.
- Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.
- Encourage and support participation in LA Metro vanpool, including subsidies for participation.
- Implement paid parking for employees.
- Subsidize transit passes.
- Offer flexible work schedules and telecommuting, when feasible.

<u>Visitor Strategies</u>

Transportation information for visitors should be displayed on the Museum's website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT:

- Advertise and offer discounted Museum tickets for visitors who use public transit or a bicycle to visit the project.
- Provide and maintain secure on-site bicycle parking for visitors, and monitor usage to determine if additional bicycle racks are needed.
    - Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.
    - Ensure bicycle parking is well lit and monitored by staff.
- Continue to have paid parking for visitors.
- Coordinate with LA Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to the Museum, through the following measures:

  - Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and the Museum.
  - Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by Museum visitors.
  - Coordinate with LA Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection.
- Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site, and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and 6th Street.

Implementation of Mitigation Measure #1 would encourage employees and visitors to reduce their vehicle trips, and contribute to VMT and GHG reduction goals. This measure also supports multimodal connectivity in the study area. With the implementation of Mitigation Measure #1, the impact related to consistency with plans, programs, ordinances, or policies would be reduced to **less than significant with mitigation**. In addition, the cumulative impact related to consistency with plans, programs, ordinances, or policies would be reduced to **less than significant with mitigation**.

THRESHOLD T-2

Under Threshold T-2 (Causing Substantial Vehicle Miles Traveled), proposed projects should be analyzed to assess whether they would cause substantial vehicle miles traveled (VMT). If an VMT impact is identified, measures should be identified to reduce vehicle trips and vehicle trip lengths.

The City has prepared screening criteria to identify which projects must check for VMT impacts. In addition, the proposed project is a nonstandard use. The methodology and impact criteria to analyze the project's potential VMT impacts is detailed in this section.

SCREENING

If the proposed project requires a discretionary action, and the answer is no to at least one of the screening questions below, then a "no impact" determination can be made without further VMT analysis.

- Would the land use project generate a net increase of 250 or more daily vehicle trips?
- Would the project generate a net increase in daily VMT?

The proposed project requires a discretionary action. In addition, as detailed in the "Project Description" section of this report, the additional Museum square footage is expected to generate 1,293 net new weekday daily vehicle trips and 1,679 net new Saturday daily vehicle trips.

A determination of no net increase in daily VMT cannot be made without a full VMT analysis. Since the project is a non-standard use with unique trip generation patterns, neither the City's VMT calculator tool nor the City's Travel Demand Forecasting (TDF) model be used for this determination. Based upon consultation with City staff, it was determined that an off-model VMT analysis using visitor zip code data would be appropriate for conducting a full VMT impact analysis.

Therefore, this project cannot be screened out of a VMT analysis under Threshold T-2.

IMPACT CRITERIA AND METHODOLOGY

Impact Threshold T-2 is as follows:

- **Threshold T-2**: For a land use project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?

The City of Los Angeles has adopted the following VMT impact criteria for common project types:

- For residential projects, the project would generate household VMT per capita exceeding 15% below the existing average household VMT per capita for the Area Planning Commission (APC) area in which the project is located.
- For office projects, the project would generate work VMT per employee exceeding 15% below the existing average work VMT per employee for the APC in which the project is located.
- For regional serving projects including retail projects, entertainment projects, and/or event centers, the project would result in a net increase in VMT.
- For other land use types, measure VMT impacts for the work trip element using the criteria for office projects above.

Trips associated with uses such as event centers and regional-serving entertainment venues are typically discretionary trips made by individuals, which may be substitute or new trips. For such projects, VMT analyses should determine if the project would attract regional trips and as a result increase total VMT.

The proposed project currently serves as regional attraction; with the proposed expansion, it will continue to serve that role. Therefore, in consultation with City staff, this report will analyze if the proposed project would result in a net increase in VMT.

Since tools such as the City's VMT calculator tool and the City's TDF model are not sensitive to unique land uses such as a regional Museum, a project-specific, customized approach is required. This report's methodology to analyzing the net change in total VMT resulting from the project is as follows:

- Obtain the average recreation trip length from the 2012 California Household Travel Survey (CHTS). The CHTS provides zip code-based household data including mode choice and trip lengths. Information is further broken down by trip purpose (home, work, school, errands, dining, shopping, and recreation). The average recreation trip length will be obtained for the zip codes encompassing Los Angeles and Orange Counties.
- Estimate the average trip length for Museum visitors in fiscal year 2018, using visitor's reported zip codes. This will be estimated for visitors from zip codes within Los Angeles and Orange Counties, since they are more likely to make a unique, unlinked driving trip to the Museum.
- Compare existing visitors' average trip lengths to the average trip length for recreation-related trips in the region.
- Since regional attractions such as the Museum may be discretionary and substitute trips, a visitor average trip length that is longer than the regional average recreation trip length could mean that as recreational trips are rerouted to visit the expanded Museum, total regional VMT would increase. Conversely, a visitor average trip length that is shorter than the regional average recreation trip length could mean that as trips are rerouted to the expanded Museum, total regional VMT would decrease.

IMPACT ANALYSIS

The CHTS average trip lengths by trip purpose for households in Los Angeles County and Orange County are provided in Table 19. As shown in the table, the average recreation trip length is 6.65 miles.

Table 19: Average Trip Lengths by Trip Purpose (Los Angeles and Orange Counties)

Trip Purpose	Average Trip Length
Home	5.83
Work	9.76
School	3.33
Errands	5.88
Dining	6.13
Shop	3.61
Recreation	**6.65**
Other	7.36
All Trips	6.35

SOURCE: CALIFORNIA HOUSEHOLD TRAVEL SURVEY

Ticketing information and reported zip codes (for visitors from Los Angeles County and Orange County zip codes) from fiscal year 2018 were used to estimate the average visitor trip length. Visitor zip code information utilized in this analysis is included in the appendix. According to this subset of fiscal year 2018 visitors, the average trip length per visitor was 19.70 miles.

The average visitor trip length (19.70 miles) is higher than the average recreation trip length (6.65 miles). Visitors to the Museum travel approximately 196% longer than the average recreation trip in Los Angeles and Orange Counties. Given that Museum visitor trips are longer than regional recreation trip lengths, additional visitor trips to the Museum due to the expansion would result in a net increase in total VMT.

Therefore, the proposed project would result in a **significant impact** related to causing substantial vehicle miles traveled.

Note, the Page Museum is one of a number of museums in the study area. It is expected that a portion of visitors to the study area will visit multiple museums in a single visit. This includes the additional visitors to the area due to the Museum expansion; a portion of the increase in visitors could come from other nearby museums such as LACMA. Therefore, the VMT assessment utilized for the impact findings under Thresholds T-1 and T-2 is conservative in that it assumes new visitors generated by the Museum expansion would exhibit the same trip length patterns as existing visitors to the site.

CUMULATIVE IMPACT ANALYSIS

The analysis conducted above was reviewed to determine if cumulative impacts may result from the proposed project in combination with related projects in the study area.

Other projects in the study area are generally residential, office, and retail projects. However, the LACMA renovation, located directly to the west of the proposed project and sharing the city block, is similarly a Museum that serves as a regional attraction and would likely result in a net increase in regional VMT. Therefore, cumulative increases in VMT are anticipated.

Therefore, the proposed project would contribute to a **significant cumulative impact** related to causing substantial vehicle miles traveled.

MITIGATION

Given that the project would result in a net increase in VMT, the proposed project would result in a significant impact related to causing substantial vehicle miles traveled. **Mitigation Measure #1**, which requires the project to implement a TDM program and coordinate on multimodal improvements in the study area, can help reduce employee and visitor VMT and support multimodal connectivity.

According to the California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*

(December 2021),[2] the maximum VMT reductions for various categories of on- and off-site measures range from approximately 2% to 65% for projects located in urban areas. However, given the magnitude of VMT that would need to be reduced due to visitor trips being 196% longer than average regional recreation trips, Mitigation Measure #1 may be insufficient to reduce VMT to less-than-significant levels.

Therefore, with the implementation of Mitigation Measure #1, the impact related to causing substantial vehicle miles traveled would remain **significant and unavoidable** after mitigation. In addition, the cumulative impact related to causing substantial vehicle miles traveled would remain **significant and unavoidable** after mitigation.

THRESHOLD T-3

Under Threshold T-3 (Substantially Increasing Hazards Due to a Geometric Design Feature or Incompatible Use), proposed projects should be analyzed to assess whether they would potentially increase hazards due to design features that impact safety, operations, or capacity during permanent conditions or temporary conditions during project construction. If a potential hazard impact is identified, measures should be identified to eliminate the potential hazards.

The City has prepared screening criteria to identify whether the project should be analyzed for potential impact from increasing hazards. The methodology and impact criteria to analyze the project's potential hazard impacts are summarized in this section.

SCREENING

If the proposed project requires a discretionary action, and the answer is yes to at least one of the screening questions below, then further analysis is required to assess whether the project would result in impacts due to geometric design hazards or incompatible uses.

- Is the project proposing new driveways, or introducing new vehicle access to the property from the public right-of-way?
- Is the project proposing to make any voluntary or required modifications to the public right-of-way (i.e., streets dedications, reconfigurations of curb line, etc.)?

The proposed project requires a discretionary action. In addition, as detailed in the "Project Description" section of this report, the project proposes a new driveway on 6th Street and realignment of the curb on Curson Avenue.

Therefore, this project cannot be screened out potential impacts to hazards under Threshold T-3.

IMPACT CRITERIA AND METHODOLOGY

Impact Threshold T-3 is as follows:

- **Threshold T-3**: Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The determination of significance shall consider the following factors:

- The relative amount of pedestrian activity at project access points.
- Design features/physical configurations that affect the visibility of pedestrians and bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists.
- The type of bicycle facilities the project driveway(s) crosses and the relative level of utilization.

[2] https://www.caleemod.com/handbook/index.html

- The physical conditions of the site and surrounding area, such as curves, slopes, walks, landscaping or other barriers, that could result in vehicle/pedestrian, vehicle/bicycle, or vehicle/vehicle safety hazards.
- The project location, or project-related changes to the public right-of-way, relative to proximity to the High Injury Network or a Safe Routes to School program area.
- Any other conditions, including the approximate location of incompatible uses that would substantially increase a transportation hazard.

IMPACT ANALYSIS

The proposed project includes a new driveway on 6th Street that is 20 feet wide and consists of one inbound and one outbound lane. The driveway would be located approximately 450 feet west of the intersection with Curson Avenue and 250 east of the signalized pedestrian crossing. The driveway location does not result in exceeding 1 driveway per every 200 feet along the Avenue II frontage, locating it within 150 feet of the intersecting street, or locating it near a mid-block crosswalk.

6th Street has relatively flat grades and there are no visible obstructions to sight distance for the proposed location. 6th Street has an existing two-way left-turn lane for approximately 200 feet in each direction of the proposed driveway, with only one driveway on the north side which provides access to parking for the Park La Brea apartments. To minimize potential conflicts, the proposed project driveway will be aligned across from the existing driveway on the north side of 6th Street.

Pedestrian activity is high on 6th Street and there is a sidewalk with landscaped separation between the curb where the driveway would be located. Bicycle activity is moderate on 6th Street and currently share the roadway with vehicles but there are planned protected bike lanes. Introduction of a new driveway would create a new conflict point between vehicles and pedestrians/bicyclists, but will be designed to provide adequate sight distance and with curb radii that require slower speeds to complete turning movements.

A new loading zone is proposed along 6th Street between the LACMA parking access and the signalized mid-block crossing connecting to the site. The loading zone would replace existing on-street parking, and would operate similar to the existing parking when reviewing potential impact to hazards.

The project also includes modifying the curb along Curson Avenue to provide a pull-out area for loading and unloading. The project proposes to modify the curb line to create a bay for a section of curb that is already designated as a bus zone. This moves loading/unloading out of the travel lanes to separate it from the adjacent travel lane.

Based on the proposed site plan and evaluation of geometric design and uses, the proposed project would result in a **less than significant impact** when considering increasing hazards.

CUMULATIVE IMPACT ANALYSIS

The analysis of potential increased hazards was reviewed to determine if cumulative impacts may result from the proposed project in combination with related projects in the study area. Related projects in the area would likely contribute additional vehicle, pedestrian, and bicycle activity. The project design would not be impacted by the related projects nor the increase in activity.

The proposed project would result in a **less than significant cumulative impact** when considering increasing hazards based on the geometric design and uses of the proposed project.

MITIGATION

No mitigation measures are needed to address potential hazards for the proposed project.

Section 5 — Non-CEQA Analysis

NON-CEQA TRANSPORTATION ANALYSIS

This chapter details the non-CEQA transportation analysis of potential deficiencies in the transportation network resulting from the proposed project, based on evaluation criteria and methodologies from Section 3 of the City's TAG. Potential deficiencies were assessed under the following categories:

- Pedestrian, Bicycle, and Transit Access Assessment
- Project Access Safety and Circulation Evaluation
- Project Construction
- Residential Street Cut-Through Analysis

In addition, this chapter includes an assessment of special events and potential effects on the multimodal transportation network.

PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS ASSESSMENT

According to the City's TAG, development projects may be required to conduct an assessment of potential effects on pedestrian, bicycle, and transit facilities in the vicinity of the proposed project. The deficiencies could be physical (through removal, modification, or degradation of facilities) or demand-based (by adding pedestrian or bicycle demand to inadequate facilities).

SCREENING

If a proposed project answers yes to all of the following questions, further analysis will be required to assess whether the project would negatively affect pedestrian, bicycle, or transit facilities.

- Does the land use project involve a discretionary action that would be under review by the Department of City Planning?
- Does the land use project include the construction, or addition of: 50 (or more) dwelling units or guest rooms or combination thereof, or 50,000 square feet (or more) of non-residential space?
- Would the project generate a net increase of 1,000 or more daily vehicle trips, or is the project's frontage along an Avenue, Boulevard, or Collector (as designated in the City's General Plan) 250 linear feet or more, or is the project's building frontage encompassing an entire block along an Avenue or Boulevard (as designated in the City's General Plan)?

The proposed project involves a discretionary action, and will generate more than 1,000 net new daily vehicle trips. However, the proposed project includes the construction of less than 50,000 square feet of new non-residential space. Therefore, the proposed project is not required to undergo a pedestrian, bicycle, and transit access assessment.

However, a pedestrian, bicycle, and transit access assessment has been conducted for the proposed project to ensure that potential deficiencies are disclosed.

EVALUATION CRITERIA AND METHODOLOGY

The City's TAG provide the following factors to consider when assessing a project's potential effect on pedestrian, bicycle and transit facilities:

- Would a project directly or indirectly result in a permanent removal or modification that would lead to the degradation of pedestrian, bicycle, or transit facilities, including but not limited to:
  - Removal or degradation of existing bikeways and/or supporting facilities (e.g., bikeshare stations, on-street bike racks/parking, bike corrals, etc.)
  - Removal or degradation of existing transit and/or local circulator facilities including stop, bench, shelter, concrete pad, bus lane, or other amenities
  - Removal of other existing transportation system elements supporting sustainable mobility
  - Increase street crossing distance for pedestrians; increase in number of travel/turning lanes; increase in turning radius or turning speeds
  - Removal, degradation, or narrowing of an existing sidewalk, path, crossing, or pedestrian access way
  - Removal or narrowing of existing sidewalk-street buffering elements (e.g., curb extension, parkway, planting strip, street trees, etc.)
- Would a project intensify use of existing pedestrian, bicycle, or transit facilities, including but not limited to:
  - Increase in pedestrian or vehicle volume, and thereby increase the need or attraction to cross a street at unmarked pedestrian crossings or unsignalized or uncontrolled intersections where a crossing is not available without significant rerouting.
  - Result in new pedestrian demand between project site entries/exits and major destinations or transit stops expected to serve the development where there are missing pedestrian facilities (e.g., gaps in the sidewalk network) or substandard pedestrian facilities (e.g., narrow or uneven sidewalks, no crosswalks at intersections or mid-block, no marked crossing, or push button crossing rather than actuated, etc.).
  - Increase transit demand at bus stops that lack marked crossings, with insufficient sidewalks, or are in isolated, unshaded, or unlit areas.

ASSESSMENT

The proposed project would not directly or indirectly result in a permanent removal or modification that would lead to the degradation of pedestrian, bicycle, or transit facilities. No changes are proposed to existing bikeways and transit stops. In addition, no changes are proposed that would remove pedestrian facilities, increase pedestrian crossing distances, or increase vehicle turning speeds.

The proposed project may intensify use of existing pedestrian and transit facilities along Wilshire Boulevard between Curson Avenue and Spaulding Avenue. As shown in Table 5, the project is estimated to generate 66 net new visitor walking trips during the weekday midday peak hour, 16 net new visitor walking trips during the weekday PM peak hour, and 60 net new visitor walking trip during the Saturday midday peak hour. In addition, as shown in Table 3, the project is estimated to generate 78 net new visitor transit trips during the weekday midday peak hour, 18 net new visitor transit trips during the weekday PM peak hour, and 73 net new visitor transit trip during the Saturday midday peak hour; these transit trips will also include walk-to-transit trips.

As shown in Table 14 through Table 17, there is currently substantial pedestrian demand at the Spaulding Avenue/Wilshire Boulevard and Curson Avenue/Wilshire Boulevard intersections during the peak periods. For example, 200 pedestrians utilize the crosswalk at the southern Spaulding Avenue/Wilshire Boulevard leg during the weekday midday (12:00 PM to 2:00 PM) peak period; 245 pedestrians utilize the northern crosswalk and 186 pedestrians utilize the western crosswalk at the Curson Avenue/Wilshire Boulevard intersection. The proposed project would increase pedestrian demand at these two intersections, including people walking to local bus stops.

While continental crosswalks are provided at all three legs at the Spaulding Avenue/Wilshire Boulevard intersection, three of the four curb ramps are not ADA ramps and lack high-visibility truncated domes. In addition, while the southern leg's crosswalk has fixed pedestrian timing, the north-south crosswalks have push buttons.

At the Curson Avenue/Wilshire Boulevard intersection, all four crosswalks are standard rather than continental crosswalks. Three of the four curb ramps are not ADA ramps and lack high-visibility truncated domes. While east-west crosswalks across Curson Avenue have fixed pedestrian timing, the north-south crosswalks across Wilshire Boulevard have push buttons. In addition, the Curson Avenue frontage road approximately 60 feet east of the Curson Avenue/Wilshire Boulevard intersection has two curb ramps, but they lack high-visibility truncated domes; no marked crosswalk is provided.

Of the two bus stops each at the Curson Avenue/Wilshire Boulevard and Spaulding Avenue/Wilshire Boulevard intersections, only the bus stop on the north side of Wilshire Boulevard west of the Curson Avenue intersection has a shelter. The remaining three bus stops lack shelters and are unshaded.

In addition, it should be noted that Wilshire Boulevard (east of Fairfax Avenue) is on the City's Vision Zero High-Injury Network.

RECOMMENDED IMPROVEMENTS

In order to improve pedestrian and transit access in the study area, the project should coordinate with the City of Los Angeles to explore the feasibility of implementing the following improvements:

- Continental crosswalks at the Curson Avenue/Wilshire Boulevard intersection and frontage road crossing directly to the east of the intersection;
- High-visibility curb ramps with truncated domes at the Spaulding Avenue/Wilshire Boulevard intersection, Curson Avenue/Wilshire Boulevard intersection, and frontage road crossing directly to the east of the Curson Avenue/Wilshire Boulevard intersection; and
- Pedestrian recall timing (as opposed to pedestrian push buttons) for the north-south crosswalks at the Curson Avenue/Wilshire Boulevard and Spaulding Avenue/Wilshire Boulevard intersections.

In order to improve transit access in the study area, the project should coordinate with the City of Los Angeles and LA Metro to install shelters at the two Spaulding Avenue/Wilshire Boulevard stops and one Curson Avenue/Wilshire Boulevard stop that currently lack them.

PROJECT ACCESS SAFETY AND CIRCULATION EVALUATION

According to the City's TAG, development projects may be required to conduct an assessment of project access and circulation constraints related to the provision of access to and from the project site, and may include operational or capacity constraints. Constraints can be related to vehicular/vehicular, vehicular/bicycle, and vehicular/pedestrian constraints as well as operational delays.

SCREENING

If a proposed project answers yes to all of the following questions, further analysis will be required to assess whether the project would negatively affect project access and circulation.

- Does the land use project involve a discretionary action that would be under review by the Department of City Planning?
- Would the land use project generate a net increase of 250 or more daily vehicle trips?

The project involves a discretionary action and generates more than 250 net new daily vehicle trips. Therefore, an access and circulation assessment is required.

EVALUATION CRITERIA AND METHODOLOGY

This assessment will include a quantitative evaluation of expected access and circulation operations. Project access is considered constrained if the project's traffic would contribute to unacceptable queuing on an Avenue or Boulevard or at project driveways, or would cause or substantially extend queuing at nearby signalized intersections. Unacceptable or extended queuing may be defined as follows:

- Spill over from turn pockets into through lanes.
- Block cross streets or alleys.
- Contribute to "gridlock" congestion, where traffic queues between closely-spaced intersections impede the flow of traffic through upstream intersections.

A delay and queuing assessment of study intersections and project driveways were conducted for the Opening Year (2032) and Opening Year Plus Project conditions, utilizing the Highway Capacity Manual methodology and Vistro transportation software.

In addition, this assessment will characterize the on-site loading demand of the project frontage and answer these questions:

- Would the project result in passenger loading demand that could not be accommodated within any proposed on-site passenger loading facility?
- Would accommodating the passenger loading demand create pedestrian or bicycle conflicts?
- Which curbside management options should be explored to better address passenger loading needs in the public right-of-way?

ASSESSMENT

Opening Year Traffic Volumes

Opening Year (2032) Without Project intersection volume forecasts were developed by applying an ambient growth factor of 1% per year to the existing traffic volumes provided in Figure 8 through Figure 11. In addition, Opening Year (2032) Without Project forecast include trips generated by related projects in the study area, as detailed in Table 18. Related project peak hour trips were distributed to the roadway network and assigned to study intersections based on information from the relevant project transportation studies or memos (if available) or based on a review of the related project locations and local travel patterns. Related project peak hour trip assignment is shown in Figure 13 through Figure 16. Opening Year peak hour intersection volumes (combining existing counts, ambient growth, and related project trips) are shown in Figure 17 through Figure 20.

Figure 13: Related Project-Only Weekday AM Peak Hour Traffic Volumes

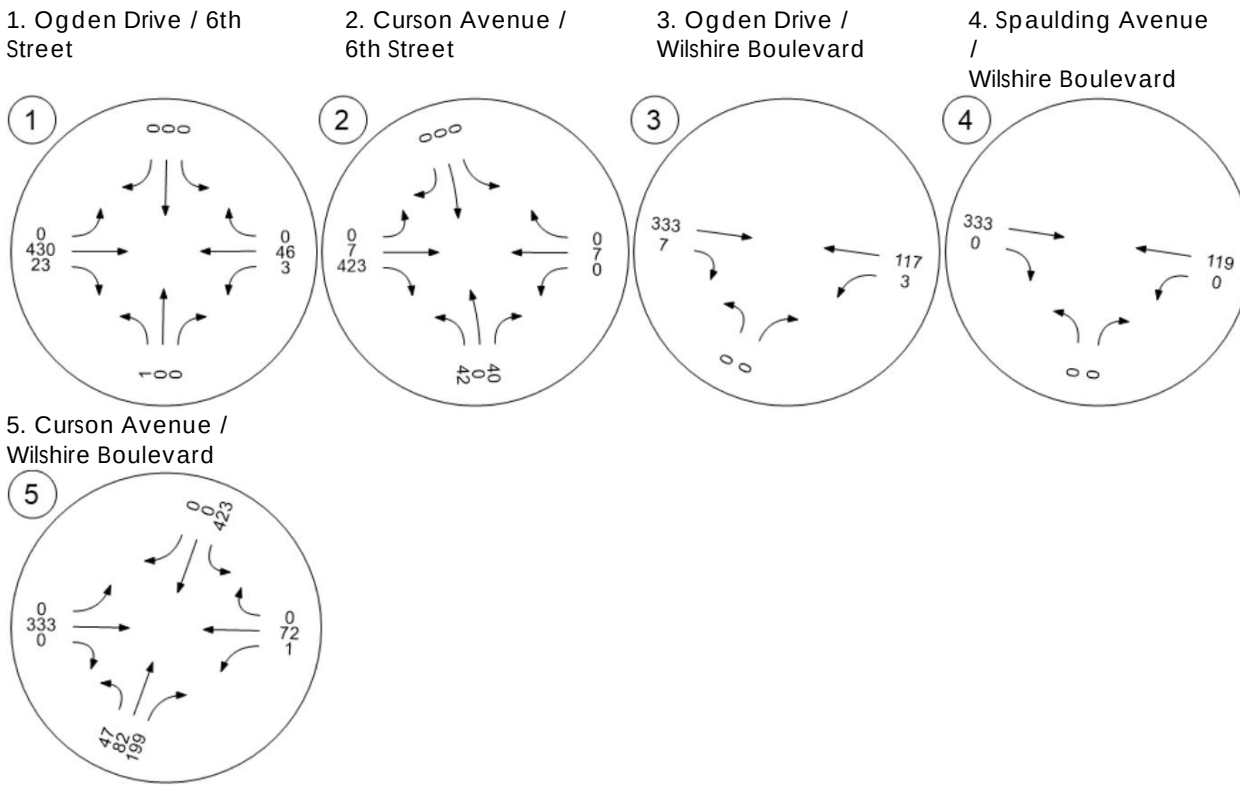


Figure 14: Related Project-Only Weekday Midday Peak Hour Traffic Volumes

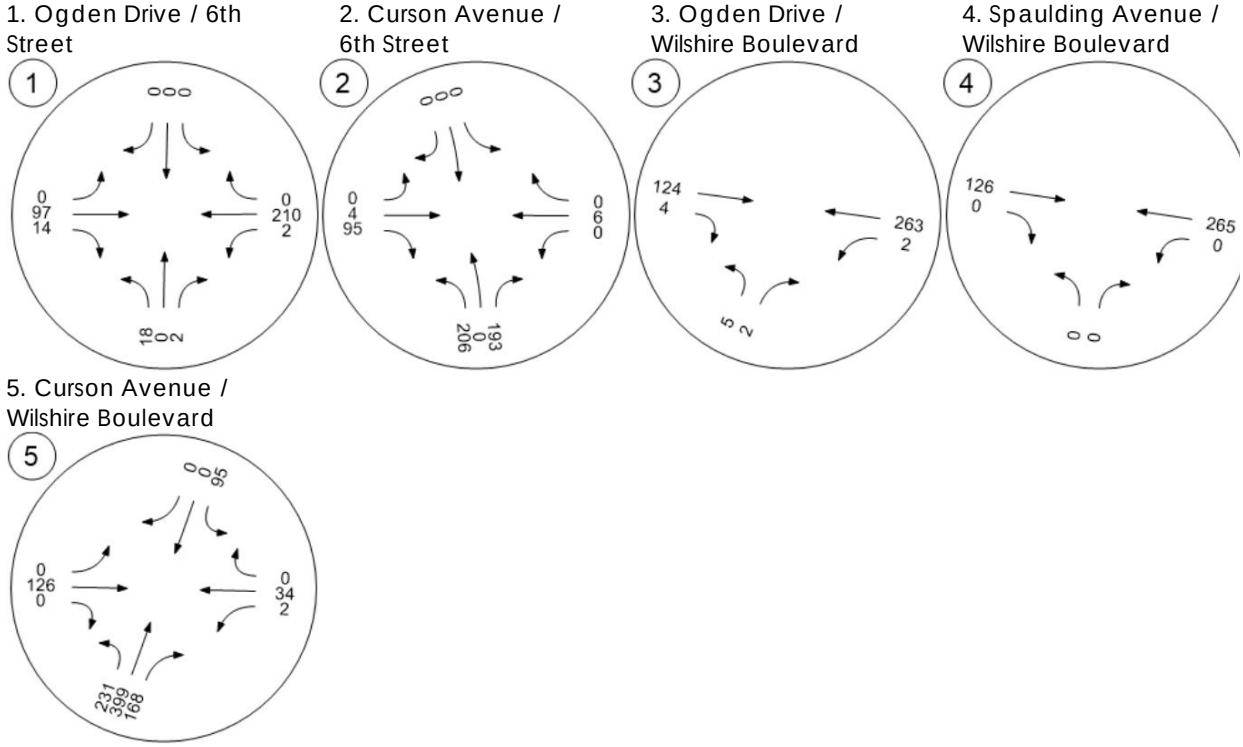


Figure 15: Related Project-Only Weekday PM Peak Hour Traffic Volumes

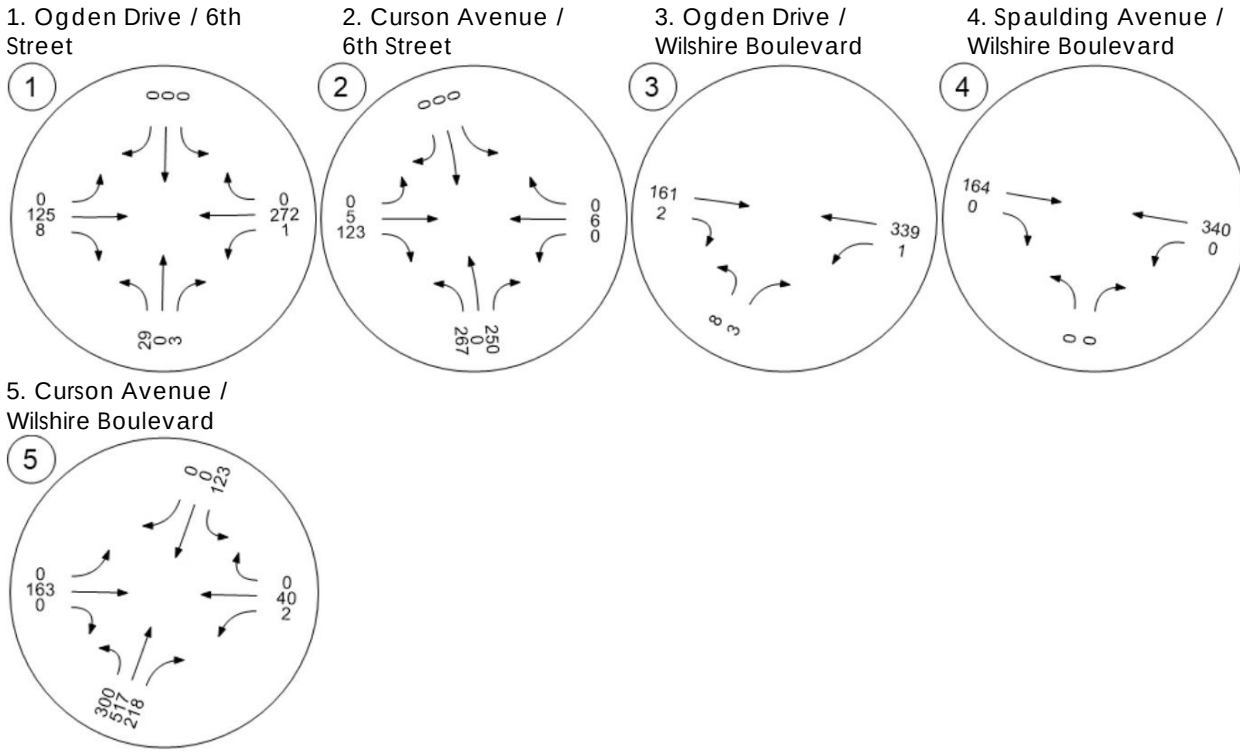


Figure 16: Related Project-Only Saturday Midday Peak Hour Traffic Volumes

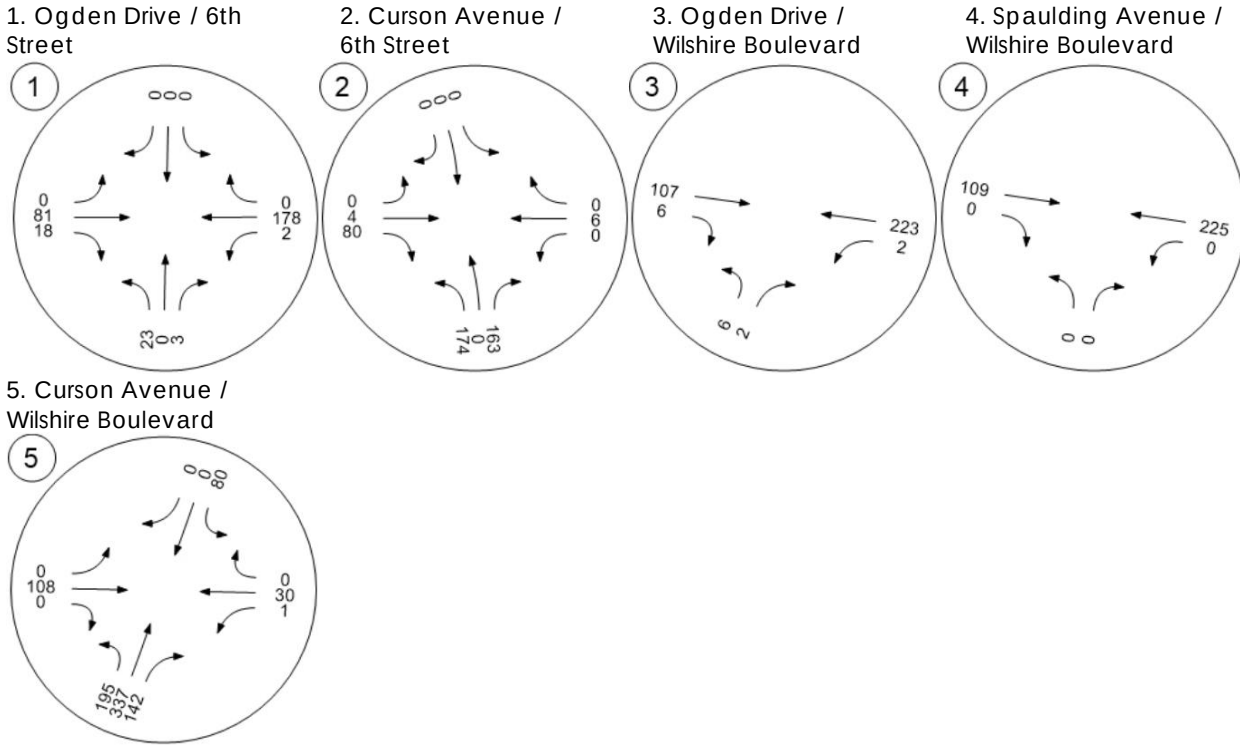


Figure 17: Opening Year (2032) Without Project Weekday AM Peak Hour Traffic Volumes

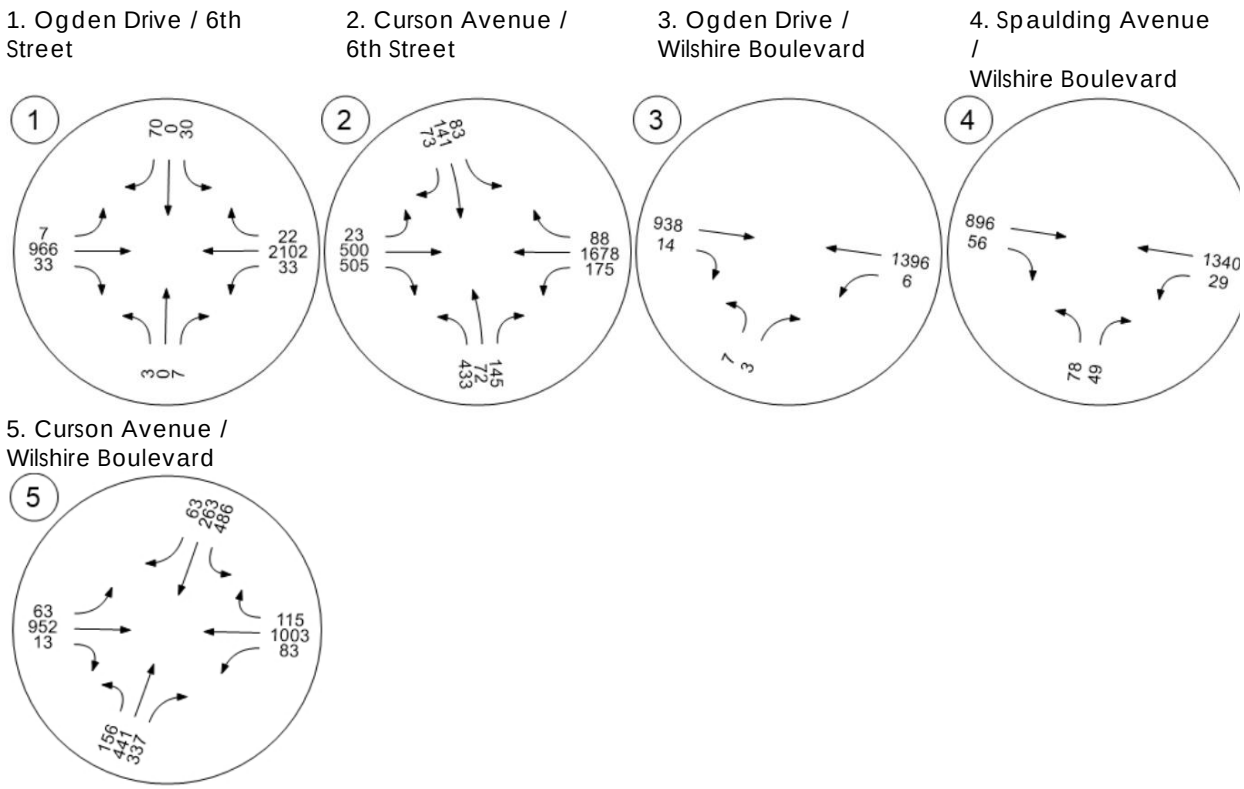


Figure 18: Opening Year (2032) Without Project Weekday Midday Peak Hour Traffic Volumes

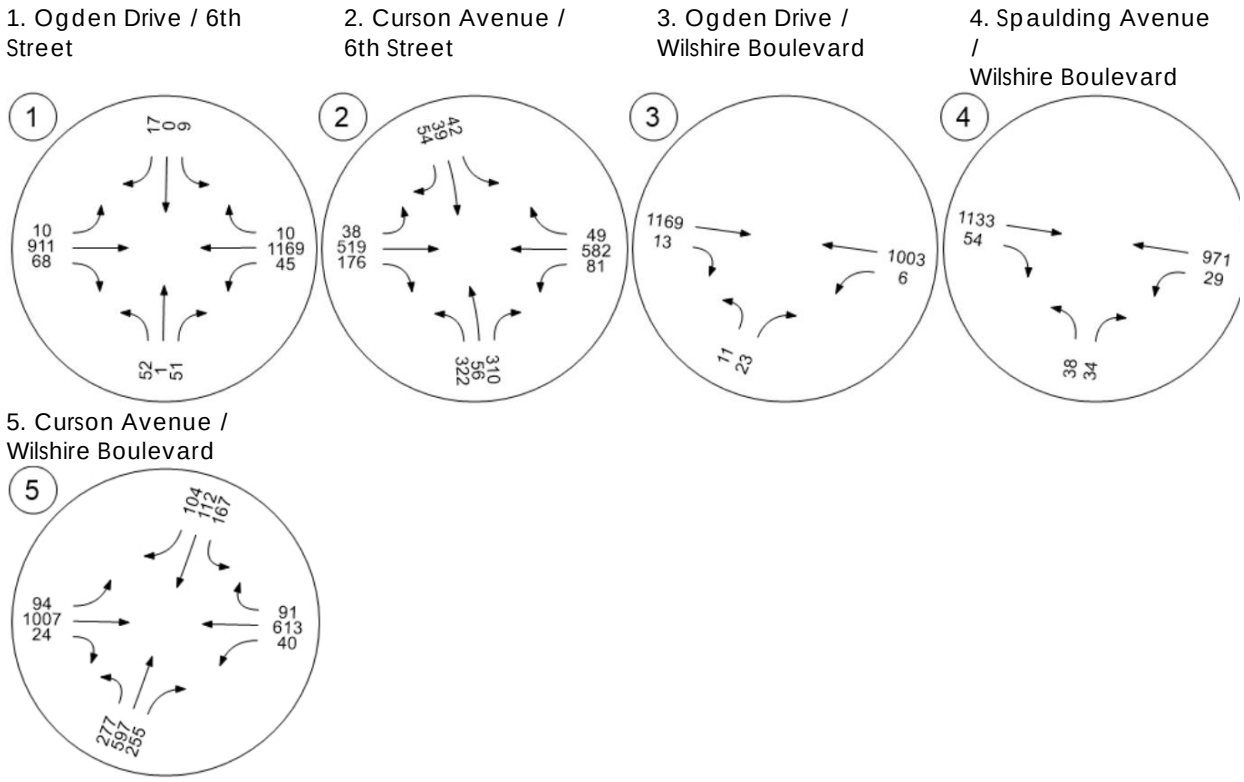


Figure 19: Opening Year (2032) Without Project Weekday PM Peak Hour Traffic Volumes

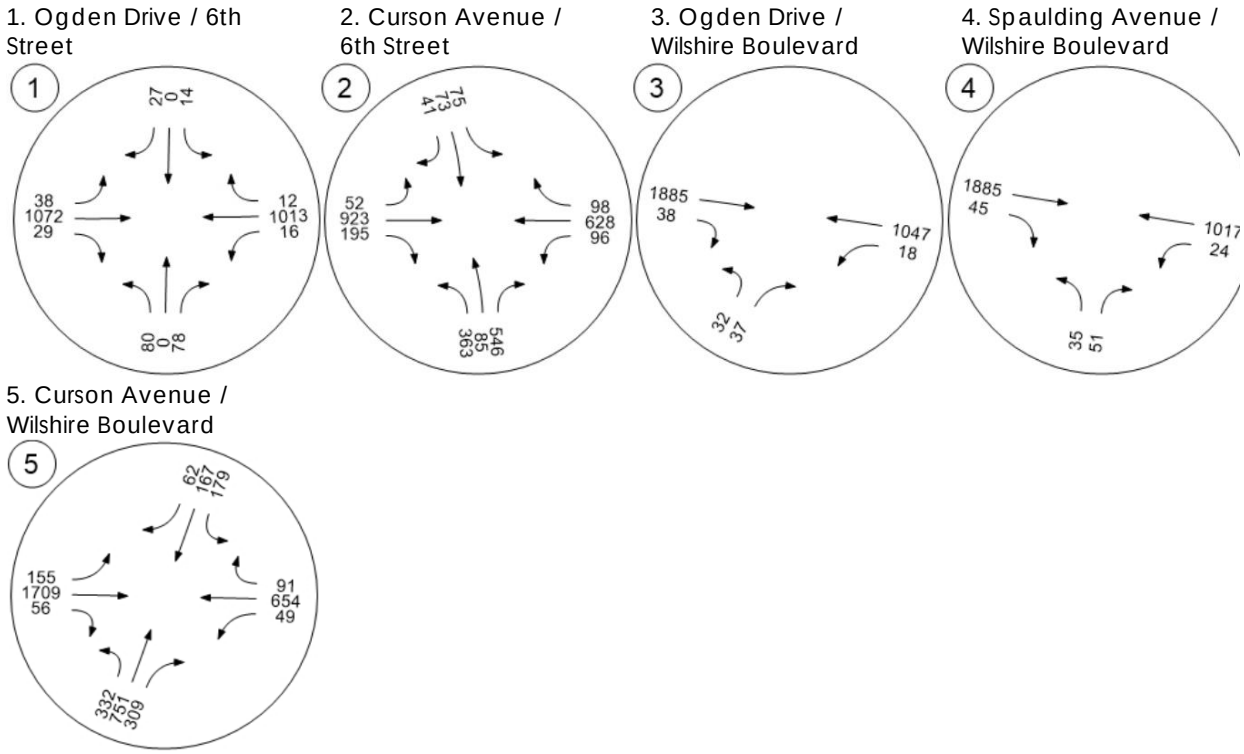
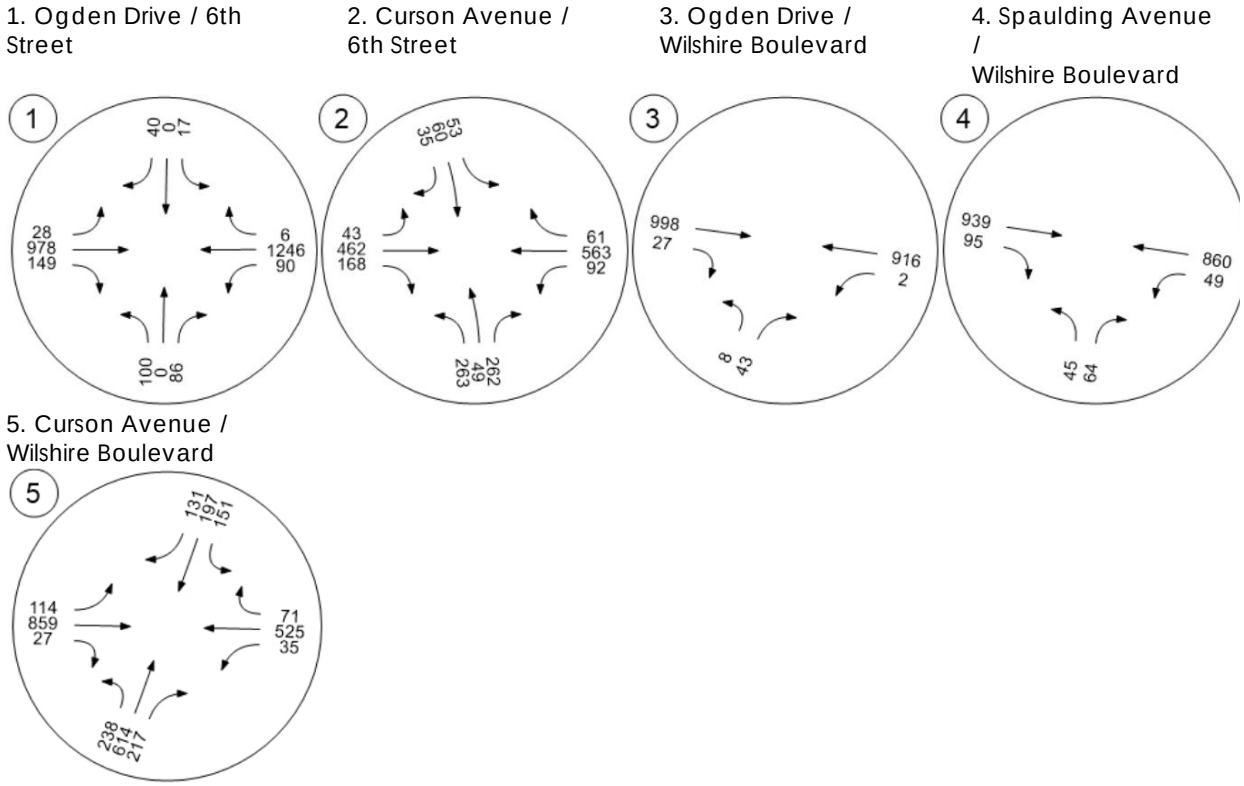


Figure 20: Opening Year (2032) Without Project Saturday Midday Peak Hour Traffic Volumes



Opening Year With Project intersection volumes were developed by adding net new peak hour vehicle trips generated by the project (Table 6). The project trip distribution percentages were based on the surrounding roadway network and land uses, consistent with the distribution used in the LACMA Renovation traffic study:

- 35% to/from the south via Fairfax Avenue
- 22% to/from the west via Wilshire Boulevard
- 3% to/from the west via 6th Street
- 15% to/from the north via Fairfax Avenue
- 6% to/from the east via 6th Street
- 15% to/from the east via Wilshire Boulevard
- 4% to/from the south via Curson Avenue

The net new project trips were then assigned to study area intersections and project driveways. The project site will include a parking lot with two access points: one access point along 6th Street (west of Curson Avenue) and one access point along Curson Avenue (south of 6th Street). An increase in the on-site parking supply is not anticipated. In addition, there are several other parking structures in the vicinity of the project site:

- LACMA (entry/exit at the Ogden Drive/6th Street intersection)
- SAG (entry and exit on Curson Avenue)
- Wilshire Courtyard (entry on Courtyard Place, exit on Curson Avenue)
- Petersen Automotive Museum (entry on Fairfax Avenue, exit on Orange Grove Avenue)
- Future Purple Line parking garage (under construction and not included as part of the vehicle trip assignment)

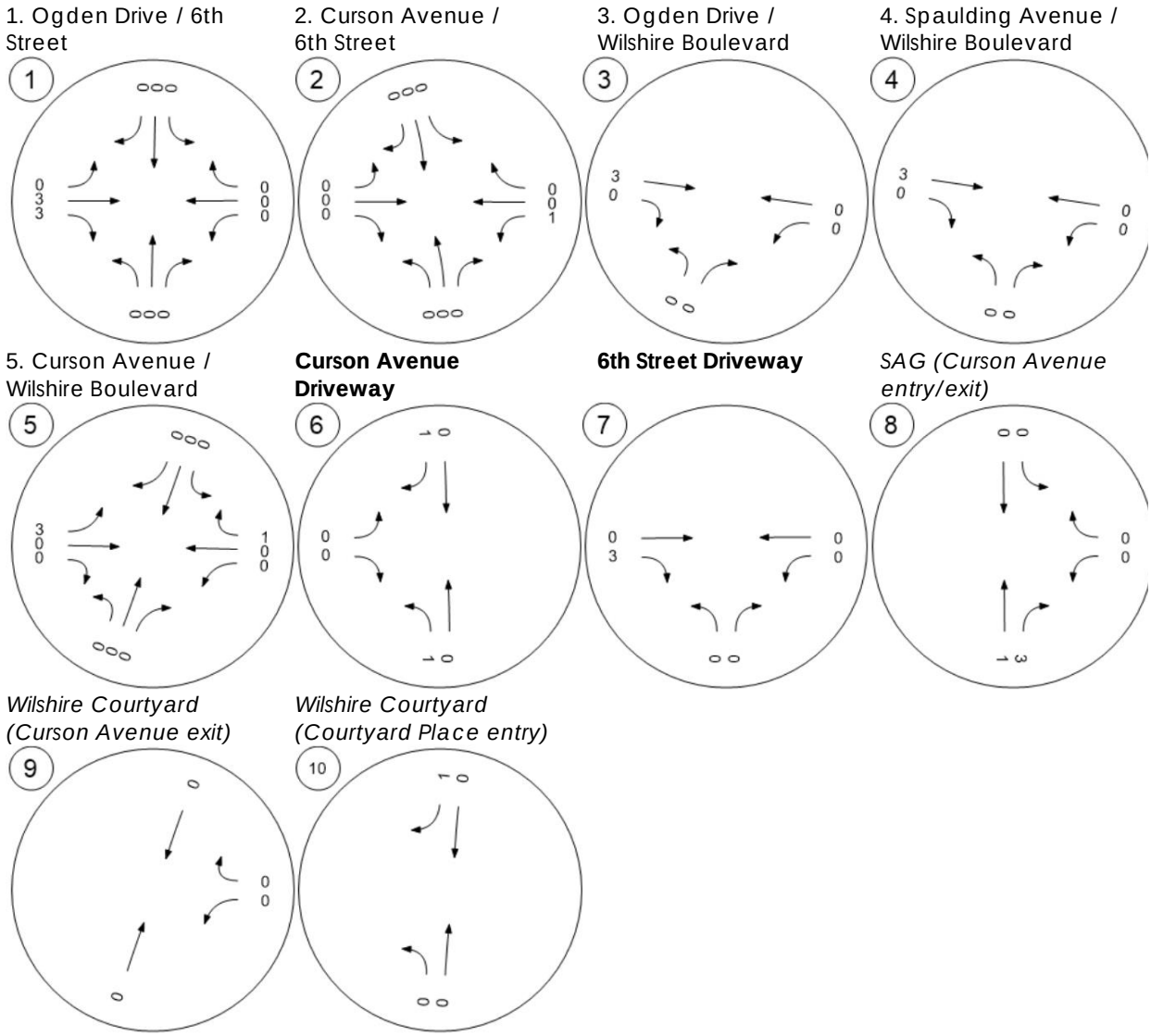
According to a 2019 study,[3] ride-hailing services such as Uber and Lyft account for approximately 3% of trips in Los Angeles. Given that the proposed project will include two passenger drop-off locations (within the parking lot and curbside along 6th Street) and the increased popularity of transportation network company services, it is assumed that a higher percentage (10%) of the project's vehicle trips will consist of ride-hailing trips that utilize the on-site passenger loading zones. Of the remaining 90% of vehicle trips, the parking location assignment assumptions are as follows:

- Project's on-site parking: 30%
- LACMA: 25%
- SAG: 25%
- Wilshire Courtyard: 10%

The project-only trip assignment for the weekday AM, weekday midday, weekday PM, and Saturday midday peak hours are shown in Figure 21 through Figure 24, which include net new trip assignment at project driveways and nearby off-site parking garage driveways. The Opening Year With Project peak hour intersection volumes (combining Opening Year No Project forecasts and the project-only trips) are shown in Figure 25 through Figure 28.

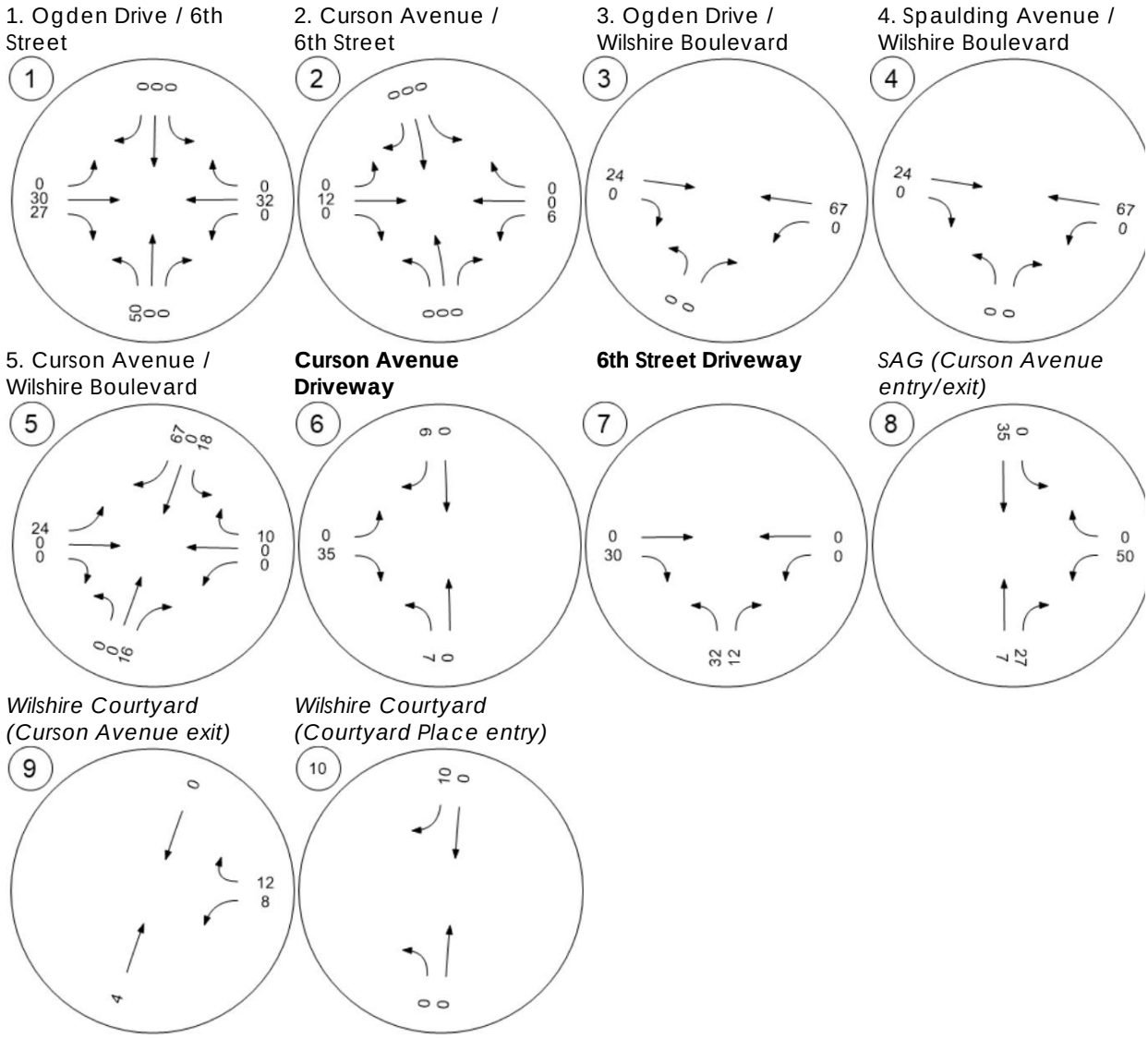
[3] https://www.fehrandpeers.com/what-are-tncs-share-of-vmt/

Figure 21: Project-Only Weekday AM Peak Hour Traffic Volumes



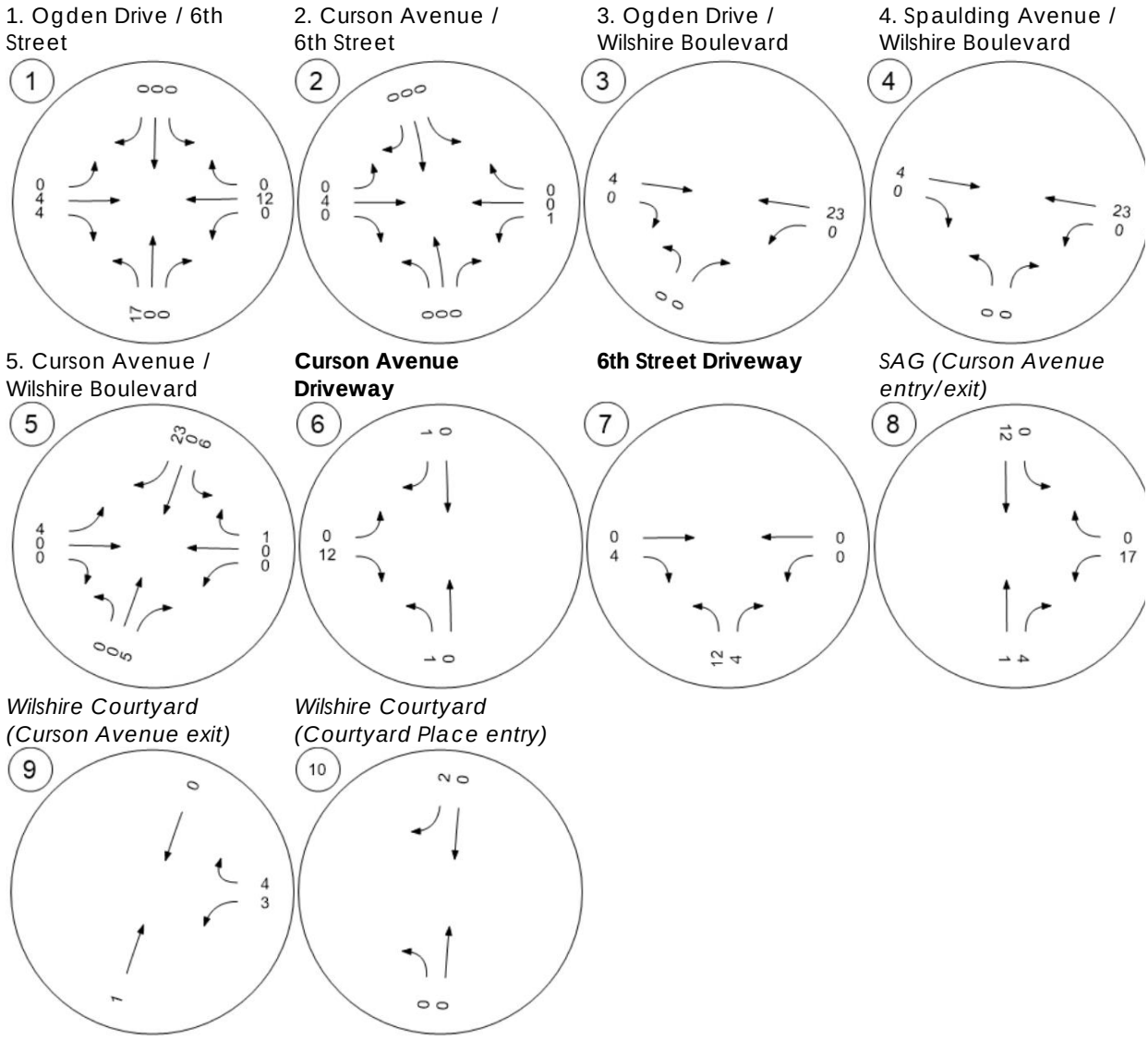
Notes:
Locations #1 through #5 are study intersections.
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.

Figure 22: Project-Only Weekday Midday Peak Hour Traffic Volumes



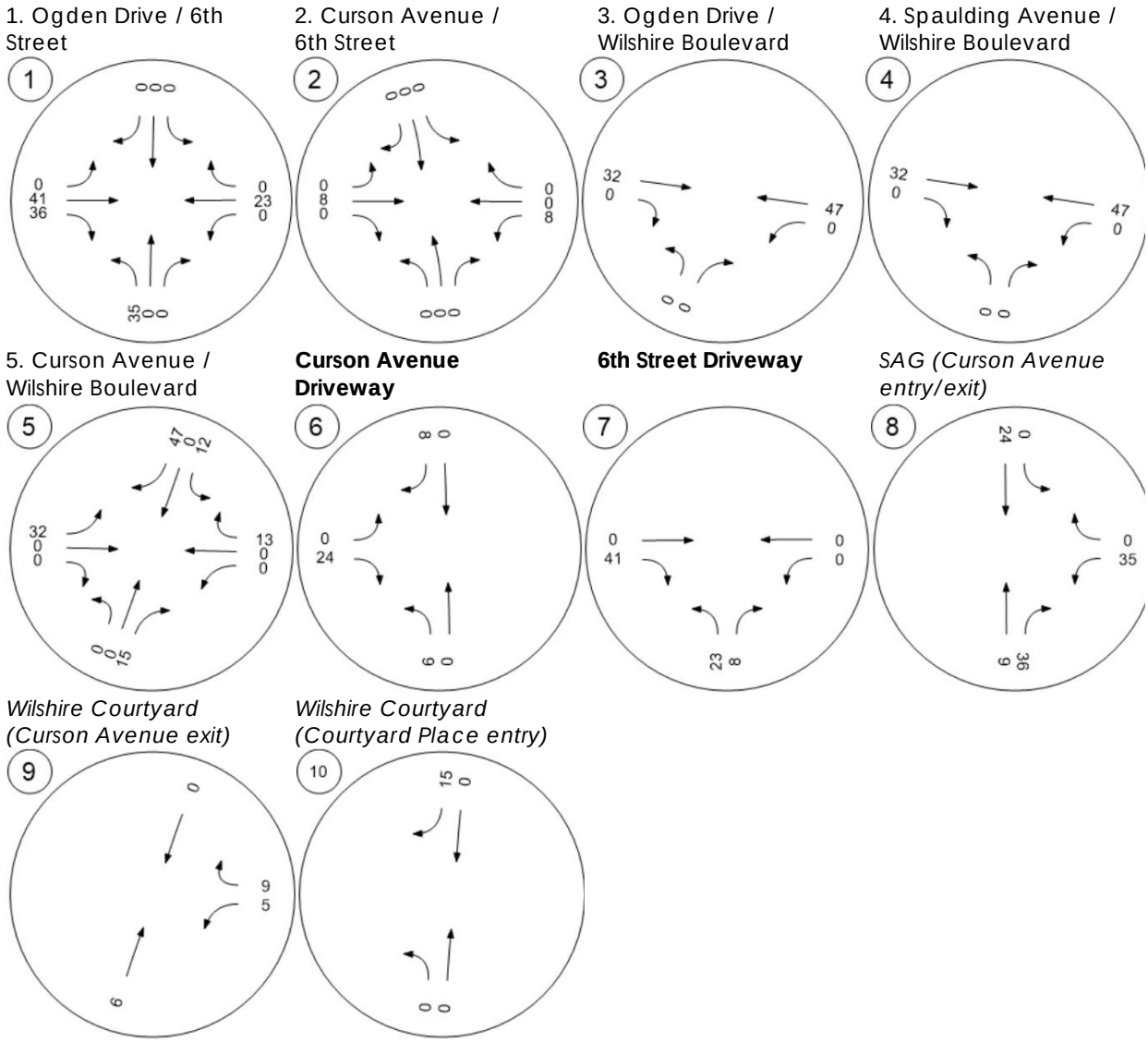
Notes:
Locations #1 through #5 are study intersections.
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.

Figure 23: Project-Only Weekday PM Peak Hour Traffic Volumes



Notes:
Locations #1 through #5 are study intersections.
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.

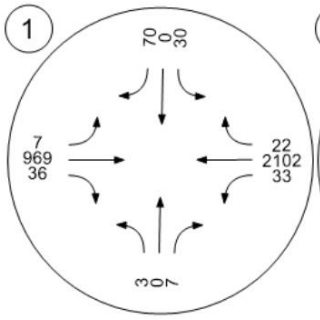
Figure 24: Project-Only Saturday Midday Peak Hour Traffic Volumes



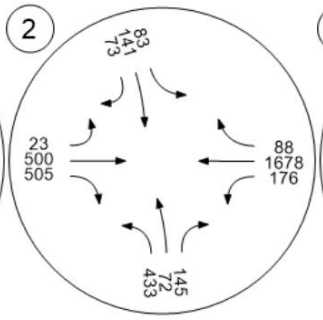
Notes:
Locations #1 through #5 are study intersections.
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.

Figure 25: Opening Year (2032) With Project Weekday AM Peak Hour Traffic Volumes

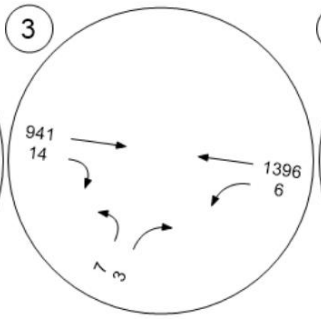
1. Ogden Drive / 6th Street



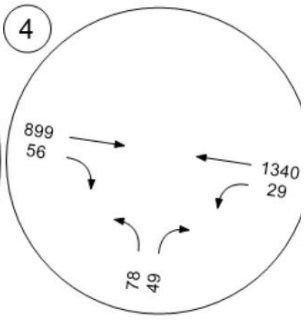
2. Curson Avenue / 6th Street



3. Ogden Drive / Wilshire Boulevard



4. Spaulding Avenue / Wilshire Boulevard



5. Curson Avenue / Wilshire Boulevard

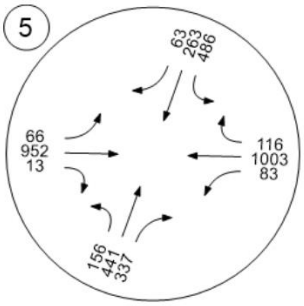
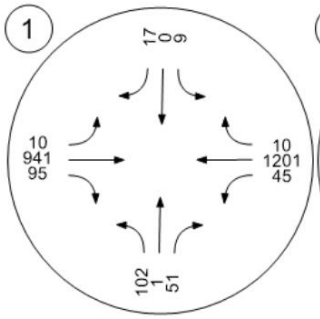
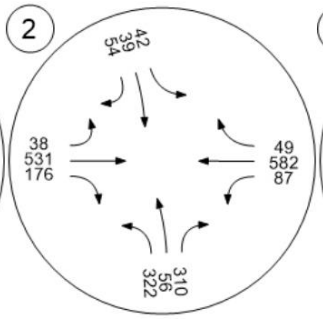


Figure 26: Opening Year (2032) With Project Weekday Midday Peak Hour Traffic Volumes

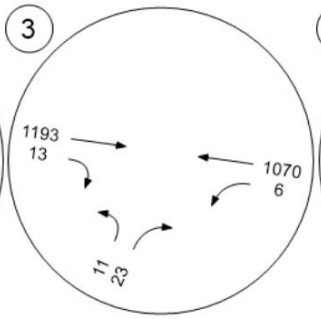
1. Ogden Drive / 6th Street



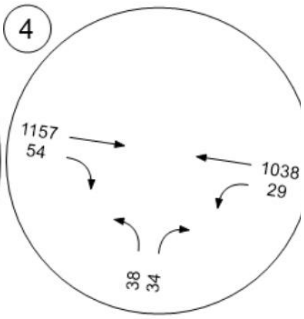
2. Curson Avenue / 6th Street



3. Ogden Drive / Wilshire Boulevard



4. Spaulding Avenue / Wilshire Boulevard



5. Curson Avenue / Wilshire Boulevard

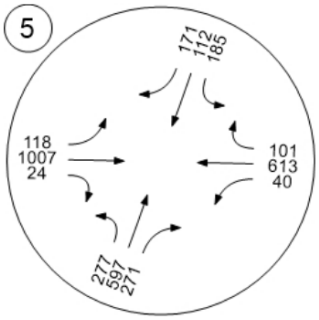


Figure 27: Opening Year (2032) With Project Weekday PM Peak Hour Traffic Volumes

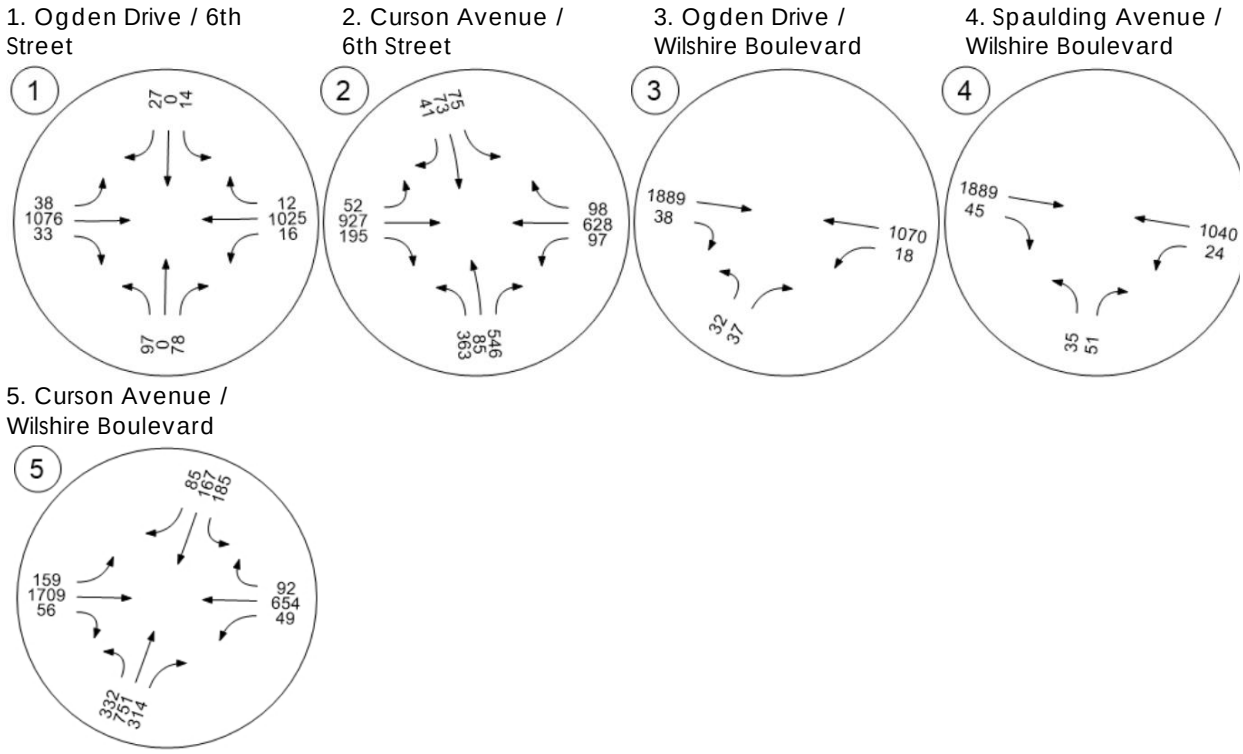
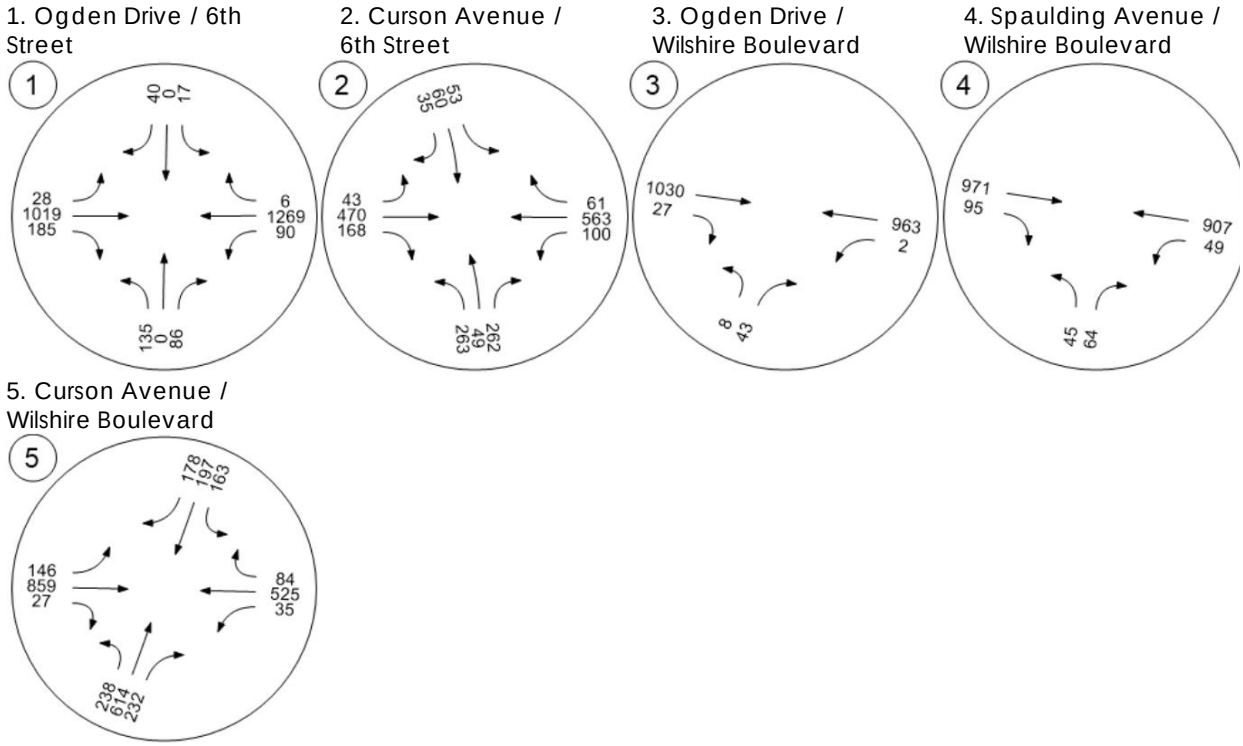


Figure 28: Opening Year (2032) With Project Saturday Midday Peak Hour Traffic Volumes



LOS and Queuing

Opening Year Without Project and With Project intersection LOS are shown in Table 20. LOS E and LOS F operations are highlighted in yellow. As shown in the table, the addition of project trips causes the Curson Avenue/6th Street intersection to drop from LOS D to LOS E during the weekday PM peak hour, although the addition of project trips is projected to increase delay by only 0.6 seconds. The project is expected to contribute to increased delay at the Curson Avenue/Wilshire Boulevard intersection, which operates at LOS F during the weekday midday, weekday PM, and Saturday midday peak hours. The Curson Avenue/Wilshire Boulevard intersection is utilized by multiple bus routes that run along Wilshire Boulevard; the Wilshire Boulevard bus-only lanes are utilized as on-street parking outside the weekend morning and evening peak periods.

Project driveway delay and LOS is shown in Table 21. Note, in addition to net new vehicle trips generated by the expanded Museum, the driveways include additional volume to account for existing site trips. As shown in the table, the northbound exiting approach from the 6th Street driveway is expected to experience LOS E conditions. This is primarily due to higher east-west traffic along 6th Street during the weekday morning and evening commute periods. While the project is not open to visitors during the weekday AM peak hour, on-site delay during the weekday PM peak hour could result in vehicle-vehicle conflicts. However, this delay is limited to the project site and not to study area roadway facilities.

Table 20: Opening Year (2032) Intersection Level of Service

Intersection		Peak Hour	Opening Year		Opening Year With Project		
			Delay (sec)	LOS	Delay (sec)	LOS	Change
1	Ogden/6th	Weekday AM	8.3	A	8.3	A	0.0
		Weekday MD	8.5	A	10.2	B	1.8
		Weekday PM	11.3	B	12.3	B	0.9
		Saturday MD	11.3	B	14.0	B	2.7
2	Curson/6th	Weekday AM	59.0	E	59.0	E	0.0
		Weekday MD	16.3	B	16.4	B	0.2
		Weekday PM	54.7	D	55.3	E	0.6
		Saturday MD	14.3	B	14.4	B	0.1
3	Ogden/Wilshire	Weekday AM	2.2	A	2.2	A	0.0
		Weekday MD	3.3	A	3.3	A	0.0
		Weekday PM	5.8	A	5.8	A	0.0
		Saturday MD	3.9	A	3.9	A	0.0
4	Spaulding/ Wilshire	Weekday AM	7.2	A	7.2	A	0.0
		Weekday MD	5.5	A	5.5	A	0.0
		Weekday PM	8.3	A	8.3	A	0.0
		Saturday MD	8.6	A	8.7	A	0.1
5	Curson/Wilshire	Weekday AM	> 80.0	F	> 80.0	F	-0.2
		Weekday MD	> 80.0	F	> 80.0	F	22.1
		Weekday PM	> 80.0	F	> 80.0	F	7.3
		Saturday MD	> 80.0	F	> 80.0	F	15.2

SOURCE: KITTELSON & ASSOCIATES, 2022.

Table 21: Opening Year (2032) Project Driveway Level of Service

Driveway	Peak Hour	Delay (sec)	LOS
Curson Avenue Driveway	Weekday AM	22.7	C
	Weekday MD	17.2	C
	Weekday PM	18.0	C
	Saturday MD	15.2	C
6th Street Driveway	Weekday AM	49.3	E
	Weekday MD	26.3	D
	Weekday PM	44.2	E
	Saturday MD	22.0	C

SOURCE: KITTELSON & ASSOCIATES, 2022.

Opening Year Without Project and With Project study intersection queuing is shown in Table 22. Storage lengths for turning movements are based on the turn pocket length and excludes the taper. Storage lengths for through movements are measured to the nearest adjacent cross street or crosswalk. Queues that are projected to exceed storage are highlighted in yellow. As shown in the table, the addition of project trips is expected to cause multiple queues to exceed available storage, or increase queues that exceed storage under Without Project conditions:

- **Intersection #1 (Ogden Drive/6th Street):** The LACMA parking structure's northbound exiting queue would exceed the available storage on the exiting drive aisle. However, this queue would remain on-site within the parking structure.
- **Intersection #2 (Curson/6th Street):** The northbound left, southbound left, southbound through/right, eastbound right, and westbound through/right queues would exceed available storage; however, the project is not anticipated to increase these queues. In addition, the eastbound through and westbound left queues would exceed available storage; however, the project is expected to increase each queue by two car lengths or less during each peak hour.
- **Intersection #5 (Curson Avenue/Wilshire Boulevard):** The northbound, southbound, eastbound, and westbound queues are projected to exceed available storage; the project would substantially increase the northbound and southbound queues. The southbound queues may interfere with the crosswalks at the Curson Avenue/6th Street intersection. The northbound queues exceed the available storage, measured to the intersecting alley directly to the south. While there is additional storage that extends to the Curson Avenue/8th Street intersection, that storage is also exceeded, potentially conflicting with the crosswalks at that intersection.

Project driveway queues are shown in Table 23. Queues exiting the project driveways are not expected to exceed available storage. However, the length of the eastbound and northbound queues at the Curson Avenue/6th Street intersection and southbound queues at the Curson Avenue/Wilshire Boulevard are expected to interfere with accessing the project driveways and may interfere with driveway operations.

Table 22: Opening Year (2032) Intersection Queuing

Intersection		Movement		Storage (ft.)	Opening Year				Opening Year With Project			
					AM Queue (ft.)	MD Queue (ft.)	PM Queue (ft.)	Sat. Queue (ft.)	AM Queue (ft.)	MD Queue (ft.)	PM Queue (ft.)	Sat. Queue (ft.)
1	Ogden/6th	NB	Left/Thru/Right	70	< 25	63	167	114	< 25	93	184	134
		SB	Left/Thru/Right	205	104	< 25	39	32	104	< 25	38	31
		EB	Left	100	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
			Thru	555	233	250	450	320	234	302	485	405
			Right	60	< 25	< 25	< 25	25	< 25	< 25	< 25	37
		WB	Left	140	< 25	26	< 25	70	< 25	29	< 25	83
			Thru/Right	505	282	118	133	147	282	141	146	172
2	Curson/6th	NB	Left	110	591	201	236	153	591	201	236	153
			Thru/Right	790	94	191	704	156	94	191	704	156
		SB	Left	35	44	26	56	32	44	26	56	32
			Thru/Right	85	91	37	44	39	91	37	44	39
		EB	Left	100	< 25	< 25	29	< 25	< 25	< 25	29	< 25
			Thru	725	230	238	946	182	230	246	962	186
			Right	40	274	67	75	55	274	67	75	55
		WB	Left	95	183	56	129	52	185	62	132	57
			Thru/Right	575	892	129	152	110	892	129	152	110
3	Ogden/Wilshire	NB	Left	145	< 25	< 25	35	< 25	< 25	< 25	35	< 25
			Right	145	< 25	26	38	48	< 25	26	38	48
		EB	Thru	515	32	83	245	81	32	86	247	85
			Right	100	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
		WB	Left	115	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
			Thru	385	60	66	91	72	60	73	94	77
4	Spaulding/Wilshire	NB	Left/Right	570	139	78	90	105	139	78	90	105
		EB	Thru/Right	380	124	145	327	198	124	150	328	205
		WB	Left	65	< 25	< 25	< 25	30	< 25	< 25	< 25	30
			Thru	500	199	103	116	149	199	113	120	160

Intersection		Movement		Storage (ft.)	Opening Year				Opening Year With Project			
					AM Queue (ft.)	MD Queue (ft.)	PM Queue (ft.)	Sat. Queue (ft.)	AM Queue (ft.)	MD Queue (ft.)	PM Queue (ft.)	Sat. Queue (ft.)
5	Curson/Wilshire	NB	Left/Thru/Right	100	> 1,000	> 1,000	> 1,000	> 1,000	> 1,000	> 1,000	> 1,000	> 1,000
		SB	Left/Thru/Right	790	> 1,000	506	618	814	> 1,000	838	740	> 1,000
		EB	Left	70	62	75	143	93	66	98	148	127
			Thru/Right	225	293	318	842	273	293	318	842	273
		WB	Left	105	82	37	86	31	82	37	86	31
			Thru	250	302	176	191	150	302	176	191	150
			Right	50	< 25	< 25	< 25	33	< 25	< 25	< 25	39

SOURCE: KITTELSON & ASSOCIATES, 2022.

Table 23: Opening Year (2032) Project Driveway Queuing

Driveway	Movement		Storage (ft.)	AM Queue (ft.)	MD Queue (ft.)	PM Queue (ft.)	Sat. Queue (ft.)
Curson Avenue Driveway	NB	Left	35	< 25	< 25	< 25	< 25
	EB	Left/Right	120	< 25	38	< 25	< 25
6th Street Driveway	NB	Left/Right	150	< 25	< 25	< 25	< 25

SOURCE: KITTELSON & ASSOCIATES, 2022.

Passenger Loading

As detailed earlier in this section, it is assumed that 10% of the project's vehicle trips will consist of ride-hailing trips that utilize passenger loading zones. Therefore, it is expected that approximately 31 net new ride-hailing trips will arrive at or depart the project during the weekday midday peak hour. When taking the existing site uses into account, it is estimated that the current ride-hailing demand at the site is 46 vehicles during the weekday midday hour, for a total of 77 vehicles when combining existing and net new demand.

The project site plan is conceptual at this time. However, it is estimated that the project provides approximately 520 feet of curb space for pick-up and drop-off, both within the parking lot and along 6th Street. That length of pick-up/drop-off space is likely sufficient to address existing and net new passenger loading demand, assuming that 1.5 feet of curb space is needed per vehicle demand over the hour.

RECOMMENDED IMPROVEMENTS

Several potential deficiencies may arise at the project driveways and in the study area.

- The project is expected to contribute to increased delay at the Curson Avenue/Wilshire Boulevard intersection, which operates at LOS F during the weekday midday, weekday PM, and Saturday midday peak hours. The Curson Avenue/Wilshire Boulevard intersection is utilized by multiple bus routes that run along Wilshire Boulevard.
- The northbound exiting approach from the 6th Street driveway is expected to experience LOS E conditions during the weekday AM and PM peak hours.
- At the Curson Avenue/Wilshire Boulevard intersection, the southbound queues may interfere with the crosswalks at the Curson Avenue/6th Street intersection and the northbound queues may conflict with the crosswalks at the Curson Avenue/8th Street intersection.
- The length of the eastbound and northbound queues at the Curson Avenue/6th Street intersection and southbound queues at the Curson Avenue/Wilshire Boulevard are expected to interfere with accessing the project driveways and may interfere with driveway operations
- Curbside passenger loading along 6th Street could result in conflicts with bicyclists once planned separated bike lanes are implemented.

In order to improve access safety and circulation, the project should coordinate with the City of Los Angeles to explore the feasibility of implementing the following improvements:

- The Curson Avenue/Wilshire Boulevard intersection is built out. Signal timing should be regularly updated to optimize splits. In addition, the weekday AM and PM peak period bus-only lanes on Wilshire could potentially be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection.
- The Curson Avenue/6th Street intersection is built out. Signal timing should be regularly updated to optimize splits. In addition, striping could be improved to extend the northbound left turn lane at the intersection, and/or add an inbound left-turn lane at the project's Curson Avenue driveway.
- Incorporate safety features to accommodate passenger pick-up and drop-off along 6th Street when planned separated bike lanes are implemented.

In addition, driveway operations at Curson Avenue should be monitored.

Mitigation Measure #1, which requires the project to implement a TDM program and coordinate on multimodal improvements in the study area, can help reduce employee and visitor vehicle trips and related effects on project access safety and circulation.

PROJECT CONSTRUCTION

According to the City's TAG, development projects may be required to analyze if project construction would negatively affect pedestrian, bicycle, transit, or vehicle circulation in the area.

SCREENING

If a proposed project answers yes to any of the following, further analysis is required to assess whether the project would negatively affect circulation during construction.

- Would the project require construction activities to take place within the right-of-way of a Boulevard or Avenue (as designated in the Mobility Plan 2035) which would necessitate temporary lane, alley, or street closures for more than one day (including day and evening hours, and overnight closures if on a residential street)?
- Would the project require construction activities to take place within the right-of-way of a Collector or Local Street (as designated in the Mobility Plan 2035) which would necessitate temporary lane, alley, or street closures for more than seven days (including day and evening hours, and including overnight closures if on a residential street)?
- Would in-street construction activities result in the loss of regular vehicle, bicycle, or pedestrian access, including loss of bicycle parking to an existing land use for more than one day, including day and evening hours and overnight closures if access is lost to residential units?
- Would in-street construction activities result in the loss of regular ADA pedestrian access to an existing transit station, stop, or facility (e.g., layover zone) during revenue hours?
- Would in-street construction activities result in the temporary loss for more than one day of an existing bus stop or rerouting of a bus route that serves the project site?
- Would construction activities result in the temporary removal and/or loss of on-street metered parking for more than 30 days?
- Would the project involve a discretionary action to construct new buildings or additions of more than 1,000 square feet that require access for hauling construction materials and equipment from streets of less than 24-feet wide in a hillside area?

Project construction activity will depend on the phasing as funding is obtained to complete the master plan over the next seven to ten years. Because impacts to adjacent streets is likely yet unknown, further analysis may be required.

EVALUATION CRITERIA AND METHODOLOGY

The City's TAG identifies factors to be considered to determine if construction of a project would substantially interfere with pedestrian, bicycle, transit, or vehicle circulation.

These factors include location of the project site, the functional classification of the adjacent street, the availability of alternate routes or additional capacity, temporary loss of bicycle parking, temporary loss of bus stops or rerouting of transit lines, the duration of temporary loss of access, the operational constraints of the streets needed to access the construction sites in hillside areas that inhibit access by other residents and emergency service responders, the affected land uses, and the magnitude of the temporary construction activities.

ASSESSMENT

As shown in Figure 2, the site is surrounded by 6th Street to the north, Wilshire Boulevard to the south, and Curson Avenue to the east. Construction activity could occur on any of these roadways.

6th Street is an Avenue II street with a three-lane cross section (two westbound lanes and one eastbound lane) with a center median that allows for left-turning vehicles at intersections. Street parking is available along most of the north side of the street, while parking on the south side of the street is provided for portions of the street east of the LACMA parking garage driveway. There is existing sidewalk present on both sides and no current bike facilities. Construction could impede the sidewalk adjacent to the project site. Signalized crossings with high-visibility crosswalks are available along 6th Street on either side of the project site that could be used to detour pedestrians around a work zone. The parking lane could be

utilized by construction activity without impeding traffic flow. The center lane could be modified to a travel lane during construction to allow eastbound flow if needed.

Wilshire Boulevard is an Avenue I street with a four-lane cross section and a center median. Both eastbound and westbound directions have a joint parking lane/bus lane along the curb that allow for vehicle parking except during weekday AM and PM peak periods, where buses and right-turning vehicles have exclusive access to these lanes. There is existing sidewalk present on both sides and no current bike facilities. Construction could impede the sidewalk adjacent to the project site. Signalized crossings are available along Wilshire Boulevard on either side of the project site that could be used to detour pedestrians around a work zone. The parking/bus lane would be impacted by construction activity and impede bus access along Wilshire Boulevard. Westbound traffic would also likely be impeded during construction.

Curson Avenue is a Collector Street with a two-lane cross section. There is no on- street parking allowed on either side of the road with a bus loading zone on the west side fronting the project site. There is existing sidewalk present on both sides and no current bike facilities. Construction could impede the sidewalk adjacent to the project site. Signalized crossings are available along Curson Avenue on either side of the project site that could be used to detour pedestrians around a work zone. The bus loading area could be utilized by construction activity without impeding traffic flow, however traffic flow may be impacted by any construction activity due to the narrow roadway width.

While details of construction are not available at the Master Plan stage, it is anticipated that construction will create temporary impacts to pedestrian, transit, and vehicle circulation. Detour routes are available but the duration and level of the temporary impacts are not able to be identified until project phasing and associated construction needs are identified.

RECOMMENDED IMPROVEMENTS

The proposed project's likely impact during construction requires corrective measures. A construction traffic management plan will be required and coordinated with LADOT prior to starting construction on components of the Master Plan that require construction to impact the public right-of-way.

The construction traffic management plan should identify the duration and level of construction activity and consider the following features:

- Develop a detour plan for vehicles, pedestrians, and bicyclists as necessary.
- Consider modification of construction procedures to minimize duration or level of impact.
- Limit major road obstructions to off-peak hours.
- Coordinate with emergency service and public transit providers.
- Provide alternative vehicular, bicycle, and/or pedestrian access to affected parcels.
- Consult with LADOT if temporary closure of a travel lane may be necessary to maintain adequate pedestrian and bicycle access as part of the traffic management plan.
- Consult LADOT's Parking Meters Division regarding revenue recovery costs for the removal of parking meter spaces, if applicable.
- Coordinate access with adjacent property owners and tenants.
- Coordinate with Metro regarding maintenance of ADA access to Metro stations, stops, and transit facilities (e.g., layover zones) during revenue hours.
- Coordinate with transit providers regarding the need to temporarily close or relocate bus stops or reroute service.

RESIDENTIAL STREET CUT-THROUGH ANALYSIS

According to the City's TAG, development projects may be required to conduct a local residential street cut-through analysis to determine potential increases in average daily traffic (ADT) volumes on designated Local Streets near the project site that can be classified as cut-through trips generated by the project. Such trips could adversely affect the character and function of those streets.

Cut-through traffic can be exacerbated by development projects that add vehicle trips to congested roadways. Effects of cut-through traffic can include congestion, access issues, and speeding on Local Streets. Improvements to address cut-through traffic include traffic calming and diverting features.

SCREENING

If a proposed project answers yes to both of the following questions, further analysis may be required to assess whether the project would negatively affect Local Streets.

- Would the project generate a net increase of 250 or more daily vehicle trips?
- Does the land use project include a discretionary action that would be under review by the Department of City Planning?

The project would generate a net increase of more than 250 daily vehicle trips, and requires a discretionary action. Therefore, further analysis may be required.

The following conditions must also be present when selecting Local Street segments for analysis.

- The project is located along a currently congested Boulevard or Avenue and adds trips that may lead to trip diversion to parallel routes along residential Local Streets.
- The project is projected to add a substantial amount of automobile traffic to the congested Boulevard(s), Avenue(s), or Collector(s) that could potentially cause a shift to alternative route(s); and
- Nearby local residential street(s) (defined as Local streets as designated in the City's General Plan passing through a residential neighborhood) provide motorists with a viable alternative route. A viable alternative route is defined as one which is parallel and reasonably adjacent to the primary route as to make it attractive as an alternative to the primary route.

As shown in Table 20, the Curson Avenue/6th Street intersection is expected to operate at LOS E during the weekday AM and weekday PM peak hours under Opening Year Plus Project conditions. The proposed project will add trips to this intersection. However, there are no nearby residential streets that would provide motorists with a viable alternative route.

As shown in Table 20, the Curson Avenue/Wilshire Boulevard intersection is expected to operate at LOS F during the weekday AM, weekday midday, weekday PM, and weekend midday peak hours under Opening Year Plus Project conditions. In addition, northbound, southbound, and eastbound queues are anticipated to be substantial. The proposed project will add trips to this intersection. In addition, Stanley Avenue is in close proximity to Curson Avenue and could be a viable alternative detour for cars making a northbound through, northbound right-turn, or southbound through at the Curson Avenue/Wilshire Boulevard intersection. Therefore, Stanley Avenue south of Wilshire Boulevard should be studied to determine if there would be negative effects on this Local Street.

EVALUATION CRITERIA AND METHODOLOGY

The City's TAG states that local residential street must be deemed excessively burdened based on an increase in the projected average daily traffic (ADT) volumes as shown in Table 24.

Table 24: Substantial Residential Local Street Diversion Criteria

ADT with Project (Final ADT)	Project-Related Increase in ADT
1 to 999	120 or more
1,000 to 1,999	12 percent or more of final ADT
2,000 to 2,999	10 percent or more of final ADT
3,000 or more	8 percent or more of final ADT

SOURCE: CITY OF LOS ANGELES (2020).

To analyze conditions along residential streets, future year "without project" daily volumes should be developed using an ambient growth rate, and include traffic from related projects in the study area.

"With project" daily volumes along residential streets should be developed by forecasting the amount of peak hour and non-peak hour project trips that may shift away from a congested arterial or boulevard to the adjacent residential street.

ASSESSMENT

A 1% per year growth rate was applied to existing weekday and Saturday ADT along Stanley Avenue (between Wilshire Boulevard and 8th Street) to develop Opening Year 2032 ADT. A portion of peak hour trips from two related projects (Mixed-Use Project located at 5891 Olympic Boulevard and Wilshire Curson Project located at 5700 -5780 Wilshire Blvd / 712-752 S. Curson Ave / 5721-5773 W. 8th Street / 715-761 S. Masselin) were diverted from Curson Avenue and added to Opening Year 2032 ADT to obtain "without project" daily volumes. Then, peak hour trips from the proposed project were diverted from Curson Avenue and added to the "without project" daily volumes to obtain "with project" daily volumes. The final weekday ADT along Stanley Avenue is 1,615 vehicles; the final Saturday ADT is 906. The proposed project's contribution to the final ADT is less than 5% during both days and is therefore insufficient to require corrective measures. The project's low contribution to ADT can be attributed to the low percentage (4%) of project trips with are anticipated to utilize Curson Avenue south of Wilshire Boulevard.

RECOMMENDED IMPROVEMENTS

The proposed project's expected contribution to traffic on residential streets is anticipated to be below the City's thresholds. Therefore, no corrective measures have been recommended.

SPECIAL EVENTS

Regional attractions such as museums may host special events that generate different traffic patterns and parking demands compared to typical operations. These special events may have impacts to the surrounding roadway network and uses if not properly planned for. Consideration of special event activity should be considered.

ASSESSMENT

Special events at the La Brea Tar Pits currently occur on rare occasions. Most special events currently occur at the Natural History Museum located at 900 Exposition Boulevard instead of at the Page Museum because the NHM space is more accommodating of special events. With the completion of the proposed master plan the site will have larger space but is not designed for special events. The frequency of special events may change, but there are no plans to have regular special event space or any projection of demand to have those types of events. The adjacent LACMA facility has special events within the larger Hancock Park; however, these are not related to the 13-acre La Brea tarpits Master Plan site.

It is not anticipated that special events will occur as a result of the proposed project. However, a special event management plan should be created if events should occur to ensure traffic and parking do not adversely affect the surrounding neighborhoods.

RECOMMENDED IMPROVEMENTS

The proposed project should have corrective measures to address the potential of special events. A special event traffic management plan should be created in coordination with LADOT and confirmed prior to special events hosted at the site.

The special event traffic management plan may consider the following features:

- Vehicle parking supply
- Loading/unloading areas and management
- Traffic control at adjacent intersections and roadways
- Pedestrian circulation and facilities
- Bike parking supply
- Shuttle services

Section 6 — Mitigation Measures and Corrective Conditions

MITIGATION MEASURES AND CORRECTIVE CONDITIONS

SUMMARY OF CEQA MITIGATION MEASURES

The results of the transportation impact analysis are summarized below.

THRESHOLD T-1 (CONFLICTING WITH PLANS, PROGRAMS, ORDINANCES, OR POLICIES)

The project may conflict with the LAMC requirements for bicycle parking and TDM. In addition, it was determined that the project would be inconsistent with regional plans related to mobility and GHG reductions. The proposed project would result in a **significant impact** related to consistency with plans, programs, ordinances, or policies. The proposed project would also contribute to a **significant cumulative impact** related to consistency with plans, programs, ordinances, or policies.

Therefore, **Mitigation Measure #1** is proposed, detailed below.

Mitigation Measure #1 Transportation Demand Management (TDM) Program

To reduce Museum employee and visitor vehicle trips and increase alternative modes such as walking, bicycling, public transit, and rideshare, the proposed project shall prepare and implement a TDM program. The program shall be developed in consultation with LADOT.

The proposed project will designate an existing member of staff as the on-site TDM Coordinator. This coordinator shall be responsible for monitoring and tracking employee and visitor mode share and annual reporting to LADOT.

<u>Employee Strategies</u>

Information shall be distributed to employees and displayed on a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The following measures should be applied to reduce employee vehicle trips and VMT:

- Provide a transportation information bulletin board on-site with public transit information, contact information for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.
- Provide facilities on-site to support bicycling to work, such as secure bike parking, showers, and lockers.
- Encourage and support participation in LA Metro vanpool, including subsidies for participation.
- Implement paid parking for employees.
- Subsidize transit passes.
- Offer flexible work schedules and telecommuting, when feasible.

<u>Visitor Strategies</u>

Transportation information for visitors should be displayed on the Museum's website and distributed with physical marketing materials. The following measures may be applied to reduce visitor vehicle trips and VMT:

- Advertise and offer discounted Museum tickets for visitors who use public transit or a bicycle to visit the project.

- Provide and maintain secure on-site bicycle parking for visitors, and monitor usage to determine if additional bicycle racks are needed.
    - Provide wayfinding signage directing bicyclists from the visitor entrances to where on-site bicycle parking is located.
    - Ensure bicycle parking is well lit and monitored by staff.
- Continue to have paid parking for visitors.
- Coordinate with LA Metro to improve transit access and user comfort and encourage visitors to take local bus service or the future Purple Line extension to the Museum, through the following measures:
    - Improve pedestrian wayfinding between the planned Purple Line station, local bus stops, and the Museum.
    - Implement bus stop improvements such as shelters along Wilshire Boulevard bus stops that would be used by Museum visitors.
    - Coordinate with LA Metro and the City of Los Angeles to ensure that safe and comfortable pedestrian facilities (such as ADA curb ramps and continental crosswalks) are available between local bus stops and the project entrances, including at the Curson Avenue/ Wilshire Boulevard intersection.
- Coordinate with the City of Los Angeles to implement planned bikeways in the vicinity of the project site, and contribute to the implementation of the bikeways. This includes planned bikeways along Wilshire Boulevard and 6th Street.

Implementation of Mitigation Measure #1 would encourage employees and visitors to reduce their vehicle trips, and contribute to VMT and GHG reduction goals. This measure also supports multimodal connectivity in the study area. With the implementation of Mitigation Measure #1, the impact related to consistency with plans, programs, ordinances, or policies would be reduced to **less than significant with mitigation**. In addition, the cumulative impact related to consistency with plans, programs, ordinances, or policies would be reduced to **less than significant with mitigation**.

THRESHOLD T-2 (CAUSING SUBSTANTIAL VEHICLE MILES TRAVELED),

Given that the project would result in a net increase in VMT, the proposed project would result in a **significant impact** related to causing substantial vehicle miles traveled, and would contribute to a **significant cumulative impact** related to causing substantial vehicle miles traveled.

Mitigation Measure #1, which requires the project to implement a TDM program and coordinate on multimodal improvements in the study area, can help reduce employee and visitor VMT and support multimodal connectivity.

Given the magnitude of VMT that would need to be reduced due to visitor trips being 196% longer than average regional recreation trips, Mitigation Measure #1 would be insufficient to reduce VMT to less-than-significant levels. Therefore, even with the implementation of Mitigation Measure #1, the impact related to causing substantial vehicle miles traveled would remain **significant and unavoidable** after mitigation. In addition, the cumulative impact related to causing substantial vehicle miles traveled would remain **significant and unavoidable** after mitigation.

THRESHOLD T-3 (SUBSTANTIALLY INCREASING HAZARDS DUE TO A GEOMETRIC DESIGN FEATURE OR INCOMPATIBLE USE

Based on the proposed site plan and evaluation of geometric design and uses, the proposed project would result in a **less than significant impact** when considering increasing hazards. The proposed project would also result in a **less than significant cumulative impact** when considering increasing hazards based on the geometric design and uses of the proposed project.

No mitigation measures are needed to address potential hazards for the proposed project.

SUMMARY OF NON-CEQA ASSESSMENT RECOMMENDATIONS

The results of the non-CEQA transportation analysis are summarized below.

PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS ASSESSMENT

In order to improve pedestrian and transit access in the study area, the project should coordinate with the City of Los Angeles to explore the feasibility of implementing the following improvements:

- Continental crosswalks at the Curson Avenue/Wilshire Boulevard intersection and frontage road crossing directly to the east of the intersection;
- High-visibility curb ramps with truncated domes at the Spaulding Avenue/Wilshire Boulevard intersection, Curson Avenue/Wilshire Boulevard intersection, and frontage road crossing directly to the east of the Curson Avenue/Wilshire Boulevard intersection; and
- Pedestrian recall timing (as opposed to pedestrian push buttons) for the north-south crosswalks at the Curson Avenue/Wilshire Boulevard and Spaulding Avenue/Wilshire Boulevard intersections.

In order to improve transit access in the study area, the project should coordinate with the City of Los Angeles and LA Metro to install shelters at the two Spaulding Avenue/Wilshire Boulevard stops and one Curson Avenue/Wilshire Boulevard stop that currently lack them.

PROJECT ACCESS SAFETY AND CIRCULATION EVALUATION

Several potential deficiencies may arise at the project driveways and in the study area.

- The project is expected to contribute to increased delay at the Curson Avenue/Wilshire Boulevard intersection, which operates at LOS F during the weekday midday, weekday PM, and Saturday midday peak hours. The Curson Avenue/Wilshire Boulevard intersection is utilized by multiple bus routes that run along Wilshire Boulevard.
- The northbound exiting approach from the 6th Street driveway is expected to experience LOS E conditions during the weekday AM and PM peak hours.
- At the Curson Avenue/Wilshire Boulevard intersection, the southbound queues may interfere with the crosswalks at the Curson Avenue/6th Street intersection and the northbound queues may conflict with the crosswalks at the Curson Avenue/8th Street intersection.
- The length of the eastbound and northbound queues at the Curson Avenue/6th Street intersection and southbound queues at the Curson Avenue/Wilshire Boulevard are expected to interfere with accessing the project driveways and may interfere with driveway operations
- Curbside passenger loading along 6th Street could result in conflicts with bicyclists once planned separated bike lanes are implemented.

In order to improve access safety and circulation, the project should coordinate with the City of Los Angeles to explore the feasibility of implementing the following improvements:

- The Curson Avenue/Wilshire Boulevard intersection is built out. Signal timing should be regularly updated to optimize splits. In addition, the weekday AM and PM peak period bus-only lanes on Wilshire could potentially be extended to the weekday midday and weekend midday peak hours to improve bus operations through that intersection.
- The Curson Avenue/6th Street intersection is built out. Signal timing should be regularly updated to optimize splits. In addition, striping could be improved to extend the northbound left turn lane at the intersection, and/or add an inbound left-turn lane at the project's Curson Avenue driveway.
- Incorporate safety features to accommodate passenger pick-up and drop-off along 6th Street when planned separated bike lanes are implemented.

In addition, driveway operations at Curson Avenue should be monitored.

Mitigation Measure #1, which requires the project to implement a TDM program and coordinate on multimodal improvements in the study area, can help reduce employee and visitor vehicle trips and related effects on project access safety and circulation.

PROJECT CONSTRUCTION

The proposed project's likely impact during construction requires corrective measures. A construction traffic management plan will be required and coordinated with LADOT prior to starting construction on components of the Master Plan that require construction to impact the public right-of-way.

The construction traffic management plan should identify the duration and level of construction activity and consider the following features:

- Develop a detour plan for vehicles, pedestrians, and bicyclists as necessary.
- Consider modification of construction procedures to minimize duration or level of impact.
- Limit major road obstructions to off-peak hours.
- Coordinate with emergency service and public transit providers.
- Provide alternative vehicular, bicycle, and/or pedestrian access to affected parcels.
- Consult with LADOT if temporary closure of a travel lane may be necessary to maintain adequate pedestrian and bicycle access as part of the traffic management plan.
- Consult LADOT's Parking Meters Division regarding revenue recovery costs for the removal of parking meter spaces, if applicable.
- Coordinate access with adjacent property owners and tenants.
- Coordinate with Metro regarding maintenance of ADA access to Metro stations, stops, and transit facilities (e.g., layover zones) during revenue hours.
- Coordinate with transit providers regarding the need to temporarily close or relocate bus stops or reroute service.

RESIDENTIAL STREET CUT-THROUGH ANALYSIS

The proposed project's expected contribution to traffic on residential streets is anticipated to be below the City's thresholds. Therefore, no corrective measures have been recommended.

SPECIAL EVENTS

The proposed project should have corrective measures to address the potential of special events. A special event traffic management plan should be created in coordination with LADOT and confirmed prior to special events hosted at the site.

The special event traffic management plan may consider the following features:

- Vehicle parking supply
- Loading/unloading areas and management
- Traffic control at adjacent intersections and roadways
- Pedestrian circulation and facilities
- Bike parking supply
- Shuttle services

Appendix 1 — Memorandum of Understanding

LADOT

Transportation Assessment Memorandum of Understanding (MOU)

This MOU acknowledges that the Transportation Assessment for the following Project will be prepared in accordance with the latest version of LADOT's Transportation Assessment Guidelines:

I. Project Information

Project Name: La Brea Tar Pits and Museum Master Plan EIR

Project Address: 5801 Wilshire Boulevard, Los Angeles, CA 90036

The proposed project would renovate the existing Page Museum and add a new one-story museum building toward the northwest, increasing the total museum square footage from 63k gsf to 105k gsf. The new museum building would include a lobby and exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock.

LADOT Project Case Number: _____ Project Site Plan attached? *(Required)* ☒Yes ☐ No

II. Transportation Demand Management (TDM) Measures

Provide any transportation demand management measures that are being considered where the eligibility needs to be verified in advance (e.g. bike share kiosks, unbundled parking, microstransit service, etc.). Note that LADOT staff will make the final determination if TDM measures eligibility for a particular project. Please confirm eligibility with the LADOT Planning and Bureau staff assigned to your project.

1 N/A 3 _____

2 _____ 4 _____

Select any TDM measures that are currently being considered that may be eligible as a Project Design Feature[1]:

	Reduced Parking Supply[2]
	Bicycle Parking and Amenities
	Parking Cash Out

III. Trip Generation

Trip Generation Rate(s) Source: ITE 10th Edition / (Other) Existing site attendance data (see attachment)

Trip Generation Adjustment *(Exact amount of credit subject to approval by LADOT)*	Yes	No
Transit Usage	☒	☐
Existing Active or Previous Land Use	☒	☐
Internal Trip	☐	☒
Pass-By Trip	☐	☒
Transportation Demand Management (See above)	☐	☒

Trip generation table including a description of the existing and proposed land uses, rates, estimated morning and afternoon peak hour volumes (ins/outs/totals), proposed trip credits, etc. attached? *(Required)* ☒Yes ☐ No

	IN	OUT	TOTAL
Weekday AM Trips	12	0	12
Weekday Midday Trips	107	199	306
Weekday PM Trips	16	69	85
Saturday Midday Trips	145	139	284

NET Daily Vehicle Trips (DVT)
1,293 (Weekday) Based on employee
1,679 (Saturday) and attendance data

es that are also shown to be needed to comply with a local ordinance, affordable housing incentive program, or state law.

[2]Select if reduced parking supply is pursued as a result of a parking incentive as permitted by the City's Bicycle Parking Ordinance, State Density Bonus Law, or a the City/s Transit Oriented ted Community Guidelines.

LADOT

City of Los Angeles Transportation Assessment MOU
LADOT Project Case No: _____

IV. Study Area and Assumptions

Project Buildout Year: 2032 Ambient Growth Rate: 1 % Per Yr.

Related Projects List, researched by the consultant and approved by LADOT, attached? *(Required)* ☒ Yes ☐ No

STUDY INTERSECTIONS and/or STREET SEGMENTS *(May be subject to LADOT revision after access, safety and circulation evaluation)*

1 Ogden Drive / 6th Street
2 Curson Avenue / 6th Street
Curson Avenue / Wilshire Boulevard
3 Spaulding Avenue / Wilshire Boulevard
4 Ogden Drive / Wilshire Boulevard
All project driveways

Is this Project located on a street within the High Injury Network? ☒ Yes ☐ No

V. ACCESS ASSESSMENT

a. Does the project exceed 1,000 total DVT? ☒ Yes ☐ No
b. Is the project's frontage 250 linear feet or more along an Avenue or Boulevard as classified by the City's General Plan? ☒ Yes ☐ No
c. Is the project's building frontage encompassing an entire block along an Avenue or Boulevard as classified by the City's General Plan? ☐ Yes ☒ No

If questions a., b., or c. is Yes then complete **Attachment C.1: Access Assessment Criteria**.

VI. SITE PLAN and map of Study Area

Does the attached site plan or map of study area show	Yes	No	Not Applicable
Each study intersection and/or street segment	☒	☐	☐
Project Vehicle Peak Hour trips at each study intersection	☒	☐	☐
Project Vehicle Peak Hour trips at each project access point	☒	☐	☐
Project driveways (show widths and directions or lane assignment)	☒	☐	☐
Pedestrian access points and any pedestrian paths	☒	☐	☐
Pedestrian loading zones	☒	☐	☐
Delivery loading zone or area	☒	☐	☐
Bicycle parking onsite	☒	☐	☐
Bicycle parking offsite (in public right-of-way)	☒	☐	☐

VII. Contact Information

	CONSULTANT	DEVELOPER
Name:	Mychal Loomis, Kittelson & Associates	Natural History Museum of LA County
Address:	750 The City Drive, Suite 410 Orange, CA 92868	900 Exposition Blvd, Los Angeles CA 90007
Phone Number:	(714) 468-1180	213-763-3303
E-Mail:	mloomis@kittelson.com	dmcdivitt@nhm.org

Approved by:	x Mychal Loomis	05/02/22	x	5/2/22
	Consultant's Representative	Date	LADOT Representative	*Date

*MOUs are generally valid for two years after signing. If after two years a transportation assessment has not been submitted to LADOT, the developer's representative shall check with the appropriate LADOT office to determine if the terms of this MOU are still valid or if a new MOU is needed.

LADOT Access Assessment Criteria

This Criteria acknowledges that the Transportation Assessment for the following Project will be prepared in accordance with the latest version of LADOT's Transportation Assessment Guidelines:

I. PROJECT INFORMATION

Project Name: La Brea Tar Pits and Museum Master Plan EIR

Project Address: 5801 Wilshire Boulevard, Los Angeles, CA 90036

Project Description: The proposed project would renovate the existing Page Museum and add a new one-story museum building toward the northwest, increasing the total museum square footage from 63k gsf to 105k gsf. The new museum building would include a lobby and exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock.

LADOT Project Case Number: _____

II. PEDESTRIAN/ PERSON TRIP GENERATION

Source of Pedestrian/Person Trip Generation Rate(s)? □ VMT Calculator □ ITE 10th Edition ☒ Other: Existing site attendance data (see attachment)

	Land Use	Size/Unit	Daily Person Trips	Saturday
Proposed	Museum	42 KSF	2,701	3,523
		Total new trips:	2,701	3,523

Pedestrian/Person trip generation table including a description of the proposed land uses, trip credits, person trip assumptions, comparison studies used for reference, etc. attached? □ Yes □ No

III. PEDESTRIAN ATTRACTORS INVENTORY

Attach Pedestrian Map for the area (1,320 foot radius from edge of the project site) depicting:

- site pedestrian entrance(s)
- Existing or proposed passenger loading zones
- pedestrian generation/distribution values
  - Geographic Distribution: N 15 % S 39 % E 21 % W 25 %
- transit boarding and alighting of transit stops (should include Metro rail stations; Metro, DASH, and other municipal bus stops)
- Key pedestrian destinations with hours of operation:
  - schools (school times)
  - government offices with a public counter or meeting room
  - senior citizen centers
  - recreation centers or playgrounds
  - public libraries
  - medical centers or clinics
  - child care facilities
  - post offices

- places of worship
- grocery stores
- other facilities that attract pedestrian trips

- pedestrian walking routes to key destinations from project site

Note: Pedestrian Count Summary, Bicycle Count Summary, Manual Traffic Count Summary will need to be attached to the Transportation Assessment

IV. FACILITIES INVENTORY

Is a High Injury Network street located within 1,320 foot radius from the edge of the project site? ☒ Yes ☐ No

If yes, list streets and include distance from the project:

Wilshire Blvd. (east of Fairfax Ave.)	at 0 (feet)
6th St. (east of Ogden Dr.)	at 700 (feet)
Fairfax Ave. (north of Wilshire Blvd.)	at 0 (feet)
	at _____ (feet)

Attach Radius Map for the area (1,320 foot radius from edge of the project site) depicting the following existing and proposed facilities:

- transit stops
- bike facilities
- traffic control devices for controlled crossings
- uncontrolled crosswalks
- location of any missing, damaged or substandard sidewalks

For a reference of planned facilities, see the Transportation Assessment Support Map

Crossing Distances

Does the project property have frontage along an arterial street (designated as either an Avenue or Boulevard?)

☒ Yes ☐ No

If yes, provide the distance between the crossing control devices (e.g. signalized crosswalk, or controlled mid-block crossing) along any arterial within 1,320 feet of the property.

75 (feet) at Wilshire Blvd.	_____ (feet) at _____
55 (feet) at 6th St.	_____ (feet) at _____
55 - 62 (feet) at Fairfax Ave.	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____
_____ (feet) at _____	_____ (feet) at _____

V. Project Construction

Will the project require any construction activity within the city right-of-way? ☒ Yes ☐ No

If yes, will the project require temporary closure of any of the following city facilities?

- sidewalk -- Yes
- bike lane
- parking lane
- travel lane
- bus stop -- Yes
- bicycle parking (racks or corrals)
- bike share or other micro-mobility station
- car share station
- parklet
- other: _____

LA BREA TAR PITS MASTER PLAN

Conceptual Site Plan
Figure 1

Los Angeles County, CA
34.0637°N 118.3576°W

N

Base Map: Weiss-Manfredi, 2021
Accessed February 2022
Updated: 2/2/2022
Project No. 63953
Layout: 63953_LaBrea_SitePlan
Apx. 63953 La Brea

SWCA
ENVIRONMENTAL CONSULTANTS

Study Intersection
Parking
Pedestrian Entrances
Bike Rack
Study Segment
Passenger Loading Zones
Delivery Loading Zone
Pedestrian Walking Routes

Scale in Feet
0 300
North

LA BREA TAR PITS & MUSEUM

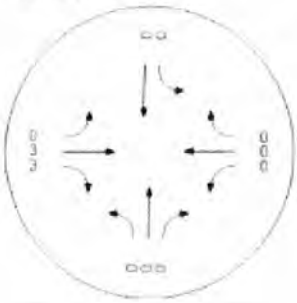
Page Museum | Master Plan EIR

Project Site and Study Area

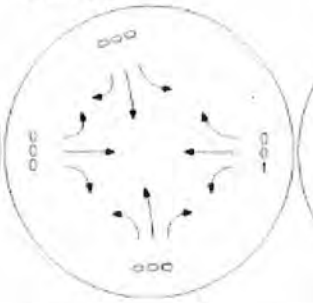
Figure 2

Figure 3: Weekday AM Peak Hour Project Vehicle Trips

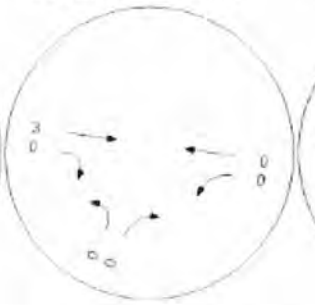
1. Ogden Drive / 6th Street



2. Curson Avenue / 6th Street

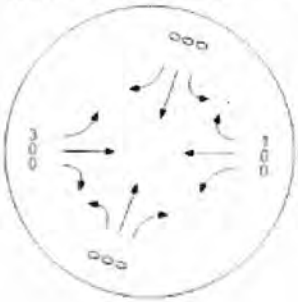


3. Ogden Drive / Wilshire Boulevard

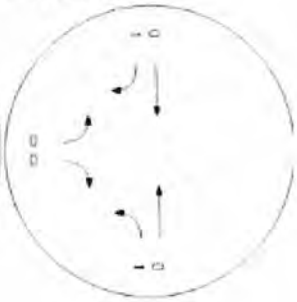


4. Spaulding Avenue / Wilshire Boulevard

5. Curson Avenue / Wilshire Boulevard

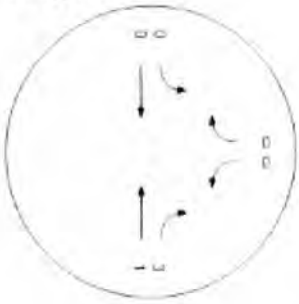


Curson Avenue Driveway

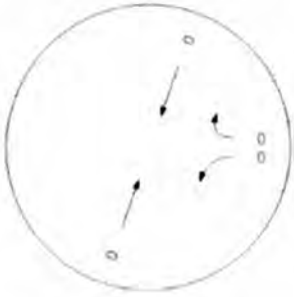


6th Street Driveway

SAG (Curson Avenue entry/exit)



Wilshire Courtyard (Curson Avenue exit)

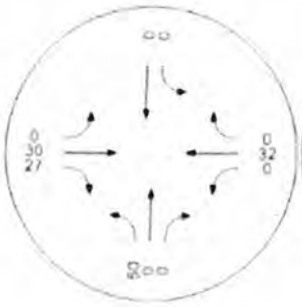


Wilshire Courtyard (Courtyard Place entry)

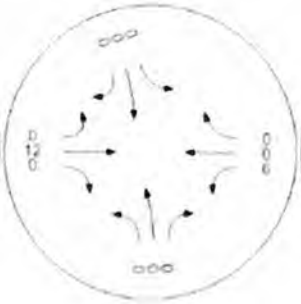
Notes:
Numbered locations denote study intersections.
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.

Figure 4: Weekday Midday Peak Hour Project Vehicle Trips

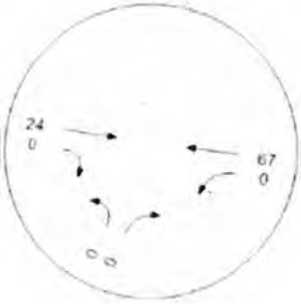
1. Ogden Drive / 6th Street



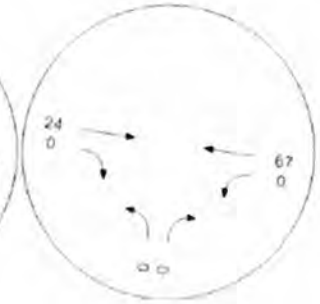
2. Curson Avenue / 6th Street



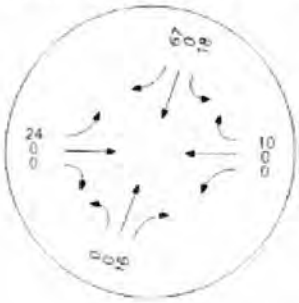
3. Ogden Drive / Wilshire Boulevard



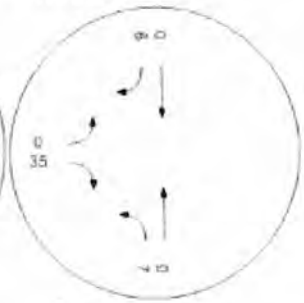
4. Spaulding Avenue / Wilshire Boulevard



5. Curson Avenue / Wilshire Boulevard

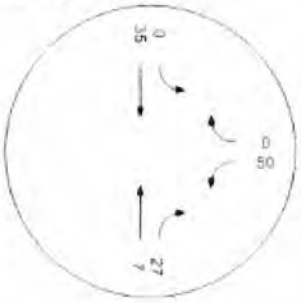


Curson Avenue Driveway

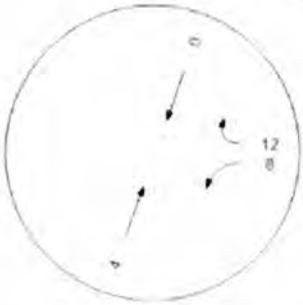


6th Street Driveway

SAG (Curson Avenue entry/exit)



Wilshire Courtyard (Curson Avenue exit)

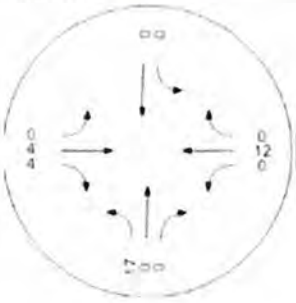


Wilshire Courtyard (Courtyard Place entry)

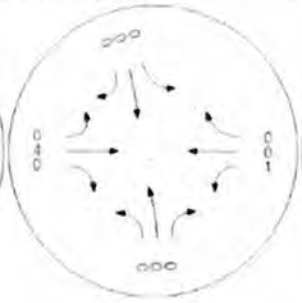
Notes:
Numbered locations denote study intersections.
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.

Figure 5: Weekday PM Peak Hour Project Vehicle Trips

1. Ogden Drive / 6th Street

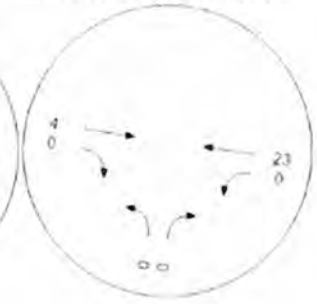


2. Curson Avenue / 6th Street

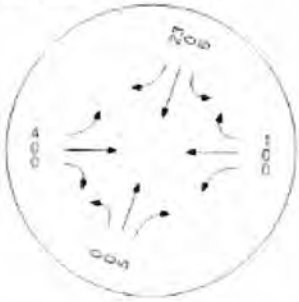


3. Ogden Drive / Wilshire Boulevard

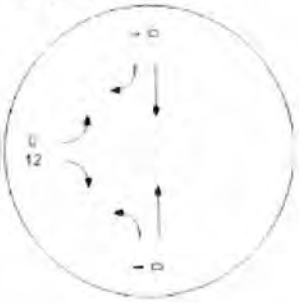
4. Spaulding Avenue / Wilshire Boulevard



5. Curson Avenue / Wilshire Boulevard

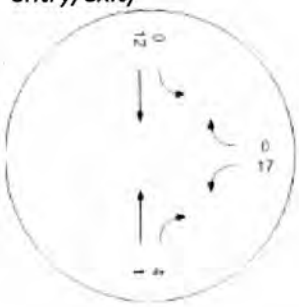


Curson Avenue Driveway

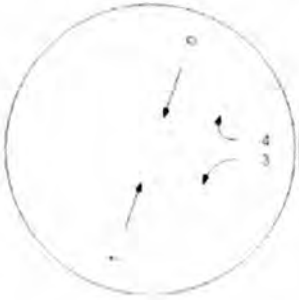


6th Street Driveway

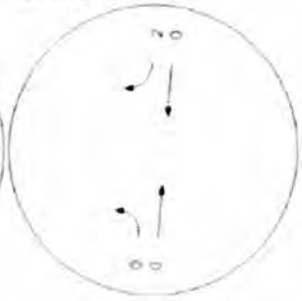
SAG (Curson Avenue entry/exit)



Wilshire Courtyard (Curson Avenue exit)



Wilshire Courtyard (Courtyard Place entry)



Notes:
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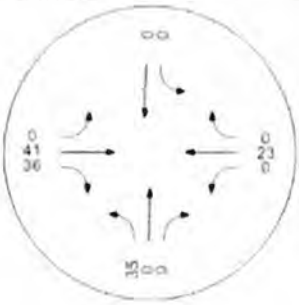
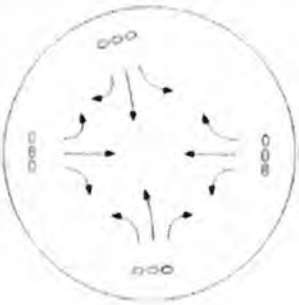
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.

Figure 6: Saturday Midday Peak Hour Project Vehicle Trips

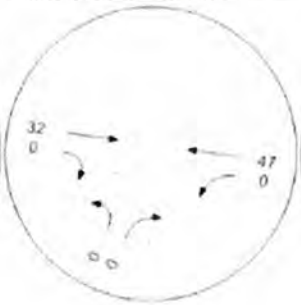
1. Ogden Drive / 6th Street



2. Curson Avenue / 6th Street

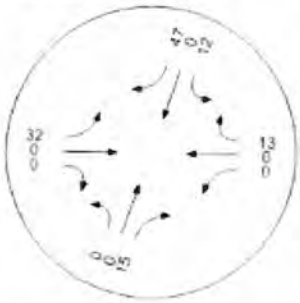


3. Ogden Drive / Wilshire Boulevard



4. Spaulding Avenue / Wilshire Boulevard

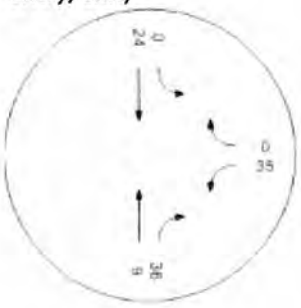
5. Curson Avenue / Wilshire Boulevard



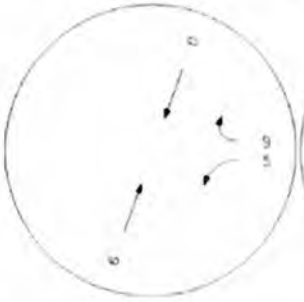
Curson Avenue Driveway

6th Street Driveway

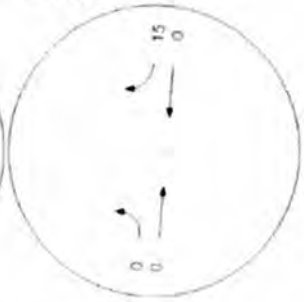
SAG (Curson Avenue entry/exit)



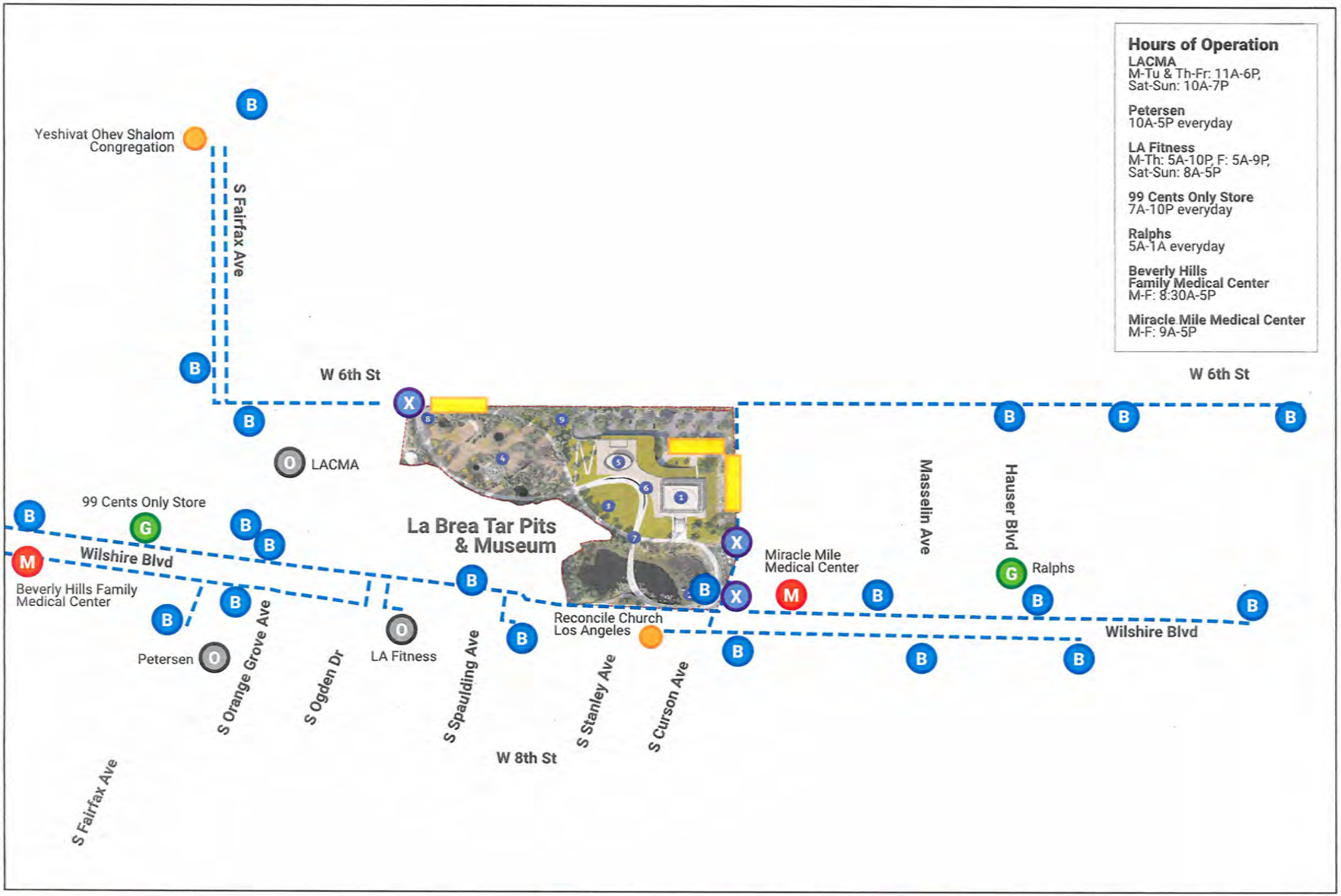
Wilshire Courtyard (Curson Avenue exit)



Wilshire Courtyard (Courtyard Place entry)



Notes:
Numbered locations denote study intersections.
Bolded locations denote project parking lot driveways.
Italicized locations denote other (off-site) parking garage access points.



Existing Bus Stop
Grocery Store
Medical Center
Pedestrian Entrances
Other Pedestrian Generator
Place of Worship
Passenger Loading Zones
Pedestrian Walking Routes

Scale in Feet
0 600
North

LA BREA TAR PITS & MUSEUM

Page Museum | Master Plan EIR

Pedestrian Generators

Figure 7

LA BREA TAR PITS & MUSEUM

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Facilities Inventory

Figure 8

Traffic Counts

Traffic counts will be collected at the locations listed below.

New multimodal (vehicle/bicycle/pedestrian) counts will be collected on one weekday during three peak periods (morning 7:00-9:00AM, midday 12:00-2:00PM, and afternoon/evening 4:00-6:00PM) and one Saturday midday peak period (12:00-2:00PM) at the following intersections:

- Ogden Drive / 6th Street
- Curson Avenue / 6th Street
- Ogden Drive / Wilshire Boulevard
- Spaulding Avenue / Wilshire Boulevard
- Curson Avenue / Wilshire Boulevard

New 24-hour vehicle counts will be collected during one weekday and one Saturday at the following roadway segments:

- 8th Street (between Fairfax Avenue and Orange Grove Avenue)
- 8th Street (between Stanley Avenue and Curson Avenue)
- Orange Grove Avenue (between Wilshire Boulevard and 8th Street)
- Ogden Drive (between Wilshire Boulevard and 8th Street)
- Spaulding Avenue (between Wilshire Boulevard and 8th Street)
- Stanley Avenue (between Wilshire Boulevard and 8th Street)
- Curson Avenue (between Wilshire Boulevard and 8th Street)

Trip Generation

Trip generation for the proposed expansion was prepared by estimating existing site trip generation for the weekday daily, weekday AM peak hour, weekday midday peak hour, weekday PM peak hour, Saturday daily, and Saturday midday peak hour periods. Existing trip generation was estimated for employees and for visitors. Then, the trip generation rates were applied to the proposed increase in museum square footage.

Employee Trips

The following employee trip generation rates were developed using mode share information from 2019 Los Angeles County Natural History Museum employee travel surveys. The trip generation rates would developed with the assumption that 100% of all employees arrive at the site during the AM peak hour and 100% of all employees exit the site during the PM peak hour. Note, since weekend surveys were not available, the same trip generation rates and patterns would be used to estimate Saturday daily and midday peak hour employee trip generation.

- **Daily**: 1.40 vehicle trips per employee
- **AM peak hour**: 0.70 vehicle trips per employee
- **Midday peak hour**: 0.00 vehicle trips per employee
- **PM peak hour**: 0.70 vehicle trips per employee

Currently, the museum staff consists of 25 employees. The proposed expansion would increase the museum square footage by approximately 67%. To estimate the net increase in employee trip generation, it was assumed that the number of employees would also increase by 67%, or 17 additional employees. This results in net employee trip generation of 24 weekday daily trips, 12 weekday AM peak hour daily trips, 12 weekday PM peak hour daily trips, and 24 Saturday daily trips.

Table 1: Employee Trip Generation Estimate (Net Increase)

Trip Generation Rates							
Rate	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Per employee	1.40	100%	0%	0.70	0%	100%	0.70
Trip Generation Estimates							
Size	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
17 employees	24	12	0	12	0	12	12

Visitor Trips

Visitor trip generation was developed through the following steps:

1. Estimate person trip generation for the existing museum
2. Apply the appropriate mode share to obtain existing vehicle trip generation
3. Develop trip generation rates
4. Apply those rates to the increase in museum square footage to obtain net vehicle trip generation and bicycle, pedestrian, and transit trip generation

The project applicant provided monthly and daily attendance data for January 2017 through December 2021. July 2017 experienced the highest number of visitors (58,248). Therefore, person trip generation was estimated using weekday and Saturday data from that month. The busiest weekdays and Saturdays from that month are listed below.

- Weekdays
  - 7/3 – 2,815 visitors
  - 7/26 – 2,026 visitors
  - 7/28 – 1,998 visitors
- Saturdays
  - 7/15 – 2,473 visitors
  - 7/22 – 2,642 visitors
  - 7/29 – 2,607 visitors

July 26, 2017, was selected for estimating weekday trip generation (July 3rd was part of the long July 4th weekend and would not be representative of typical weekday activity levels). July 22, 2017, was selected for estimating Saturday trip generation.

The ticket counter information provided by the applicant included the time of entry. According to the applicant, the average length of a visit is between approximately 60 and 90 minutes; therefore, 75 minutes was used.

Existing weekday and Saturday person trip generation were estimated based on the daily total visitors for both days. Weekday midday peak hour, weekday PM peak hour, and Saturday midday peak hour person trip generation and inbound/outbound percentages were developed by examining the highest-volume hours during those peak periods (weekday AM peak hour trip generation was not estimated since the museum is closed at that time and did not have any visitors). Existing person-trips and person-trip generation rates for the museum are detailed in the attached matrix. Existing person-trip estimates are listed below:

- **Weekday daily**: 4,052 person-trips
- **Weekday midday peak hour**: 977 person-trips
- **Weekday PM peak hour**: 232 person-trips
- **Saturday daily**: 5,284 person-trips
- **Saturday midday peak hour**: 907 person-trips

Data from the California Household Travel Survey (CHTS)[1] was utilized to estimate the mode share and trips by mode for existing site visitors, to then prepare vehicle trip generation rates and other modal trip generation rates for the site. According to the CHTS, mode share for recreational trips for zip codes in the city is as follows:

- **Vehicle Driver**: 42%
- **Vehicle Passenger**: 27%
- **Transit**: 2%
- **Bike**: 1%
- **Walk**: 28%

The CHTS's 28% mode share for this project may be too high, given its role as a regional (as opposed to local-serving) recreational attraction. Therefore, the walking mode share assumption is capped at 10%, with the remainder distributed among vehicle driver, vehicle passenger, and transit. This mode share assumption also acknowledges the density of existing and future transit service in the area (including the Purple Line extension):

- **Vehicle Driver**: 47%
- **Vehicle Passenger**: 30%
- **Transit**: 12%
- **Bike**: 1%
- **Walk**: 10%

The detailed existing site trips by mode and modal trip generation rates are provided in the attached matrices. The modal trip generation rates were applied to the net increase in museum square footage (42,000 square feet) to estimate the net increase in visitor vehicle trips and other modes. Tables 2 through 5 below display the visitor trip generation rates and net trip generation estimates for each mode for the museum expansion.

[1] https://www.nrel.gov/transportation/secure-transportation-data/tsdc-california-travel-survey.html

Table 2: Visitor Vehicle Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	30.22	35%	65%	7.29	22%	78%	1.73	39.41	51%	49%	6.76
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	1,269	107	199	306	16	57	73	1,655	145	139	284

Table 3: Visitor Transit Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	7.71	35%	65%	1.86	22%	78%	0.44	10.06	51%	49%	1.73
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	324	27	51	78	4	14	18	423	37	36	73

Table 4: Visitor Bike Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	0.65	35%	65%	0.16	22%	78%	0.03	0.84	51%	49%	0.14
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	27	2	5	7	0	1	1	35	3	3	6

Table 5: Visitor Walking Trip Generation Estimate (Net Increase)

Trip Generation Rates											
	Weekday							Saturday			
Rate	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Per KSF	6.43	35%	65%	1.56	22%	78%	0.37	8.38	51%	49%	1.44
Trip Generation Estimates											
	Weekday							Saturday			
Size	Daily	Midday Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
42 KSF	270	23	43	66	4	12	16	352	31	29	60

Net Vehicle Trip Generation Estimate

The estimated net increase in vehicle trips generated by the museum expansion is detailed below, combining the net increases for both employee and visitor vehicle trips.

Table 6: Net Vehicle Trip Generation Estimate

Weekday									
Daily	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
1,293	12	0	12	107	199	306	16	69	85
Saturday									
Daily	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
1,679	*(not analyzed)*			145	139	284	*(not analyzed)*		

Trip Distribution

Trip distribution percentage will be based on information provided in the LACMA EIR traffic study:

- 35% to/from the south via Fairfax Avenue
- 22% to/from the west via Wilshire Boulevard
- 3% to/from the west via 6th Street
- 15% to/from the north via Fairfax Avenue
- 6% to/from the east via 6th Street
- 15% to/from the east via Wilshire Boulevard
- 4% to/from the south via Curson Avenue

Vehicle Trip Assignment

As shown on the study area map, the project site will include a parking lot with two access points: one access point along 6th Street (west of Curson Avenue) and one access point along Curson Avenue (south of 6th Street. An increase in the on-site parking supply is not anticipated. In addition, there are several other parking structures in the vicinity of the project site:

- LACMA (entry/exit at the Ogden Drive/6th Street intersection)
- SAG (entry and exit on Curson Avenue)
- Wilshire Courtyard (entry on Courtyard Place, exit on Curson Avenue)
- Petersen Automotive Museum (entry on Fairfax Avenue, exit on Orange Grove Avenue)
- Future Purple Line parking garage (under construction and not included as part of the vehicle trip assignment)

According to a 2019 study,[2] ride-hailing services such as Uber and Lyft account for approximately 3% of trips in Los Angeles. Given that the proposed project will include two passenger drop-off locations (within the parking lot and curbside along 6th Street) and the increased popularity of transportation

[2] https://www.fehrandpeers.com/what-are-tncs-share-of-vmt/

network company services, it is assumed that a higher percentage (10%) of the project's vehicle trips will consist of ride-hailing trips that utilize the on-site passenger loading zones. Of the remaining 90% of vehicle trips, the parking location assignment assumptions are as follows:

- Project's on-site parking: 30%
- LACMA: 25%
- SAG: 25%
- Wilshire Courtyard: 10%

Attachment: Visitor Trip Generation Calculations

Existing Site Person Trips and Person Trip Generation (per KSF)

	Weekday												Saturday					
Existing Person Trips	Daily	in	out	AM	in	out	MD	in	out	PM	in	out	Daily	in	out	MD	in	out
	4,052	2,026	2,026				977	342	635	232	51	181	5,284	2,642	2,642	907	461	446
	64.32	50%	50%	--	--	--	15.51	35%	65%	3.68	22%	78%	83.87	50%	50%	14.40	51%	49%

	CHTS Mode Share (Recreation Trips, City of LA)				
Mode Share	Driver	Pass.	Transit	Bike	Walk
	47%	30%	12%	1%	10%

Existing Site Vehicle Trips and Vehicle Trip Generation Rates (per KSF)

	Weekday												Saturday					
Trip Generation Rates by Mode	Daily	in	out	AM	in	out	MD	in	out	PM	in	out	Daily	in	out	MD	in	out
	1,904	952	952	--	--	--	459	161	298	109	24	85	2,483	1,242	1,241	426	217	209
	30.22	50%	50%	--	--	--	7.29	35%	65%	1.73	22%	78%	39.41	50%	50%	6.76	51%	49%

Existing Site Transit Trips and Transit Trip Generation Rates (per KSF)

	Weekday												Saturday					
	Daily	in	out	AM	in	out	MD	in	out	PM	in	out	Daily	in	out	MD	in	out
	486	243	243	--	--	--	117	41	76	28	6	22	634	317	317	109	56	53
	7.71	50%	50%	--	--	--	1.86	35%	65%	0.44	22%	78%	10.06	50%	50%	1.73	51%	49%

Existing Site Bike Trips and Bike Trip Generation Rates (per KSF)

	Weekday												Saturday					
	Daily	in	out	AM	in	out	MD	in	out	PM	in	out	Daily	in	out	MD	in	out
	41	21	20	--	--	--	10	4	6	2	0	2	53	27	26	9	5	4
	0.65	50%	50%	--	--	--	0.16	35%	65%	0.03	22%	78%	0.84	50%	50%	0.14	51%	49%

Existing Site Walking Trips and Walking Trip Generation Rates (per KSF)

	Weekday												Saturday					
	Daily	in	out	AM	in	out	MD	in	out	PM	in	out	Daily	in	out	MD	in	out
	405	203	202	--	--	--	98	34	64	23	5	18	528	264	264	91	46	45
	6.43	50%	50%	--	--	--	1.56	35%	65%	0.37	22%	78%	8.38	50%	50%	1.44	51%	49%

Museum Expansion Net Trip Generation (40 KSF Expansion)

	Weekday												Saturday					
Trip Type	Daily	in	out	AM	in	out	MD	in	out	PM	in	out	Daily	in	out	MD	in	out
Person	2,701	1,351	1,350	--	--	--	651	228	423	155	34	121	3,523	1,762	1,761	605	309	296
Vehicle	1,269	635	634	--	--	--	306	107	199	73	16	57	1,655	828	827	284	145	139
Transit	324	162	162	--	--	--	78	27	51	18	4	14	423	212	211	73	37	36
Bike	27	14	13	--	--	--	7	2	5	1	0	1	35	18	17	6	3	3
Walking	270	135	135	--	--	--	66	23	43	16	4	12	352	176	176	60	31	29

CLATS

Case Logging and Tracking System

Welcome **wes**! | Log Out | Profile | Admin

RELATED PROJECTS

Centroid Info:
PROJ ID: 53149
Address: 5801 W WILSHIRE BLVD
LOS ANGELES , CA 90036
Lat/Long: 34.0627, -118.355

Buffer Radius: 2640 feet

Search

Column

Include NULL "Trip info": ☐
Include NULL "FirstStudySubmittalDate" (latest) ☐
Include "Inactive" projects: ☐
Include "Do not show in Related Project": ☐
Net_AM_Trips - Select -
Net_PM_Trips - Select -
Net_Daily_Trips - Select -

Record Count: 5 | Record Per Page: All Records

Results generated since: (3/9/2022 3:17:03 PM)

Proj ID	Office	Area	CD	Year	Project Title	Project Desc	Address	First Study Submittal Date	Distance (feet)
43983	Metro	HWD	4	2016	Apartments	49 Apartments	5891 W Olympic bl	01/06/2016	2259.4
46484	Metro	HWD	4	2017	Wilshire Curson Residential Project	285 High Rise Apt	5757 W WILSHIRE BL	02/22/2018	463.4
50727	Metro	MTR	4	2020	800-840 S. Fairfax Av	181 units, 28 affordable apt, 2.653ksf restaurant	800 S Fairfax Avenue	12/16/2020	2256.4
52507	Metro	MTR	4	2021	688 Cochran Ave MU	348 Apts;38 affordable,4578SF Retail,4598KSF Rest,1KSF Cafe	688 S Cochran Ave	11/04/2021	2554.0
43865	Metro	MTR	4	2015	LACMA Renovation	Replace 392871 SF of Museum with 368300 SF	5905 W WILSHIRE BLVD	03/21/2017	1314.8

Trip Info

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut	Comments
Apartments	Total Units	49	25	30	326	5	20	20	10	
			25	**30**	**326**		**5**	**20**	**20**	**10**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut	Comments
Apartments	Total Units	304	79	94	1198	20	59	57	37	Total net project trips
			79	**94**	**1198**		**20**	**59**	**57**	**37**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut	Comments
Mixed Use	Total Units	181	73	79	775	27	46	48	31	
Other	Total Units	28								Affordable housing
Other	S.F. Gross Area	2653								High-turnover restaurant
			73	**79**	**775**		**27**	**46**	**48**	**31**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut	Comments
Apartments	Total Units	310	26	-27	-81	-14	40	3	-30	Total Net Proj Trips
Other	Total Units	38								Affordable
Retail	S.F. Gross Area	4578								
Other	S.F. Gross Area	4598								Restaurant
Other	S.F. Gross Area	1000								Cafe
			26	**-27**	**-81**		**-14**	**40**	**3**	**-30**

Land_Use	Unit_ID	size	Net_AM_Trips	Net_PM_Trips	Net_Daily_Trips	NetAMIn	NetAMOut	NetPMIn	NetPMOut	Comments
Other	Other		45	68	668	43	2	15	53	Weekday trips based on 750 visitors
			45	**68**	**668**		**43**	**2**	**15**	**53**

La Brea Tar Pits / Page Museum Related Cases

Missing from list:

Address: 6052 – 6022 W. Olympic Blvd.

Case: DIR-2020-3886-TOC-SPR

Project Description – Construction of a 6-story, mixed-use building containing approximately 107,640 sf of floor area, including 5,135 square feet of commercial retail space and 120 residential units, on a 28,704 square-foot site.

Address: 6300 W. 3rd Street

Case: DIR-2018-2770-SPR-WDI

Project Description: Demolition of over 150,000 sf of commercial uses and partial demolition of surface parking lot. Construction of 8-story 100-foot tall, mixed use building consisting of 83,994 sf of commercial space and 331 dwelling units for a total floor area of 426,994 sf.

Address: 650 – 676 S. San Vicente Blvd.

Case: CPC-2017-467-GPA-VZC-HD-SPR

Project Description: The Project proposes 140,305 square feet of medical office space, 4,000 square feet of restaurant/retail space, and 1,000 square feet for other commercial uses, such as a pharmacy. The Project Site is currently improved with two buildings and associated surface parking lots, comprised of a 5,738 square-foot, vacant educational building, and an 8,225 square foot Big 5 Sporting Goods store, both of which would be demolished. The proposed uses would be built within a single, 12-story, 230-foot building that includes ground floor lobby and commercial space, four levels of above-ground, podium parking, and seven levels of medical office and/or uses.

6001 – 6011 West Olympic Blvd.

Case: DIR-2019-1101-TOC

Project Description: The proposed project includes the construction, use, and maintenance of a new, 57-unit, 72-foot tall mixed-use building with 1,308 square feet of ground floor retail. The project will set aside six (6) of the 57 units for Extremely Low Income Households. The unit mix will be comprised of 16 studio units and 41 one-bedroom units. The project proposes to provide 45 automobile parking spaces (five for commercial uses and 40 for residential uses) of 68 bicycle parking spaces, including 60 long-term spaces and eight (8) short-term bicycle spaces. A total of 4,645 square feet of open space will be provided throughout the proposed project. The project also includes the export of approximately 6,000 cubic yards of earth.

Corrections to list:

- 5891 Olympic – 46 apartments not 49.

- Update 5757 Wilshire project description to: Address – 5700 -5780 Wilshire Blvd; 712-752 S. Curson Ave; 5721 -5773 W. 8th Street; 715 – 761 S. Masselin
  Case: CPC-2020-3850-ZC-HD-SPR-MCUP-CDO
  Project Description – The 382,186 square-foot (8.77-acre) Project Site is currently developed with two, six-story primarily office buildings comprising 1,002,990 square feet of floor area as well as three levels of subterranean parking beneath the two buildings. The Project would retain and renovate the southern portion of the existing buildings and would demolish the northern portion of the two existing office buildings for the addition of approximately 1,923,837 square feet of new floor area consisting of 1,806,237 square feet of office uses and 117,600 square feet of ground floor commercial space. The proposed uses would be located within two new high-rise towers ranging from 35- to 41-stories with approximate heights of 535 feet to 625 feet, respectively. A portion of the existing parking would also be removed, and the remaining parking area would be renovated. In addition, the Project would provide 2,901 new vehicular parking spaces for a total of 4,650 vehicular parking spaces. Parking would be provided within seven above-grade parking levels. The Project would also redesign the existing landscaping and open space within the Project Site to include a podium, courtyards, exterior terraces, streetscapes, and walkways to connect the proposed buildings. Upon completion, the Project would result in a net lot area of 390,092 square feet (8.9 acres) within the Project Site, with a total floor area of approximately 2,340,552 square feet comprised of 2,222,952 square feet of office floor area and 117,600 square feet of commercial floor area with a floor area ratio (FAR) of 6:1.

- Update 688 Cochran Ave description to: Address: 5411 Wilshire Blvd.
  Case: CPC-2020-3143-DB-MCUP-CDO-SPR-HCA
  Project Description: The Project consists of the construction and operation of a new 42-story mixed-use tower including up to 348 dwelling units and approximately 10,176 square feet of ground floor commercial uses. Thirty-eight of the dwelling units would be restricted affordable (29 units set aside for Very Low Income households and nine units set aside for Moderate Income households). The Project would demolish approximately 38,545 square feet of existing commercial uses. The existing commercial building at 5401 Wilshire Boulevard, a contributor to the Miracle Mile Historic District, would be demolished and two of its facades would be retained and incorporated into the new building. The new building would be 39 stories over a three-level podium, with three levels of subterranean automated parking, with a maximum height of 530 feet. The Project would include a total floor area of up to 476,777 square feet.

Appendix 2 — Peak Attendance Data

TPM GA					
	Members	Paid	Unpaid	Schools	TOTAL
Jan-17	2,319	19,526	13,906	3,239	38,990
Feb-17	2,201	21,849	4,093	4,158	32,301
Mar-17	2,138	28,588	4,981	7,814	43,521
Apr-17	2,392	33,149	5,921	6,978	48,440
May-17	1,872	23,611	4,293	8,067	37,843
Jun-17	2,383	32,274	6,422	3,152	44,231
Jul-17	3,464	47,395	6,419	970	58,248
Aug-17	2,870	36,084	5,472	603	45,029
Sep-17	2,210	20,604	6,776	1,672	31,262
Oct-17	1,564	21,831	3,829	3,420	30,644
Nov-17	2,322	23,710	4,243	3,625	33,900
Dec-17	2,197	29,217	4,609	1,381	37,404
Jan-18	2,653	19,284	21,026	3,019	45,982
Feb-18	2,311	21,556	4,603	2,850	31,320
Mar-18	2,737	30,674	6,165	5,671	45,247
Apr-18	2,552	25,493	7,911	6,967	42,923
May-18	1,861	20,008	4,430	7,213	33,512
Jun-18	3,140	27,193	8,497	2,493	41,323
Jul-18	3,467	33,251	7,980	604	45,302
Aug-18	3,261	25,668	7,302	653	36,884
Sep-18	2,398	15,940	5,985	1,253	25,576
Oct-18	1,525	14,946	3,126	2,754	22,351
Nov-18	2,315	16,382	3,739	2,707	25,143
Dec-18	3,036	21,680	4,038	1,911	30,665
Jan-19	2,774	18,482	3,925	3,559	28,740
Feb-19	2,175	16,584	8,458	4,143	31,360
Mar-19	2,585	23,510	5,422	6,526	38,043
Apr-19	2,639	23,259	6,281	5,079	37,258
May-19	2,092	17,347	3,997	7,654	31,090
Jun-19	3,491	26,719	7,738	1,976	39,924
Jul-19	4,185	35,038	8,807	1,694	49,724
Aug-19	3,773	28,251	7,084	483	39,591
Sep-19	2,844	15,449	5,741	943	24,977
Oct-19	1,603	15,285	3,659	2,564	23,111
Nov-19	2,382	17,967	4,206	4,161	28,716
Dec-19	2,646	22,732	4,357	2,131	31,866
Jan-20	2,400	17,191	12,924	2,063	34,578
Feb-20	2,350	17,712	4,127	3,734	27,923
Mar-20	417	5,614	1,895	1,157	9,083
Apr-20	-	-	-	-	-
May-20	-	-	-	-	-
Jun-20	-	-	-	-	-
Jul-20	-	-	-	-	-
Aug-20	-	-	-	-	-
Sep-20	-	-	-	-	-
Oct-20	-	-	-	-	-
Nov-20	-	-	-	-	-
Dec-20	-	-	-	-	-
Jan-21	-	-	-	-	-
Feb-21	-	-	-	-	-
Mar-21	-	-	-	-	-
Apr-21	1,779	2,487	840	7	5,113
May-21	2,713	9,232	3,798	74	15,817
Jun-21	2,038	16,263	4,908	154	23,363
Jul-21	1,947	24,688	6,303	311	33,249
Aug-21	1,349	17,084	4,757	161	23,351
Sep-21	1,402	12,159	4,167	179	17,907
Oct-21	1,337	13,929	4,065	686	20,017
Nov-21	1,088	13,632	3,690	523	18,933
Dec-21	1,021	14,928	2,913	642	19,504

Usage Time	Ticket Type	Type of Visitor	Financial Reporting Group	Zip Code
7/26/17 9:31 AM	STUDENT	PAGE STUDENT	PAID	92656
7/26/17 9:40 AM	STUDENT	PAGE STUDENT	PAID	21207
7/26/17 9:51 AM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 9:56 AM	ADULT	PAGE TEACHER	SCHOOLS	95630
7/26/17 9:46 AM	SENIOR	PAGE SENIOR	PAID	333
7/26/17 9:55 AM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 9:55 AM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 9:56 AM	SENIOR	PAGE SENIOR	PAID	95630
7/26/17 9:56 AM	SENIOR	PAGE SENIOR	PAID	95630
7/26/17 9:40 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	21207
7/26/17 9:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 9:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 9:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
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7/26/17 9:31 AM	ADULT	PAGE ADULT	PAID	92656
7/26/17 9:32 AM	ADULT	PAGE ADULT	PAID	40342
7/26/17 9:32 AM	ADULT	PAGE ADULT	PAID	40342
7/26/17 9:34 AM	ADULT	PAGE ADULT	PAID	999CN
7/26/17 9:40 AM	ADULT	PAGE ADULT	PAID	21207
7/26/17 9:40 AM	ADULT	PAGE ADULT	PAID	21207
7/26/17 9:44 AM	ADULT	PAGE ADULT	PAID	0
7/26/17 9:45 AM	ADULT	PAGE ADULT	PAID	0
7/26/17 9:51 AM	ADULT	PAGE ADULT	PAID	0
7/26/17 9:51 AM	ADULT	PAGE ADULT	PAID	0
7/26/17 9:53 AM	ADULT	PAGE ADULT	PAID	68104
7/26/17 9:56 AM	ADULT	PAGE ADULT	PAID	95630
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7/26/17 9:44 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90212
7/26/17 10:34 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	91352
7/26/17 10:45 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90048
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7/26/17 10:30 AM	Family Membership	MEMBERSHIP	MEMBERS	98383
7/26/17 10:07 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90066
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7/26/17 10:23 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90068
7/26/17 10:24 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90068
7/26/17 10:13 AM	Family Membership	MEMBERSHIP	MEMBERS	90230
7/26/17 10:42 AM	Family Membership	MEMBERSHIP	MEMBERS	91390
7/26/17 10:49 AM	Family Membership	MEMBERSHIP	MEMBERS	90280
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7/26/17 10:47 AM	ADULT	PAGE ADULT	PAID	8003
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7/26/17 10:54 AM	ADULT	PAGE ADULT	PAID	63110
7/26/17 10:58 AM	ADULT	PAGE ADULT	PAID	78505
7/26/17 10:58 AM	ADULT	PAGE ADULT	PAID	99eU'
7/26/17 10:58 AM	ADULT	PAGE ADULT	PAID	99eU'
7/26/17 10:59 AM	ADULT	PAGE ADULT	PAID	22
7/26/17 10:59 AM	ADULT	PAGE ADULT	PAID	22
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7/26/17 10:55 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93953
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7/26/17 10:59 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 10:03 AM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 10:03 AM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 10:34 AM	SENIOR	PAGE SENIOR	PAID	999fr
7/26/17 10:40 AM	SENIOR	PAGE SENIOR	PAID	0
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7/26/17 10:51 AM	SENIOR	PAGE SENIOR	PAID	91505
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7/26/17 10:58 AM	SENIOR	PAGE SENIOR	PAID	93312
7/26/17 10:06 AM	ADULT	PAGE TEACHER	SCHOOLS	95762
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7/26/17 10:55 AM	ADULT	PAGE TEACHER	SCHOOLS	93953

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7/26/17 10:41 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	98271
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7/26/17 10:28 AM	STUDENT	PAGE STUDENT	PAID	0
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7/26/17 10:11 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	33180
7/26/17 10:41 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	93725
7/26/17 10:41 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	93725
7/26/17 10:41 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	93725
7/26/17 10:57 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	0
7/26/17 10:51 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91505
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7/26/17 10:11 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	33180
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7/26/17 10:18 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	22701
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7/26/17 10:41 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	93725
7/26/17 10:41 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	93725
7/26/17 10:57 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 10:57 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 10:57 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 10:06 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	95762
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7/26/17 10:37 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92571
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7/26/17 10:36 AM	EBT Adult	Page EBT Adult	UNPAID	90037
7/26/17 10:36 AM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90037
7/26/17 10:36 AM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90037
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7/26/17 10:54 AM	ADULT	PAGE GROUP ADULT	PAID	90033
7/26/17 10:20 AM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90067
7/26/17 10:20 AM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90067
7/26/17 10:20 AM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90067
7/26/17 10:20 AM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90067
7/26/17 11:02 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	60613

7/26/17 11:02 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	60613
7/26/17 11:13 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	58401
7/26/17 11:13 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	58401
7/26/17 11:19 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	92649
7/26/17 11:19 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	92649
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7/26/17 11:20 AM	TarPits Child Admission (2-Under)	PAGE ADULT WEB ND	PAID	92649
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7/26/17 11:20 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
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7/26/17 11:20 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/26/17 11:20 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/26/17 11:20 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/26/17 11:01 AM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	0
7/26/17 11:44 AM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	111
7/26/17 11:49 AM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	111
7/26/17 11:02 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	60613
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7/26/17 11:12 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	58401
7/26/17 11:12 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	58401
7/26/17 11:12 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	58401
7/26/17 11:19 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92649
7/26/17 11:19 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92649
7/26/17 11:19 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92649
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7/26/17 11:40 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	77316
7/26/17 11:47 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91355
7/26/17 11:53 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	94587
7/26/17 11:00 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91320
7/26/17 11:00 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91320
7/26/17 11:00 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91320
7/26/17 11:00 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91320
7/26/17 11:03 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	93021
7/26/17 11:24 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91201
7/26/17 11:49 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	94597
7/26/17 11:49 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	94597
7/26/17 11:18 AM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 11:18 AM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 11:18 AM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/26/17 11:18 AM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/26/17 11:01 AM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 11:04 AM	STUDENT	PAGE STUDENT	PAID	2138
7/26/17 11:10 AM	STUDENT	PAGE STUDENT	PAID	90205
7/26/17 11:10 AM	STUDENT	PAGE STUDENT	PAID	90205
7/26/17 11:14 AM	STUDENT	PAGE STUDENT	PAID	92223
7/26/17 11:14 AM	STUDENT	PAGE STUDENT	PAID	91301
7/26/17 11:17 AM	STUDENT	PAGE STUDENT	PAID	92075
7/26/17 11:17 AM	STUDENT	PAGE STUDENT	PAID	92075
7/26/17 11:17 AM	STUDENT	PAGE STUDENT	PAID	92075
7/26/17 11:25 AM	STUDENT	PAGE STUDENT	PAID	90024
7/26/17 11:27 AM	STUDENT	PAGE STUDENT	PAID	91304
7/26/17 11:28 AM	STUDENT	PAGE STUDENT	PAID	90029
7/26/17 11:28 AM	STUDENT	PAGE STUDENT	PAID	90029
7/26/17 11:29 AM	STUDENT	PAGE STUDENT	PAID	94501

7/26/17 11:37 AM	STUDENT	PAGE STUDENT	PAID	93960
7/26/17 11:41 AM	STUDENT	PAGE STUDENT	PAID	90043
7/26/17 11:51 AM	STUDENT	PAGE STUDENT	PAID	92373
7/26/17 11:53 AM	STUDENT	PAGE STUDENT	PAID	30041
7/26/17 11:53 AM	STUDENT	PAGE STUDENT	PAID	92325
7/26/17 11:57 AM	STUDENT	PAGE STUDENT	PAID	91743
7/26/17 11:57 AM	STUDENT	PAGE STUDENT	PAID	91743
7/26/17 11:57 AM	STUDENT	PAGE STUDENT	PAID	95821
7/26/17 11:57 AM	STUDENT	PAGE STUDENT	PAID	95821
7/26/17 11:03 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	93021
7/26/17 11:04 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90291
7/26/17 11:05 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/26/17 11:06 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90712
7/26/17 11:14 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/26/17 11:14 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/26/17 11:16 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90066
7/26/17 11:51 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90044
7/26/17 11:00 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91320
7/26/17 11:00 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91320
7/26/17 11:03 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93021
7/26/17 11:24 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91201
7/26/17 11:24 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	55447
7/26/17 11:24 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	55447
7/26/17 11:43 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91307
7/26/17 11:49 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	94597
7/26/17 11:51 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90044
7/26/17 11:14 AM	ADULT	PAGE TEACHER	SCHOOLS	92223
7/26/17 11:16 AM	ADULT	PAGE TEACHER	SCHOOLS	90066
7/26/17 11:20 AM	ADULT	PAGE TEACHER	SCHOOLS	93063
7/26/17 11:55 AM	ADULT	PAGE TEACHER	SCHOOLS	22
7/26/17 11:00 AM	SENIOR	PAGE SENIOR	PAID	22
7/26/17 11:04 AM	SENIOR	PAGE SENIOR	PAID	90291
7/26/17 11:04 AM	SENIOR	PAGE SENIOR	PAID	90291
7/26/17 11:04 AM	SENIOR	PAGE SENIOR	PAID	24421
7/26/17 11:05 AM	SENIOR	PAGE SENIOR	PAID	24421
7/26/17 11:06 AM	SENIOR	PAGE SENIOR	PAID	89702
7/26/17 11:07 AM	SENIOR	PAGE SENIOR	PAID	91730
7/26/17 11:09 AM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 11:09 AM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 11:10 AM	SENIOR	PAGE SENIOR	PAID	90205
7/26/17 11:10 AM	SENIOR	PAGE SENIOR	PAID	90205
7/26/17 11:12 AM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 11:14 AM	SENIOR	PAGE SENIOR	PAID	91301
7/26/17 11:14 AM	SENIOR	PAGE SENIOR	PAID	91301
7/26/17 11:17 AM	SENIOR	PAGE SENIOR	PAID	20147
7/26/17 11:17 AM	SENIOR	PAGE SENIOR	PAID	92075
7/26/17 11:17 AM	SENIOR	PAGE SENIOR	PAID	92075
7/26/17 11:20 AM	SENIOR	PAGE SENIOR	PAID	93063
7/26/17 11:25 AM	SENIOR	PAGE SENIOR	PAID	90024
7/26/17 11:30 AM	SENIOR	PAGE SENIOR	PAID	70117
7/26/17 11:31 AM	SENIOR	PAGE SENIOR	PAID	91761
7/26/17 11:41 AM	SENIOR	PAGE SENIOR	PAID	89119
7/26/17 11:41 AM	SENIOR	PAGE SENIOR	PAID	89119
7/26/17 11:45 AM	SENIOR	PAGE SENIOR	PAID	85704
7/26/17 11:45 AM	SENIOR	PAGE SENIOR	PAID	85704
7/26/17 11:49 AM	SENIOR	PAGE SENIOR	PAID	22
7/26/17 11:49 AM	SENIOR	PAGE SENIOR	PAID	22
7/26/17 11:51 AM	SENIOR	PAGE SENIOR	PAID	92373
7/26/17 11:51 AM	SENIOR	PAGE SENIOR	PAID	92373
7/26/17 11:53 AM	SENIOR	PAGE SENIOR	PAID	92404
7/26/17 11:54 AM	SENIOR	PAGE SENIOR	PAID	13608
7/26/17 11:54 AM	SENIOR	PAGE SENIOR	PAID	13608

7/26/17 11:58 AM	SENIOR	PAGE SENIOR	PAID	111
7/26/17 11:01 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	29301
7/26/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	29301
7/26/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	29301
7/26/17 11:03 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91423
7/26/17 11:04 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	2138
7/26/17 11:04 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90291
7/26/17 11:04 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90291
7/26/17 11:04 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90291
7/26/17 11:05 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 11:06 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90712
7/26/17 11:06 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	89403
7/26/17 11:06 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	89403
7/26/17 11:12 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 11:14 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 11:15 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	61705
7/26/17 11:16 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 11:16 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92075
7/26/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92075
7/26/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92075
7/26/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92075
7/26/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92075
7/26/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92075
7/26/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90036
7/26/17 11:20 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93063
7/26/17 11:27 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91304
7/26/17 11:27 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	75218
7/26/17 11:28 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90049
7/26/17 11:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	29651
7/26/17 11:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	29651
7/26/17 11:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	29651
7/26/17 11:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91761
7/26/17 11:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91761
7/26/17 11:32 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91325
7/26/17 11:35 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92056
7/26/17 11:35 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92056
7/26/17 11:35 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92056
7/26/17 11:37 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93960
7/26/17 11:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90026
7/26/17 11:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	89123
7/26/17 11:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	89123
7/26/17 11:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91604
7/26/17 11:40 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	77316
7/26/17 11:40 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	77316
7/26/17 11:43 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91307
7/26/17 11:43 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91307
7/26/17 11:45 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85704
7/26/17 11:47 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91355
7/26/17 11:47 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91355
7/26/17 11:48 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 11:49 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90744
7/26/17 11:49 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90744
7/26/17 11:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90044
7/26/17 11:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92020
7/26/17 11:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92020
7/26/17 11:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92020
7/26/17 11:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92373
7/26/17 11:53 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94587
7/26/17 11:53 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94587
7/26/17 11:55 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22

7/26/17 11:58 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	111
7/26/17 11:01 AM	ADULT	PAGE ADULT	PAID	90047
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7/26/17 11:01 AM	ADULT	PAGE ADULT	PAID	0
7/26/17 11:02 AM	ADULT	PAGE ADULT	PAID	29301
7/26/17 11:02 AM	ADULT	PAGE ADULT	PAID	29301
7/26/17 11:03 AM	ADULT	PAGE ADULT	PAID	54004
7/26/17 11:03 AM	ADULT	PAGE ADULT	PAID	54004
7/26/17 11:03 AM	ADULT	PAGE ADULT	PAID	54004
7/26/17 11:03 AM	ADULT	PAGE ADULT	PAID	91423
7/26/17 11:04 AM	ADULT	PAGE ADULT	PAID	90291
7/26/17 11:04 AM	ADULT	PAGE ADULT	PAID	90291
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7/26/17 11:05 AM	ADULT	PAGE ADULT	PAID	0
7/26/17 11:06 AM	ADULT	PAGE ADULT	PAID	90712
7/26/17 11:06 AM	ADULT	PAGE ADULT	PAID	89403
7/26/17 11:07 AM	ADULT	PAGE ADULT	PAID	91730
7/26/17 11:13 AM	ADULT	PAGE ADULT	PAID	999CA
7/26/17 11:13 AM	ADULT	PAGE ADULT	PAID	999CA
7/26/17 11:14 AM	ADULT	PAGE ADULT	PAID	92223
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7/26/17 11:15 AM	ADULT	PAGE ADULT	PAID	61705
7/26/17 11:15 AM	ADULT	PAGE ADULT	PAID	61705
7/26/17 11:16 AM	ADULT	PAGE ADULT	PAID	0
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7/26/17 11:17 AM	ADULT	PAGE ADULT	PAID	92075
7/26/17 11:17 AM	ADULT	PAGE ADULT	PAID	92075
7/26/17 11:23 AM	ADULT	PAGE ADULT	PAID	999AU
7/26/17 11:23 AM	ADULT	PAGE ADULT	PAID	999AU
7/26/17 11:27 AM	ADULT	PAGE ADULT	PAID	91304
7/26/17 11:27 AM	ADULT	PAGE ADULT	PAID	75218
7/26/17 11:27 AM	ADULT	PAGE ADULT	PAID	75218
7/26/17 11:28 AM	ADULT	PAGE ADULT	PAID	90049
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7/26/17 11:29 AM	ADULT	PAGE ADULT	PAID	94501
7/26/17 11:30 AM	ADULT	PAGE ADULT	PAID	19041
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7/26/17 11:30 AM	ADULT	PAGE ADULT	PAID	70117
7/26/17 11:31 AM	ADULT	PAGE ADULT	PAID	29651
7/26/17 11:31 AM	ADULT	PAGE ADULT	PAID	29651
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7/26/17 11:32 AM	ADULT	PAGE ADULT	PAID	91325
7/26/17 11:35 AM	ADULT	PAGE ADULT	PAID	92056
7/26/17 11:35 AM	ADULT	PAGE ADULT	PAID	92056
7/26/17 11:35 AM	ADULT	PAGE ADULT	PAID	2301
7/26/17 11:37 AM	ADULT	PAGE ADULT	PAID	93960
7/26/17 11:37 AM	ADULT	PAGE ADULT	PAID	93960
7/26/17 11:39 AM	ADULT	PAGE ADULT	PAID	90026
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7/26/17 11:39 AM	ADULT	PAGE ADULT	PAID	89123
7/26/17 11:39 AM	ADULT	PAGE ADULT	PAID	91604
7/26/17 11:43 AM	ADULT	PAGE ADULT	PAID	91307
7/26/17 11:45 AM	ADULT	PAGE ADULT	PAID	89148
7/26/17 11:45 AM	ADULT	PAGE ADULT	PAID	89148
7/26/17 11:48 AM	ADULT	PAGE ADULT	PAID	22
7/26/17 11:49 AM	ADULT	PAGE ADULT	PAID	90744
7/26/17 11:49 AM	ADULT	PAGE ADULT	PAID	90744
7/26/17 11:49 AM	ADULT	PAGE ADULT	PAID	999au
7/26/17 11:51 AM	ADULT	PAGE ADULT	PAID	13350

7/26/17 11:51 AM	ADULT	PAGE ADULT	PAID	13350
7/26/17 11:51 AM	ADULT	PAGE ADULT	PAID	13350
7/26/17 11:51 AM	ADULT	PAGE ADULT	PAID	92020
7/26/17 11:51 AM	ADULT	PAGE ADULT	PAID	92020
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7/26/17 11:53 AM	ADULT	PAGE ADULT	PAID	30041
7/26/17 11:53 AM	ADULT	PAGE ADULT	PAID	94587
7/26/17 11:53 AM	ADULT	PAGE ADULT	PAID	94587
7/26/17 11:57 AM	ADULT	PAGE ADULT	PAID	95821
7/26/17 11:58 AM	ADULT	PAGE ADULT	PAID	80526
7/26/17 11:58 AM	ADULT	PAGE ADULT	PAID	80526
7/26/17 11:52 AM	Complimentary Admission	NHM/PAGE COMP TICKET	UNPAID	90007
7/26/17 11:36 AM	Family Membership	MEMBERSHIP	MEMBERS	90036
7/26/17 11:24 AM	Dual Membership Plus	MEMBERSHIP	MEMBERS	90212
7/26/17 11:14 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90048
7/26/17 11:24 AM	Dual Membership Plus	MEMBERSHIP	MEMBERS	90212
7/26/17 11:46 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90045
7/26/17 12:55 PM	Family Membership Plus	MEMBERSHIP	MEMBERS	
7/26/17 12:37 PM	Family Membership	MEMBERSHIP	MEMBERS	90025
7/26/17 12:58 PM	Family Membership	MEMBERSHIP	MEMBERS	90601
7/26/17 12:05 PM	Individual	MEMBERSHIP	MEMBERS	90712
7/26/17 12:19 PM	Dual Membership	MEMBERSHIP	MEMBERS	90034
7/26/17 12:07 PM	Family Membership Plus	MEMBERSHIP	MEMBERS	92399
7/26/17 12:04 PM	ADULT	PAGE ADULT	PAID	999eu
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7/26/17 12:05 PM	ADULT	PAGE ADULT	PAID	87111
7/26/17 12:05 PM	ADULT	PAGE ADULT	PAID	87111
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7/26/17 12:06 PM	ADULT	PAGE ADULT	PAID	90265
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7/26/17 12:21 PM	ADULT	PAGE ADULT	PAID	92307
7/26/17 12:21 PM	ADULT	PAGE ADULT	PAID	92307
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7/26/17 12:28 PM	ADULT	PAGE ADULT	PAID	93015
7/26/17 12:28 PM	ADULT	PAGE ADULT	PAID	93015
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7/26/17 12:28 PM	ADULT	PAGE ADULT	PAID	22
7/26/17 12:29 PM	ADULT	PAGE ADULT	PAID	90064

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7/26/17 12:32 PM	ADULT	PAGE ADULT	PAID	92354
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7/26/17 12:35 PM	ADULT	PAGE ADULT	PAID	999Ch
7/26/17 12:35 PM	ADULT	PAGE ADULT	PAID	999Ch
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7/26/17 12:37 PM	ADULT	PAGE ADULT	PAID	222
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7/26/17 12:38 PM	ADULT	PAGE ADULT	PAID	222
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7/26/17 12:41 PM	ADULT	PAGE ADULT	PAID	92129
7/26/17 12:42 PM	ADULT	PAGE ADULT	PAID	92130
7/26/17 12:42 PM	ADULT	PAGE ADULT	PAID	92130
7/26/17 12:42 PM	ADULT	PAGE ADULT	PAID	90403
7/26/17 12:42 PM	ADULT	PAGE ADULT	PAID	999UK
7/26/17 12:42 PM	ADULT	PAGE ADULT	PAID	999UK
7/26/17 12:43 PM	ADULT	PAGE ADULT	PAID	999Eu
7/26/17 12:43 PM	ADULT	PAGE ADULT	PAID	999Eu
7/26/17 12:43 PM	ADULT	PAGE ADULT	PAID	999Eu
7/26/17 12:44 PM	ADULT	PAGE ADULT	PAID	0
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7/26/17 12:46 PM	ADULT	PAGE ADULT	PAID	999uk
7/26/17 12:47 PM	ADULT	PAGE ADULT	PAID	222
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7/26/17 12:48 PM	ADULT	PAGE ADULT	PAID	0
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7/26/17 12:50 PM	ADULT	PAGE ADULT	PAID	75300
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7/26/17 12:51 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 12:51 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 12:51 PM	ADULT	PAGE ADULT	PAID	76167
7/26/17 12:51 PM	ADULT	PAGE ADULT	PAID	76167
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7/26/17 12:53 PM	ADULT	PAGE ADULT	PAID	91423
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7/26/17 12:56 PM	ADULT	PAGE ADULT	PAID	91602
7/26/17 12:57 PM	ADULT	PAGE ADULT	PAID	999ko
7/26/17 12:58 PM	ADULT	PAGE ADULT	PAID	999ko
7/26/17 12:59 PM	ADULT	PAGE ADULT	PAID	0
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7/26/17 12:00 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91602
7/26/17 12:00 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91602
7/26/17 12:00 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 12:00 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 12:04 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 12:04 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
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7/26/17 12:06 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90265
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7/26/17 12:11 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98002
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7/26/17 12:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
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7/26/17 12:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 12:13 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90066
7/26/17 12:13 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90045
7/26/17 12:13 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90045
7/26/17 12:13 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90045
7/26/17 12:13 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90045
7/26/17 12:21 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92307
7/26/17 12:21 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92307
7/26/17 12:28 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 12:28 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 12:30 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 12:30 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 12:30 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 12:35 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	111
7/26/17 12:37 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/26/17 12:37 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91789
7/26/17 12:38 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
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7/26/17 12:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	86401
7/26/17 12:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	86401
7/26/17 12:41 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92129
7/26/17 12:41 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92129
7/26/17 12:41 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92129
7/26/17 12:42 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92130
7/26/17 12:42 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92130
7/26/17 12:42 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92130
7/26/17 12:42 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90403
7/26/17 12:43 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999Eu
7/26/17 12:44 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91790
7/26/17 12:44 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91790
7/26/17 12:44 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90563
7/26/17 12:44 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90563
7/26/17 12:46 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999uk
7/26/17 12:46 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999uk
7/26/17 12:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/26/17 12:48 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 12:48 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 12:48 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
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7/26/17 12:50 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	75300
7/26/17 12:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 12:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 12:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	76167
7/26/17 12:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	76167
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7/26/17 12:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	76167
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7/26/17 12:58 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999ko
7/26/17 12:58 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999ko

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7/26/17 12:59 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
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7/26/17 12:00 PM	SENIOR	PAGE SENIOR	PAID	91602
7/26/17 12:02 PM	SENIOR	PAGE SENIOR	PAID	92509
7/26/17 12:03 PM	SENIOR	PAGE SENIOR	PAID	35068
7/26/17 12:04 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 12:04 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 12:06 PM	SENIOR	PAGE SENIOR	PAID	90024
7/26/17 12:18 PM	SENIOR	PAGE SENIOR	PAID	98036
7/26/17 12:18 PM	SENIOR	PAGE SENIOR	PAID	98036
7/26/17 12:28 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 12:28 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 12:32 PM	SENIOR	PAGE SENIOR	PAID	11
7/26/17 12:35 PM	SENIOR	PAGE SENIOR	PAID	93036
7/26/17 12:35 PM	SENIOR	PAGE SENIOR	PAID	111
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7/26/17 12:40 PM	SENIOR	PAGE SENIOR	PAID	86401
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7/26/17 12:56 PM	SENIOR	PAGE SENIOR	PAID	91602
7/26/17 12:00 PM	ADULT	PAGE TEACHER	SCHOOLS	22
7/26/17 12:02 PM	ADULT	PAGE TEACHER	SCHOOLS	92509
7/26/17 12:06 PM	ADULT	PAGE TEACHER	SCHOOLS	90024
7/26/17 12:12 PM	ADULT	PAGE TEACHER	SCHOOLS	0
7/26/17 12:13 PM	ADULT	PAGE TEACHER	SCHOOLS	90045
7/26/17 12:28 PM	ADULT	PAGE TEACHER	SCHOOLS	22
7/26/17 12:39 PM	ADULT	PAGE TEACHER	SCHOOLS	0
7/26/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	63129
7/26/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	63129
7/26/17 12:15 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92117
7/26/17 12:15 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92117
7/26/17 12:29 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	98370
7/26/17 12:29 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	98370
7/26/17 12:13 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90066
7/26/17 12:28 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/26/17 12:43 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	999Eu
7/26/17 12:46 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	999uk
7/26/17 12:02 PM	STUDENT	PAGE STUDENT	PAID	90065
7/26/17 12:04 PM	STUDENT	PAGE STUDENT	PAID	35068
7/26/17 12:04 PM	STUDENT	PAGE STUDENT	PAID	0
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7/26/17 12:35 PM	STUDENT	PAGE STUDENT	PAID	999Ch
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7/26/17 12:35 PM	STUDENT	PAGE STUDENT	PAID	111
7/26/17 12:36 PM	STUDENT	PAGE STUDENT	PAID	1111
7/26/17 12:40 PM	STUDENT	PAGE STUDENT	PAID	86401
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7/26/17 12:42 PM	STUDENT	PAGE STUDENT	PAID	999UK
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7/26/17 12:42 PM	STUDENT	PAGE STUDENT	PAID	999UK
7/26/17 12:44 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 12:45 PM	STUDENT	PAGE STUDENT	PAID	10305
7/26/17 12:45 PM	STUDENT	PAGE STUDENT	PAID	10305

7/26/17 12:45 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 12:18 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/26/17 12:18 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/26/17 12:19 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/26/17 12:19 PM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 12:19 PM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 12:40 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	111
7/26/17 12:40 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	111
7/26/17 12:19 PM	Tar Pits Admission Child 2-Under	GC TP GROUP CH 2 UNDER	PAID	
7/26/17 12:04 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	63129
7/26/17 12:04 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	63129
7/26/17 12:29 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	98370
7/26/17 12:29 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	98370
7/26/17 12:29 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	98370
7/26/17 12:20 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	0
7/26/17 12:30 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	22
7/26/17 12:39 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	0
7/26/17 12:40 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	111
7/26/17 12:40 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	111
7/26/17 12:37 PM	EBT Adult	Page EBT Adult	UNPAID	90045
7/26/17 12:37 PM	EBT Adult	Page EBT Adult	UNPAID	90045
7/26/17 12:49 PM	EBT Adult	Page EBT Adult	UNPAID	90026
7/26/17 12:37 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90045
7/26/17 12:37 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90045
7/26/17 12:49 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90026
7/26/17 12:49 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90026
7/26/17 12:08 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	85715
7/26/17 12:20 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92691
7/26/17 12:20 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92691
7/26/17 12:48 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	93012
7/26/17 12:03 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	111
7/26/17 12:08 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	85715
7/26/17 12:20 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	92691
7/26/17 12:48 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	93012
7/26/17 12:08 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	85715
7/26/17 12:20 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	92691
7/26/17 12:20 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	92691
7/26/17 12:48 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	93012
7/26/17 12:20 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	92691
7/26/17 12:55 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90604
7/26/17 12:55 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90604
7/26/17 12:55 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90604
7/26/17 1:19 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	92083
7/26/17 1:19 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	92083
7/26/17 1:10 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	91748
7/26/17 1:10 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	91748
7/26/17 1:16 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	0
7/26/17 1:46 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	0
7/26/17 1:51 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	0
7/26/17 1:15 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	91024
7/26/17 1:19 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92083
7/26/17 1:08 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90003
7/26/17 1:08 PM	EBT Adult	Page EBT Adult	UNPAID	90003
7/26/17 1:17 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	91024
7/26/17 1:28 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 1:28 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 1:28 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 1:02 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	0
7/26/17 1:02 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	0
7/26/17 1:20 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	34210
7/26/17 1:21 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	0
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7/26/17 1:55 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92309
7/26/17 1:21 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	33180
7/26/17 1:21 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	33180
7/26/17 1:34 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	92801
7/26/17 1:59 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	4554
7/26/17 1:26 PM	Tar Pits Admission Senior	GC TP GROUP SENIOR	PAID	
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7/26/17 1:28 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	222
7/26/17 1:27 PM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 1:27 PM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 1:35 PM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 1:36 PM	Tar Pits Admission Child 3-12	GC TP GROUP CH 3-12	PAID	
7/26/17 1:35 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/26/17 1:35 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
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7/26/17 1:09 PM	STUDENT	PAGE STUDENT	PAID	94530
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7/26/17 1:19 PM	STUDENT	PAGE STUDENT	PAID	76502
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7/26/17 1:48 PM	STUDENT	PAGE STUDENT	PAID	95949
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7/26/17 1:58 PM	STUDENT	PAGE STUDENT	PAID	999Eu
7/26/17 1:59 PM	STUDENT	PAGE STUDENT	PAID	37931
7/26/17 1:04 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	92840
7/26/17 1:49 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	1985
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7/26/17 1:24 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	10012
7/26/17 1:34 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92801
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7/26/17 1:38 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90291
7/26/17 1:59 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	4554
7/26/17 1:59 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	4554
7/26/17 1:12 PM	ADULT	PAGE TEACHER	SCHOOLS	32578

7/26/17 1:12 PM	ADULT	PAGE TEACHER	SCHOOLS	32578
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7/26/17 1:55 PM	ADULT	PAGE TEACHER	SCHOOLS	92309
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7/26/17 1:02 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 1:05 PM	SENIOR	PAGE SENIOR	PAID	91748
7/26/17 1:05 PM	SENIOR	PAGE SENIOR	PAID	91748
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7/26/17 1:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90043
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7/26/17 2:19 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	73099
7/26/17 2:21 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	10580
7/26/17 2:22 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94535
7/26/17 2:23 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90731
7/26/17 2:24 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 2:28 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92614
7/26/17 2:28 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92614
7/26/17 2:32 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	76131
7/26/17 2:32 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98011
7/26/17 2:32 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98011
7/26/17 2:42 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91744
7/26/17 2:48 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	20007
7/26/17 2:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 2:51 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 2:56 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92672
7/26/17 2:58 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91367
7/26/17 2:59 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91325
7/26/17 2:59 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91325
7/26/17 2:04 PM	SENIOR	PAGE SENIOR	PAID	95624
7/26/17 2:04 PM	SENIOR	PAGE SENIOR	PAID	95624

7/26/17 2:10 PM	SENIOR	PAGE SENIOR	PAID	96034
7/26/17 2:10 PM	SENIOR	PAGE SENIOR	PAID	96034
7/26/17 2:12 PM	SENIOR	PAGE SENIOR	PAID	91773
7/26/17 2:12 PM	SENIOR	PAGE SENIOR	PAID	91773
7/26/17 2:43 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 2:47 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 2:47 PM	SENIOR	PAGE SENIOR	PAID	0
7/26/17 2:59 PM	SENIOR	PAGE SENIOR	PAID	91325
7/26/17 2:15 PM	ADULT	PAGE TEACHER	SCHOOLS	90803
7/26/17 2:58 PM	ADULT	PAGE TEACHER	SCHOOLS	91367
7/26/17 2:58 PM	ADULT	PAGE TEACHER	SCHOOLS	91367
7/26/17 2:12 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90007
7/26/17 2:39 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	2461
7/26/17 2:39 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	2461
7/26/17 2:03 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90048
7/26/17 2:32 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	76131
7/26/17 2:46 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/26/17 2:58 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91367
7/26/17 2:58 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91367
7/26/17 2:59 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91325
7/26/17 2:04 PM	STUDENT	PAGE STUDENT	PAID	22
7/26/17 2:04 PM	STUDENT	PAGE STUDENT	PAID	92129
7/26/17 2:06 PM	STUDENT	PAGE STUDENT	PAID	999mx
7/26/17 2:07 PM	STUDENT	PAGE STUDENT	PAID	999mx
7/26/17 2:12 PM	STUDENT	PAGE STUDENT	PAID	90007
7/26/17 2:16 PM	STUDENT	PAGE STUDENT	PAID	46373
7/26/17 2:19 PM	STUDENT	PAGE STUDENT	PAID	73099
7/26/17 2:21 PM	STUDENT	PAGE STUDENT	PAID	999uk
7/26/17 2:21 PM	STUDENT	PAGE STUDENT	PAID	999uk
7/26/17 2:21 PM	STUDENT	PAGE STUDENT	PAID	999uk
7/26/17 2:24 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 2:31 PM	STUDENT	PAGE STUDENT	PAID	999FR
7/26/17 2:31 PM	STUDENT	PAGE STUDENT	PAID	999FR
7/26/17 2:35 PM	STUDENT	PAGE STUDENT	PAID	90038
7/26/17 2:42 PM	STUDENT	PAGE STUDENT	PAID	91744
7/26/17 2:42 PM	STUDENT	PAGE STUDENT	PAID	91744
7/26/17 2:42 PM	STUDENT	PAGE STUDENT	PAID	91744
7/26/17 2:43 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 2:44 PM	STUDENT	PAGE STUDENT	PAID	94583
7/26/17 2:47 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 2:50 PM	STUDENT	PAGE STUDENT	PAID	90247
7/26/17 2:50 PM	STUDENT	PAGE STUDENT	PAID	90247
7/26/17 2:50 PM	STUDENT	PAGE STUDENT	PAID	90247
7/26/17 2:50 PM	STUDENT	PAGE STUDENT	PAID	90247
7/26/17 2:50 PM	STUDENT	PAGE STUDENT	PAID	90247
7/26/17 2:50 PM	STUDENT	PAGE STUDENT	PAID	90247
7/26/17 2:51 PM	STUDENT	PAGE STUDENT	PAID	91706
7/26/17 2:51 PM	STUDENT	PAGE STUDENT	PAID	91706
7/26/17 2:51 PM	STUDENT	PAGE STUDENT	PAID	91706
7/26/17 2:51 PM	STUDENT	PAGE STUDENT	PAID	85764
7/26/17 2:39 PM	ADULT	PAGE COMBO ADULT	PAID	999mx
7/26/17 2:39 PM	ADULT	PAGE COMBO ADULT	PAID	999mx
7/26/17 2:39 PM	ADULT	PAGE COMBO ADULT	PAID	999mx
7/26/17 2:03 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	95624
7/26/17 2:22 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	94535
7/26/17 2:32 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	76131
7/26/17 2:42 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91744
7/26/17 2:55 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 2:55 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 2:56 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 2:02 PM	EBT Adult	Page EBT Adult	UNPAID	92392
7/26/17 2:02 PM	EBT Adult	Page EBT Adult	UNPAID	92392

7/26/17 2:47 PM	EBT Adult	Page EBT Adult	UNPAID	90011
7/26/17 2:47 PM	EBT Adult	Page EBT Adult	UNPAID	90011
7/26/17 2:02 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	92392
7/26/17 2:02 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	92392
7/26/17 2:02 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	92392
7/26/17 2:02 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	92392
7/26/17 2:47 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90011
7/26/17 2:47 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90011
7/26/17 2:20 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	19118
7/26/17 2:20 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	19118
7/26/17 2:20 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	19118
7/26/17 2:40 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	99709
7/26/17 3:04 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 3:04 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/26/17 3:28 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	64034
7/26/17 3:28 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	64034
7/26/17 3:12 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92562
7/26/17 3:14 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	13203
7/26/17 3:28 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	64034
7/26/17 3:28 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	64034
7/26/17 3:36 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	0
7/26/17 3:01 PM	STUDENT	PAGE STUDENT	PAID	78133
7/26/17 3:01 PM	STUDENT	PAGE STUDENT	PAID	78133
7/26/17 3:01 PM	STUDENT	PAGE STUDENT	PAID	78133
7/26/17 3:08 PM	STUDENT	PAGE STUDENT	PAID	999ch
7/26/17 3:08 PM	STUDENT	PAGE STUDENT	PAID	999ch
7/26/17 3:08 PM	STUDENT	PAGE STUDENT	PAID	999ch
7/26/17 3:11 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 3:12 PM	STUDENT	PAGE STUDENT	PAID	92562
7/26/17 3:21 PM	STUDENT	PAGE STUDENT	PAID	94618
7/26/17 3:21 PM	STUDENT	PAGE STUDENT	PAID	94618
7/26/17 3:21 PM	STUDENT	PAGE STUDENT	PAID	999br
7/26/17 3:25 PM	STUDENT	PAGE STUDENT	PAID	999CH
7/26/17 3:26 PM	STUDENT	PAGE STUDENT	PAID	91732
7/26/17 3:26 PM	STUDENT	PAGE STUDENT	PAID	91732
7/26/17 3:34 PM	STUDENT	PAGE STUDENT	PAID	77377
7/26/17 3:34 PM	STUDENT	PAGE STUDENT	PAID	77377
7/26/17 3:38 PM	STUDENT	PAGE STUDENT	PAID	308
7/26/17 3:40 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 3:40 PM	STUDENT	PAGE STUDENT	PAID	0
7/26/17 3:44 PM	STUDENT	PAGE STUDENT	PAID	55424
7/26/17 3:44 PM	STUDENT	PAGE STUDENT	PAID	70015
7/26/17 3:58 PM	STUDENT	PAGE STUDENT	PAID	999AS
7/26/17 3:58 PM	STUDENT	PAGE STUDENT	PAID	999AS
7/26/17 3:58 PM	STUDENT	PAGE STUDENT	PAID	999AS
7/26/17 3:11 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	92831
7/26/17 3:16 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	33132
7/26/17 3:36 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/26/17 3:36 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 3:36 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 3:40 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90034
7/26/17 3:09 PM	SENIOR	PAGE SENIOR	PAID	999cn
7/26/17 3:09 PM	SENIOR	PAGE SENIOR	PAID	999cn
7/26/17 3:27 PM	SENIOR	PAGE SENIOR	PAID	89134
7/26/17 3:27 PM	SENIOR	PAGE SENIOR	PAID	89134
7/26/17 3:38 PM	SENIOR	PAGE SENIOR	PAID	308
7/26/17 3:01 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	78133
7/26/17 3:08 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999ch
7/26/17 3:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92562
7/26/17 3:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92562
7/26/17 3:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92562
7/26/17 3:15 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	75214

7/26/17 3:15 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	75214
7/26/17 3:16 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	33132
7/26/17 3:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/26/17 3:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/26/17 3:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/26/17 3:18 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	84009
7/26/17 3:18 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	84009
7/26/17 3:18 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	84009
7/26/17 3:21 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999br
7/26/17 3:26 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	66062
7/26/17 3:28 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 3:28 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/26/17 3:31 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	32433
7/26/17 3:34 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	77377
7/26/17 3:34 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	77377
7/26/17 3:55 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90713
7/26/17 3:55 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90713
7/26/17 3:55 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90713
7/26/17 3:55 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90713
7/26/17 3:55 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90713
7/26/17 3:01 PM	ADULT	PAGE ADULT	PAID	78133
7/26/17 3:04 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:04 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:04 PM	ADULT	PAGE ADULT	PAID	22
7/26/17 3:05 PM	ADULT	PAGE ADULT	PAID	90019
7/26/17 3:05 PM	ADULT	PAGE ADULT	PAID	90019
7/26/17 3:06 PM	ADULT	PAGE ADULT	PAID	94969
7/26/17 3:06 PM	ADULT	PAGE ADULT	PAID	94969
7/26/17 3:10 PM	ADULT	PAGE ADULT	PAID	7601
7/26/17 3:10 PM	ADULT	PAGE ADULT	PAID	7601
7/26/17 3:11 PM	ADULT	PAGE ADULT	PAID	92831
7/26/17 3:11 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:12 PM	ADULT	PAGE ADULT	PAID	92562
7/26/17 3:15 PM	ADULT	PAGE ADULT	PAID	75214
7/26/17 3:15 PM	ADULT	PAGE ADULT	PAID	75214
7/26/17 3:16 PM	ADULT	PAGE ADULT	PAID	33132
7/26/17 3:16 PM	ADULT	PAGE ADULT	PAID	33132
7/26/17 3:16 PM	ADULT	PAGE ADULT	PAID	33132
7/26/17 3:17 PM	ADULT	PAGE ADULT	PAID	222
7/26/17 3:17 PM	ADULT	PAGE ADULT	PAID	222
7/26/17 3:18 PM	ADULT	PAGE ADULT	PAID	84009
7/26/17 3:18 PM	ADULT	PAGE ADULT	PAID	84009
7/26/17 3:21 PM	ADULT	PAGE ADULT	PAID	94618
7/26/17 3:21 PM	ADULT	PAGE ADULT	PAID	94618
7/26/17 3:21 PM	ADULT	PAGE ADULT	PAID	999br
7/26/17 3:21 PM	ADULT	PAGE ADULT	PAID	999br
7/26/17 3:25 PM	ADULT	PAGE ADULT	PAID	999CH
7/26/17 3:25 PM	ADULT	PAGE ADULT	PAID	999CH
7/26/17 3:26 PM	ADULT	PAGE ADULT	PAID	66062
7/26/17 3:26 PM	ADULT	PAGE ADULT	PAID	66062
7/26/17 3:28 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:28 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:31 PM	ADULT	PAGE ADULT	PAID	32433
7/26/17 3:31 PM	ADULT	PAGE ADULT	PAID	32433
7/26/17 3:31 PM	ADULT	PAGE ADULT	PAID	32433
7/26/17 3:31 PM	ADULT	PAGE ADULT	PAID	90027
7/26/17 3:31 PM	ADULT	PAGE ADULT	PAID	90027
7/26/17 3:32 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:34 PM	ADULT	PAGE ADULT	PAID	77377
7/26/17 3:34 PM	ADULT	PAGE ADULT	PAID	77377
7/26/17 3:38 PM	ADULT	PAGE ADULT	PAID	308
7/26/17 3:40 PM	ADULT	PAGE ADULT	PAID	0

7/26/17 3:40 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:40 PM	ADULT	PAGE ADULT	PAID	0
7/26/17 3:52 PM	ADULT	PAGE ADULT	PAID	999eu
7/26/17 3:52 PM	ADULT	PAGE ADULT	PAID	999eu
7/26/17 3:55 PM	ADULT	PAGE ADULT	PAID	90713
7/26/17 3:55 PM	ADULT	PAGE ADULT	PAID	90713
7/26/17 3:58 PM	ADULT	PAGE ADULT	PAID	999AS
7/26/17 3:58 PM	ADULT	PAGE ADULT	PAID	999AS
7/26/17 4:35 PM	Adventurer Membership	RAPTOR MEMBERSHIP	MEMBERS	92657
7/26/17 4:35 PM	Patron Family Membership	RAPTOR MEMBERSHIP	MEMBERS	92657
7/26/17 4:09 PM	Family Membership	MEMBERSHIP	MEMBERS	11231
7/26/17 4:00 PM	ADULT	PAGE ADULT	PAID	999
7/26/17 4:00 PM	ADULT	PAGE ADULT	PAID	999
7/26/17 4:05 PM	ADULT	PAGE ADULT	PAID	94118
7/26/17 4:10 PM	ADULT	PAGE ADULT	PAID	22
7/26/17 4:16 PM	ADULT	PAGE ADULT	PAID	60625
7/26/17 4:18 PM	ADULT	PAGE ADULT	PAID	222
7/26/17 4:18 PM	ADULT	PAGE ADULT	PAID	222
7/26/17 4:19 PM	ADULT	PAGE ADULT	PAID	91504
7/26/17 4:19 PM	ADULT	PAGE ADULT	PAID	91504
7/26/17 4:19 PM	ADULT	PAGE ADULT	PAID	91504
7/26/17 4:29 PM	ADULT	PAGE ADULT	PAID	20290
7/26/17 4:31 PM	ADULT	PAGE ADULT	PAID	38175
7/26/17 4:32 PM	ADULT	PAGE ADULT	PAID	999cn
7/26/17 4:32 PM	ADULT	PAGE ADULT	PAID	999cn
7/26/17 4:32 PM	ADULT	PAGE ADULT	PAID	999cn
7/26/17 4:32 PM	ADULT	PAGE ADULT	PAID	999cn
7/26/17 4:41 PM	ADULT	PAGE ADULT	PAID	90041
7/26/17 4:10 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 4:10 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/26/17 4:18 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/26/17 4:18 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/26/17 4:21 PM	SENIOR	PAGE SENIOR	PAID	90274
7/26/17 4:21 PM	SENIOR	PAGE SENIOR	PAID	90274
7/26/17 4:05 PM	ADULT	PAGE TEACHER	SCHOOLS	94118
7/26/17 4:21 PM	STUDENT	PAGE STUDENT	PAID	90274
7/26/17 4:38 PM	STUDENT	PAGE STUDENT	PAID	90005
7/26/17 4:01 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	0
7/26/17 4:01 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 4:01 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 4:01 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 4:31 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 4:53 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/26/17 4:36 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90101
7/26/17 4:36 PM	EBT Adult	Page EBT Adult	UNPAID	90101
7/26/17 4:36 PM	EBT Adult	Page EBT Adult	UNPAID	90101

Usage Time	Ticket Type	Type of Visitor	Financial Reporting Group	Zip Code
7/22/17 9:34 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	60441
7/22/17 9:34 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	60441
7/22/17 9:45 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	999bz
7/22/17 9:46 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	999bz
7/22/17 9:47 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	80218
7/22/17 9:47 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	80218
7/22/17 9:31 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	30134
7/22/17 9:57 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	89098
7/22/17 9:57 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	89098
7/22/17 9:39 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	0
7/22/17 9:52 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	90405
7/22/17 9:34 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	60441
7/22/17 9:34 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	60441
7/22/17 9:35 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92374
7/22/17 9:35 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92374
7/22/17 9:36 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92374
7/22/17 9:44 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	53719
7/22/17 9:54 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90720
7/22/17 9:54 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90720
7/22/17 9:54 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90720
7/22/17 9:58 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	44805
7/22/17 9:58 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	44805
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:40 AM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90071
7/22/17 9:55 AM	TarPits Child Admission (2-Under)	PAGE ADULT WEB ND	PAID	90720
7/22/17 9:34 AM	Page Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB COMBO ND	PAID	90503
7/22/17 9:36 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	92374
7/22/17 9:54 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90720
7/22/17 9:34 AM	Page Adult Admission	PAGE ADULT WEB COMBO ND	PAID	90503
7/22/17 9:34 AM	Page Adult Admission	PAGE ADULT WEB COMBO ND	PAID	90503
7/22/17 9:53 AM	Page Adult Admission	PAGE ADULT WEB COMBO ND	PAID	76567
7/22/17 9:53 AM	Page Adult Admission	PAGE ADULT WEB COMBO ND	PAID	76567
7/22/17 9:44 AM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	53719
7/22/17 9:54 AM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90720
7/22/17 9:32 AM	STUDENT	PAGE STUDENT	PAID	95209
7/22/17 9:32 AM	STUDENT	PAGE STUDENT	PAID	95209
7/22/17 9:33 AM	STUDENT	PAGE STUDENT	PAID	86004
7/22/17 9:33 AM	STUDENT	PAGE STUDENT	PAID	86004
7/22/17 9:39 AM	STUDENT	PAGE STUDENT	PAID	75231
7/22/17 9:58 AM	STUDENT	PAGE STUDENT	PAID	91016
7/22/17 9:31 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	92025
7/22/17 9:36 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90294
7/22/17 9:48 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91101
7/22/17 9:52 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90405
7/22/17 9:39 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 9:52 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90405
7/22/17 9:52 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90405
7/22/17 9:42 AM	SENIOR	PAGE SENIOR	PAID	92037
7/22/17 9:55 AM	SENIOR	PAGE SENIOR	PAID	33404
7/22/17 9:55 AM	SENIOR	PAGE SENIOR	PAID	33404
7/22/17 9:56 AM	SENIOR	PAGE SENIOR	PAID	53904
7/22/17 9:56 AM	SENIOR	PAGE SENIOR	PAID	53904
7/22/17 9:57 AM	SENIOR	PAGE SENIOR	PAID	222
7/22/17 9:57 AM	SENIOR	PAGE SENIOR	PAID	222
7/22/17 9:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92025

7/22/17 9:36 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90294
7/22/17 9:42 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92037
7/22/17 9:42 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92037
7/22/17 9:43 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90720
7/22/17 9:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	74953
7/22/17 9:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	74953
7/22/17 9:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	74953
7/22/17 9:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	74953
7/22/17 9:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	74953
7/22/17 9:51 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	89002
7/22/17 9:58 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91016
7/22/17 9:31 AM	ADULT	PAGE ADULT	PAID	92025
7/22/17 9:31 AM	ADULT	PAGE ADULT	PAID	92025
7/22/17 9:31 AM	ADULT	PAGE ADULT	PAID	30134
7/22/17 9:32 AM	ADULT	PAGE ADULT	PAID	95209
7/22/17 9:33 AM	ADULT	PAGE ADULT	PAID	86004
7/22/17 9:36 AM	ADULT	PAGE ADULT	PAID	90294
7/22/17 9:36 AM	ADULT	PAGE ADULT	PAID	90294
7/22/17 9:37 AM	ADULT	PAGE ADULT	PAID	999JP
7/22/17 9:37 AM	ADULT	PAGE ADULT	PAID	999JP
7/22/17 9:39 AM	ADULT	PAGE ADULT	PAID	85224
7/22/17 9:39 AM	ADULT	PAGE ADULT	PAID	85224
7/22/17 9:41 AM	ADULT	PAGE ADULT	PAID	999ch
7/22/17 9:41 AM	ADULT	PAGE ADULT	PAID	999ch
7/22/17 9:43 AM	ADULT	PAGE ADULT	PAID	90720
7/22/17 9:43 AM	ADULT	PAGE ADULT	PAID	90720
7/22/17 9:43 AM	ADULT	PAGE ADULT	PAID	74953
7/22/17 9:43 AM	ADULT	PAGE ADULT	PAID	74953
7/22/17 9:47 AM	ADULT	PAGE ADULT	PAID	92071
7/22/17 9:47 AM	ADULT	PAGE ADULT	PAID	92071
7/22/17 9:48 AM	ADULT	PAGE ADULT	PAID	91101
7/22/17 9:48 AM	ADULT	PAGE ADULT	PAID	91101
7/22/17 9:51 AM	ADULT	PAGE ADULT	PAID	89002
7/22/17 9:51 AM	ADULT	PAGE ADULT	PAID	89002
7/22/17 9:57 AM	ADULT	PAGE ADULT	PAID	89098
7/22/17 9:58 AM	ADULT	PAGE ADULT	PAID	91016
7/22/17 9:58 AM	ADULT	PAGE ADULT	PAID	89103
7/22/17 9:58 AM	ADULT	PAGE ADULT	PAID	89103
7/22/17 9:50 AM	Family Membership	RAPTOR MEMBERSHIP	MEMBERS	90045
7/22/17 9:50 AM	Adventurer Membership	RAPTOR MEMBERSHIP	MEMBERS	90045
7/22/17 9:50 AM	Family Membership	RAPTOR MEMBERSHIP	MEMBERS	90045
7/22/17 9:46 AM	Family Membership	MEMBERSHIP	MEMBERS	90043
7/22/17 10:28 AM	Family Membership (2 Year)	MEMBERSHIP	MEMBERS	91782
7/22/17 10:00 AM	Family Membership	MEMBERSHIP	MEMBERS	90036
7/22/17 10:26 AM	Family Membership	MEMBERSHIP	MEMBERS	90807
7/22/17 10:49 AM	Family Membership	MEMBERSHIP	MEMBERS	91401
7/22/17 10:39 AM	Family Membership	MEMBERSHIP	MEMBERS	90004
7/22/17 10:56 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	90004
7/22/17 10:42 AM	Dual Membership	MEMBERSHIP	MEMBERS	90212
7/22/17 10:59 AM	Family Membership (14M)	MEMBERSHIP	MEMBERS	91354
7/22/17 10:42 AM	Dual Membership	MEMBERSHIP	MEMBERS	93063
7/22/17 10:49 AM	Family Membership Plus	MEMBERSHIP	MEMBERS	91301
7/22/17 10:01 AM	Family Membership	MEMBERSHIP	MEMBERS	91387
7/22/17 10:00 AM	ADULT	PAGE ADULT	PAID	92860
7/22/17 10:00 AM	ADULT	PAGE ADULT	PAID	92860
7/22/17 10:00 AM	ADULT	PAGE ADULT	PAID	92091
7/22/17 10:02 AM	ADULT	PAGE ADULT	PAID	46544
7/22/17 10:02 AM	ADULT	PAGE ADULT	PAID	46544
7/22/17 10:04 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:04 AM	ADULT	PAGE ADULT	PAID	92027
7/22/17 10:04 AM	ADULT	PAGE ADULT	PAID	92027
7/22/17 10:05 AM	ADULT	PAGE ADULT	PAID	11601
7/22/17 10:06 AM	ADULT	PAGE ADULT	PAID	91320
7/22/17 10:06 AM	ADULT	PAGE ADULT	PAID	91320
7/22/17 10:07 AM	ADULT	PAGE ADULT	PAID	29501

7/22/17 10:07 AM	ADULT	PAGE ADULT	PAID	29501
7/22/17 10:07 AM	ADULT	PAGE ADULT	PAID	95127
7/22/17 10:08 AM	ADULT	PAGE ADULT	PAID	98038
7/22/17 10:08 AM	ADULT	PAGE ADULT	PAID	98038
7/22/17 10:08 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:08 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:09 AM	ADULT	PAGE ADULT	PAID	92301
7/22/17 10:09 AM	ADULT	PAGE ADULT	PAID	92301
7/22/17 10:10 AM	ADULT	PAGE ADULT	PAID	93277
7/22/17 10:10 AM	ADULT	PAGE ADULT	PAID	95366
7/22/17 10:11 AM	ADULT	PAGE ADULT	PAID	91709
7/22/17 10:11 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:11 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:11 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:12 AM	ADULT	PAGE ADULT	PAID	91505
7/22/17 10:12 AM	ADULT	PAGE ADULT	PAID	91762
7/22/17 10:12 AM	ADULT	PAGE ADULT	PAID	91762
7/22/17 10:14 AM	ADULT	PAGE ADULT	PAID	22602
7/22/17 10:17 AM	ADULT	PAGE ADULT	PAID	90402
7/22/17 10:17 AM	ADULT	PAGE ADULT	PAID	91001
7/22/17 10:17 AM	ADULT	PAGE ADULT	PAID	62249
7/22/17 10:17 AM	ADULT	PAGE ADULT	PAID	91001
7/22/17 10:17 AM	ADULT	PAGE ADULT	PAID	62249
7/22/17 10:20 AM	ADULT	PAGE ADULT	PAID	90265
7/22/17 10:22 AM	ADULT	PAGE ADULT	PAID	90210
7/22/17 10:24 AM	ADULT	PAGE ADULT	PAID	80303
7/22/17 10:25 AM	ADULT	PAGE ADULT	PAID	999CN
7/22/17 10:25 AM	ADULT	PAGE ADULT	PAID	999CN
7/22/17 10:28 AM	ADULT	PAGE ADULT	PAID	98727
7/22/17 10:31 AM	ADULT	PAGE ADULT	PAID	999EU
7/22/17 10:31 AM	ADULT	PAGE ADULT	PAID	999EU
7/22/17 10:34 AM	ADULT	PAGE ADULT	PAID	999BR
7/22/17 10:34 AM	ADULT	PAGE ADULT	PAID	999BR
7/22/17 10:36 AM	ADULT	PAGE ADULT	PAID	91737
7/22/17 10:36 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:36 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:36 AM	ADULT	PAGE ADULT	PAID	9133
7/22/17 10:36 AM	ADULT	PAGE ADULT	PAID	9133
7/22/17 10:37 AM	ADULT	PAGE ADULT	PAID	91016
7/22/17 10:37 AM	ADULT	PAGE ADULT	PAID	91302
7/22/17 10:39 AM	ADULT	PAGE ADULT	PAID	85260
7/22/17 10:39 AM	ADULT	PAGE ADULT	PAID	92562
7/22/17 10:39 AM	ADULT	PAGE ADULT	PAID	92562
7/22/17 10:41 AM	ADULT	PAGE ADULT	PAID	92392
7/22/17 10:41 AM	ADULT	PAGE ADULT	PAID	92392
7/22/17 10:43 AM	ADULT	PAGE ADULT	PAID	94566
7/22/17 10:45 AM	ADULT	PAGE ADULT	PAID	6066
7/22/17 10:45 AM	ADULT	PAGE ADULT	PAID	6066
7/22/17 10:45 AM	ADULT	PAGE ADULT	PAID	90291
7/22/17 10:48 AM	ADULT	PAGE ADULT	PAID	92084
7/22/17 10:48 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:48 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:48 AM	ADULT	PAGE ADULT	PAID	92084
7/22/17 10:49 AM	ADULT	PAGE ADULT	PAID	44133
7/22/17 10:49 AM	ADULT	PAGE ADULT	PAID	44133
7/22/17 10:49 AM	ADULT	PAGE ADULT	PAID	44133
7/22/17 10:51 AM	ADULT	PAGE ADULT	PAID	90230
7/22/17 10:51 AM	ADULT	PAGE ADULT	PAID	90230
7/22/17 10:52 AM	ADULT	PAGE ADULT	PAID	98052
7/22/17 10:53 AM	ADULT	PAGE ADULT	PAID	90036
7/22/17 10:53 AM	ADULT	PAGE ADULT	PAID	90036
7/22/17 10:54 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 10:54 AM	ADULT	PAGE ADULT	PAID	90848
7/22/17 10:54 AM	ADULT	PAGE ADULT	PAID	92264
7/22/17 10:55 AM	ADULT	PAGE ADULT	PAID	93514

7/22/17 10:56 AM	ADULT	PAGE ADULT	PAID	93514
7/22/17 10:56 AM	ADULT	PAGE ADULT	PAID	92708
7/22/17 10:56 AM	ADULT	PAGE ADULT	PAID	92708
7/22/17 10:58 AM	ADULT	PAGE ADULT	PAID	92870
7/22/17 10:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	46544
7/22/17 10:04 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:04 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:06 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91320
7/22/17 10:06 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91320
7/22/17 10:08 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98038
7/22/17 10:08 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98038
7/22/17 10:08 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:08 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:15 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	32553
7/22/17 10:15 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	32553
7/22/17 10:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90402
7/22/17 10:20 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90265
7/22/17 10:22 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90210
7/22/17 10:28 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92886
7/22/17 10:28 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92886
7/22/17 10:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999EU
7/22/17 10:34 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999BR
7/22/17 10:35 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999BR
7/22/17 10:36 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91737
7/22/17 10:36 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91737
7/22/17 10:36 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91737
7/22/17 10:36 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85260
7/22/17 10:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85260
7/22/17 10:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92562
7/22/17 10:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92562
7/22/17 10:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85260
7/22/17 10:48 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 10:48 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92084
7/22/17 10:48 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92084
7/22/17 10:54 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92264
7/22/17 10:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93514
7/22/17 10:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93514
7/22/17 10:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93514
7/22/17 10:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93514
7/22/17 10:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92708
7/22/17 10:58 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92870
7/22/17 10:00 AM	SENIOR	PAGE SENIOR	PAID	89509
7/22/17 10:00 AM	SENIOR	PAGE SENIOR	PAID	89509
7/22/17 10:17 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 10:17 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 10:21 AM	SENIOR	PAGE SENIOR	PAID	95124
7/22/17 10:24 AM	SENIOR	PAGE SENIOR	PAID	80303
7/22/17 10:24 AM	SENIOR	PAGE SENIOR	PAID	80303
7/22/17 10:28 AM	SENIOR	PAGE SENIOR	PAID	999EU
7/22/17 10:28 AM	SENIOR	PAGE SENIOR	PAID	999EU
7/22/17 10:39 AM	SENIOR	PAGE SENIOR	PAID	85260
7/22/17 10:46 AM	SENIOR	PAGE SENIOR	PAID	92078
7/22/17 10:49 AM	SENIOR	PAGE SENIOR	PAID	44133
7/22/17 10:49 AM	SENIOR	PAGE SENIOR	PAID	44133
7/22/17 10:54 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 10:15 AM	ADULT	PAGE TEACHER	SCHOOLS	32553
7/22/17 10:42 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	53705
7/22/17 10:42 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	32827
7/22/17 10:42 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	53705
7/22/17 10:42 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	32827
7/22/17 10:52 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92679
7/22/17 10:52 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92679

7/22/17 10:17 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90402
7/22/17 10:20 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90265
7/22/17 10:51 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/22/17 10:00 AM	STUDENT	PAGE STUDENT	PAID	92860
7/22/17 10:02 AM	STUDENT	PAGE STUDENT	PAID	46544
7/22/17 10:11 AM	STUDENT	PAGE STUDENT	PAID	91709
7/22/17 10:16 AM	STUDENT	PAGE STUDENT	PAID	0
7/22/17 10:22 AM	STUDENT	PAGE STUDENT	PAID	90210
7/22/17 10:28 AM	STUDENT	PAGE STUDENT	PAID	98727
7/22/17 10:28 AM	STUDENT	PAGE STUDENT	PAID	98727
7/22/17 10:31 AM	STUDENT	PAGE STUDENT	PAID	999EU
7/22/17 10:31 AM	STUDENT	PAGE STUDENT	PAID	999EU
7/22/17 10:44 AM	STUDENT	PAGE STUDENT	PAID	94566
7/22/17 10:45 AM	STUDENT	PAGE STUDENT	PAID	6066
7/22/17 10:45 AM	STUDENT	PAGE STUDENT	PAID	6066
7/22/17 10:45 AM	STUDENT	PAGE STUDENT	PAID	6066
7/22/17 10:52 AM	STUDENT	PAGE STUDENT	PAID	98052
7/22/17 10:54 AM	STUDENT	PAGE STUDENT	PAID	92264
7/22/17 10:56 AM	STUDENT	PAGE STUDENT	PAID	92708
7/22/17 10:58 AM	STUDENT	PAGE STUDENT	PAID	90066
7/22/17 10:58 AM	STUDENT	PAGE STUDENT	PAID	92870
7/22/17 10:58 AM	STUDENT	PAGE STUDENT	PAID	222
7/22/17 10:31 AM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	89509
7/22/17 10:45 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	92563
7/22/17 10:03 AM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	30305
7/22/17 10:03 AM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	30305
7/22/17 10:03 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	30305
7/22/17 10:31 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	89509
7/22/17 10:45 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92563
7/22/17 10:45 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	92563
7/22/17 10:52 AM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90001
7/22/17 10:52 AM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90001
7/22/17 10:52 AM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90001
7/22/17 10:52 AM	EBT Adult	Page EBT Adult	UNPAID	90001
7/22/17 10:52 AM	EBT Adult	Page EBT Adult	UNPAID	90001
7/22/17 10:42 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	53705
7/22/17 10:42 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	32827
7/22/17 10:42 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	32827
7/22/17 10:52 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	92679
7/22/17 10:00 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92091
7/22/17 10:00 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92091
7/22/17 10:07 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	95127
7/22/17 10:11 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91709
7/22/17 10:16 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	0
7/22/17 10:23 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	80303
7/22/17 10:45 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	90291
7/22/17 10:48 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92084
7/22/17 10:52 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	98052
7/22/17 11:43 AM	ADULT	PAGE COMP TICKET CHILD	UNPAID	96706
7/22/17 11:18 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	90242
7/22/17 11:18 AM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	90242
7/22/17 11:01 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	93111
7/22/17 11:01 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	93111
7/22/17 11:01 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	93111
7/22/17 11:30 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	85132
7/22/17 11:45 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	90250
7/22/17 11:45 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	90250
7/22/17 11:45 AM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	90250
7/22/17 11:18 AM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	90242
7/22/17 11:03 AM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/22/17 11:03 AM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/22/17 11:24 AM	EBT Adult	Page EBT Adult	UNPAID	91724
7/22/17 11:24 AM	EBT Adult	Page EBT Adult	UNPAID	91724
7/22/17 11:13 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	93445
7/22/17 11:14 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	93445

7/22/17 11:15 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	93445
7/22/17 11:20 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	91109
7/22/17 11:21 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90660
7/22/17 11:21 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90660
7/22/17 11:24 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	91325
7/22/17 11:24 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	91325
7/22/17 11:35 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	95762
7/22/17 11:35 AM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	95762
7/22/17 11:20 AM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	0
7/22/17 11:20 AM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	0
7/22/17 11:13 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	93445
7/22/17 11:13 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	93445
7/22/17 11:13 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	93445
7/22/17 11:14 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	93445
7/22/17 11:14 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	93445
7/22/17 11:20 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	91109
7/22/17 11:21 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90660
7/22/17 11:21 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90660
7/22/17 11:24 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	91325
7/22/17 11:24 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	91325
7/22/17 11:24 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	91325
7/22/17 11:35 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	95762
7/22/17 11:36 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	95762
7/22/17 11:36 AM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	95762
7/22/17 11:02 AM	Page Adult Admission	PAGE ADULT WEB COMBO ND	PAID	4068
7/22/17 11:02 AM	Page Adult Admission	PAGE ADULT WEB COMBO ND	PAID	4068
7/22/17 11:02 AM	Page Adult Admission	PAGE ADULT WEB COMBO ND	PAID	4068
7/22/17 11:08 AM	STUDENT	PAGE STUDENT	PAID	85859
7/22/17 11:11 AM	STUDENT	PAGE STUDENT	PAID	53013
7/22/17 11:13 AM	STUDENT	PAGE STUDENT	PAID	90216
7/22/17 11:13 AM	STUDENT	PAGE STUDENT	PAID	90216
7/22/17 11:13 AM	STUDENT	PAGE STUDENT	PAID	90216
7/22/17 11:13 AM	STUDENT	PAGE STUDENT	PAID	77450
7/22/17 11:20 AM	STUDENT	PAGE STUDENT	PAID	999AU
7/22/17 11:20 AM	STUDENT	PAGE STUDENT	PAID	999AU
7/22/17 11:27 AM	STUDENT	PAGE STUDENT	PAID	91732
7/22/17 11:29 AM	STUDENT	PAGE STUDENT	PAID	63368
7/22/17 11:29 AM	STUDENT	PAGE STUDENT	PAID	63368
7/22/17 11:29 AM	STUDENT	PAGE STUDENT	PAID	63304
7/22/17 11:31 AM	STUDENT	PAGE STUDENT	PAID	90605
7/22/17 11:34 AM	STUDENT	PAGE STUDENT	PAID	11374
7/22/17 11:34 AM	STUDENT	PAGE STUDENT	PAID	11374
7/22/17 11:38 AM	STUDENT	PAGE STUDENT	PAID	2
7/22/17 11:39 AM	STUDENT	PAGE STUDENT	PAID	30064
7/22/17 11:39 AM	STUDENT	PAGE STUDENT	PAID	63303
7/22/17 11:39 AM	STUDENT	PAGE STUDENT	PAID	63303
7/22/17 11:41 AM	STUDENT	PAGE STUDENT	PAID	77433
7/22/17 11:43 AM	STUDENT	PAGE STUDENT	PAID	91739
7/22/17 11:43 AM	STUDENT	PAGE STUDENT	PAID	0
7/22/17 11:47 AM	STUDENT	PAGE STUDENT	PAID	34202
7/22/17 11:48 AM	STUDENT	PAGE STUDENT	PAID	34237
7/22/17 11:51 AM	STUDENT	PAGE STUDENT	PAID	90303
7/22/17 11:53 AM	STUDENT	PAGE STUDENT	PAID	999br
7/22/17 11:55 AM	STUDENT	PAGE STUDENT	PAID	0
7/22/17 11:55 AM	STUDENT	PAGE STUDENT	PAID	0
7/22/17 11:58 AM	STUDENT	PAGE STUDENT	PAID	58103
7/22/17 11:58 AM	STUDENT	PAGE STUDENT	PAID	94550
7/22/17 11:02 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91306
7/22/17 11:08 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90017
7/22/17 11:17 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/22/17 11:37 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	94128
7/22/17 11:40 AM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/22/17 11:01 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93111
7/22/17 11:01 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93111
7/22/17 11:08 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90017

7/22/17 11:30 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	85132
7/22/17 11:30 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	85132
7/22/17 11:38 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91356
7/22/17 11:38 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91356
7/22/17 11:45 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90250
7/22/17 11:45 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90250
7/22/17 11:48 AM	ADULT	PAGE COMP TICKET ADULT	UNPAID	34237
7/22/17 11:43 AM	ADULT	PAGE TEACHER	SCHOOLS	91739
7/22/17 11:48 AM	ADULT	PAGE TEACHER	SCHOOLS	222
7/22/17 11:49 AM	ADULT	PAGE TEACHER	SCHOOLS	222
7/22/17 11:03 AM	SENIOR	PAGE SENIOR	PAID	20124
7/22/17 11:05 AM	SENIOR	PAGE SENIOR	PAID	91711
7/22/17 11:05 AM	SENIOR	PAGE SENIOR	PAID	91711
7/22/17 11:05 AM	SENIOR	PAGE SENIOR	PAID	34103
7/22/17 11:08 AM	SENIOR	PAGE SENIOR	PAID	85859
7/22/17 11:22 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 11:22 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 11:31 AM	SENIOR	PAGE SENIOR	PAID	87654
7/22/17 11:36 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 11:36 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 11:39 AM	SENIOR	PAGE SENIOR	PAID	30064
7/22/17 11:46 AM	SENIOR	PAGE SENIOR	PAID	92545
7/22/17 11:46 AM	SENIOR	PAGE SENIOR	PAID	92545
7/22/17 11:50 AM	SENIOR	PAGE SENIOR	PAID	96106
7/22/17 11:50 AM	SENIOR	PAGE SENIOR	PAID	96106
7/22/17 11:50 AM	SENIOR	PAGE SENIOR	PAID	90731
7/22/17 11:53 AM	SENIOR	PAGE SENIOR	PAID	999br
7/22/17 11:53 AM	SENIOR	PAGE SENIOR	PAID	999br
7/22/17 11:54 AM	SENIOR	PAGE SENIOR	PAID	90251
7/22/17 11:54 AM	SENIOR	PAGE SENIOR	PAID	78738
7/22/17 11:54 AM	SENIOR	PAGE SENIOR	PAID	78738
7/22/17 11:54 AM	SENIOR	PAGE SENIOR	PAID	78738
7/22/17 11:55 AM	SENIOR	PAGE SENIOR	PAID	0
7/22/17 11:00 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98038
7/22/17 11:00 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98030
7/22/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95128
7/22/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95128
7/22/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98042
7/22/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92251
7/22/17 11:02 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92251
7/22/17 11:05 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	34103
7/22/17 11:08 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91739
7/22/17 11:09 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	33612
7/22/17 11:13 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92705
7/22/17 11:15 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	44126
7/22/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 11:17 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 11:21 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94941
7/22/17 11:21 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94941
7/22/17 11:24 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92591
7/22/17 11:24 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	98038
7/22/17 11:27 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94960
7/22/17 11:27 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94960
7/22/17 11:28 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999SA
7/22/17 11:28 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	CH999
7/22/17 11:28 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	CH999
7/22/17 11:29 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	63304
7/22/17 11:31 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999MX
7/22/17 11:33 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 11:34 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999AS
7/22/17 11:34 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999AS
7/22/17 11:34 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999AS
7/22/17 11:35 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 11:36 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90004
7/22/17 11:36 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0

7/22/17 11:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	87654
7/22/17 11:39 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	87654
7/22/17 11:40 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	IT999
7/22/17 11:40 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 11:41 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	*9026
7/22/17 11:41 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	*9026
7/22/17 11:41 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	*9026
7/22/17 11:43 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	96706
7/22/17 11:43 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91739
7/22/17 11:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	27625
7/22/17 11:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	27625
7/22/17 11:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	27625
7/22/17 11:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	27625
7/22/17 11:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91745
7/22/17 11:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91745
7/22/17 11:44 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91745
7/22/17 11:46 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91784
7/22/17 11:46 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91784
7/22/17 11:46 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91784
7/22/17 11:48 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95120
7/22/17 11:48 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95120
7/22/17 11:49 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	31190
7/22/17 11:50 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	75494
7/22/17 11:52 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	24141
7/22/17 11:52 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	24141
7/22/17 11:52 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	24141
7/22/17 11:52 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91302
7/22/17 11:54 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	78738
7/22/17 11:54 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	78738
7/22/17 11:54 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	78738
7/22/17 11:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92620
7/22/17 11:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92620
7/22/17 11:56 AM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90293
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	6041
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	6041
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	6041
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	74868
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	74868
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	74868
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	98038
7/22/17 11:00 AM	ADULT	PAGE ADULT	PAID	98030
7/22/17 11:01 AM	ADULT	PAGE ADULT	PAID	95128
7/22/17 11:02 AM	ADULT	PAGE ADULT	PAID	95128
7/22/17 11:02 AM	ADULT	PAGE ADULT	PAID	98042
7/22/17 11:02 AM	ADULT	PAGE ADULT	PAID	98042
7/22/17 11:02 AM	ADULT	PAGE ADULT	PAID	91306
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7/22/17 11:03 AM	ADULT	PAGE ADULT	PAID	67156
7/22/17 11:03 AM	ADULT	PAGE ADULT	PAID	20124
7/22/17 11:04 AM	ADULT	PAGE ADULT	PAID	98102
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7/22/17 11:04 AM	ADULT	PAGE ADULT	PAID	90293
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7/22/17 11:05 AM	ADULT	PAGE ADULT	PAID	91711
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7/22/17 11:05 AM	ADULT	PAGE ADULT	PAID	78061
7/22/17 11:05 AM	ADULT	PAGE ADULT	PAID	78061
7/22/17 11:05 AM	ADULT	PAGE ADULT	PAID	34103
7/22/17 11:05 AM	ADULT	PAGE ADULT	PAID	34103

7/22/17 11:07 AM	ADULT	PAGE ADULT	PAID	33559
7/22/17 11:07 AM	ADULT	PAGE ADULT	PAID	33559
7/22/17 11:08 AM	ADULT	PAGE ADULT	PAID	85859
7/22/17 11:08 AM	ADULT	PAGE ADULT	PAID	91739
7/22/17 11:08 AM	ADULT	PAGE ADULT	PAID	91739
7/22/17 11:08 AM	ADULT	PAGE ADULT	PAID	90017
7/22/17 11:09 AM	ADULT	PAGE ADULT	PAID	33612
7/22/17 11:09 AM	ADULT	PAGE ADULT	PAID	33612
7/22/17 11:13 AM	ADULT	PAGE ADULT	PAID	92705
7/22/17 11:13 AM	ADULT	PAGE ADULT	PAID	90216
7/22/17 11:13 AM	ADULT	PAGE ADULT	PAID	77450
7/22/17 11:15 AM	ADULT	PAGE ADULT	PAID	44126
7/22/17 11:15 AM	ADULT	PAGE ADULT	PAID	44126
7/22/17 11:15 AM	ADULT	PAGE ADULT	PAID	44126
7/22/17 11:17 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 11:17 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 11:18 AM	ADULT	PAGE ADULT	PAID	91776
7/22/17 11:18 AM	ADULT	PAGE ADULT	PAID	91776
7/22/17 11:18 AM	ADULT	PAGE ADULT	PAID	95942
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7/22/17 11:20 AM	ADULT	PAGE ADULT	PAID	999AU
7/22/17 11:20 AM	ADULT	PAGE ADULT	PAID	999AU
7/22/17 11:21 AM	ADULT	PAGE ADULT	PAID	94941
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7/22/17 11:21 AM	ADULT	PAGE ADULT	PAID	94941
7/22/17 11:22 AM	ADULT	PAGE ADULT	PAID	93212
7/22/17 11:22 AM	ADULT	PAGE ADULT	PAID	93212
7/22/17 11:23 AM	ADULT	PAGE ADULT	PAID	92591
7/22/17 11:24 AM	ADULT	PAGE ADULT	PAID	98038
7/22/17 11:24 AM	ADULT	PAGE ADULT	PAID	98038
7/22/17 11:26 AM	ADULT	PAGE ADULT	PAID	999AU
7/22/17 11:26 AM	ADULT	PAGE ADULT	PAID	AUS99
7/22/17 11:27 AM	ADULT	PAGE ADULT	PAID	94960
7/22/17 11:27 AM	ADULT	PAGE ADULT	PAID	94960
7/22/17 11:27 AM	ADULT	PAGE ADULT	PAID	999SA
7/22/17 11:28 AM	ADULT	PAGE ADULT	PAID	91733
7/22/17 11:28 AM	ADULT	PAGE ADULT	PAID	999SA
7/22/17 11:28 AM	ADULT	PAGE ADULT	PAID	999SA
7/22/17 11:28 AM	ADULT	PAGE ADULT	PAID	91733
7/22/17 11:28 AM	ADULT	PAGE ADULT	PAID	CH999
7/22/17 11:28 AM	ADULT	PAGE ADULT	PAID	CH999
7/22/17 11:29 AM	ADULT	PAGE ADULT	PAID	63368
7/22/17 11:29 AM	ADULT	PAGE ADULT	PAID	63304
7/22/17 11:31 AM	ADULT	PAGE ADULT	PAID	90605
7/22/17 11:31 AM	ADULT	PAGE ADULT	PAID	87654
7/22/17 11:31 AM	ADULT	PAGE ADULT	PAID	999MX
7/22/17 11:31 AM	ADULT	PAGE ADULT	PAID	23234
7/22/17 11:31 AM	ADULT	PAGE ADULT	PAID	999MX
7/22/17 11:31 AM	ADULT	PAGE ADULT	PAID	23234
7/22/17 11:33 AM	ADULT	PAGE ADULT	PAID	0
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7/22/17 11:34 AM	ADULT	PAGE ADULT	PAID	999AS
7/22/17 11:34 AM	ADULT	PAGE ADULT	PAID	999AS
7/22/17 11:34 AM	ADULT	PAGE ADULT	PAID	999AS
7/22/17 11:34 AM	ADULT	PAGE ADULT	PAID	999AS
7/22/17 11:34 AM	ADULT	PAGE ADULT	PAID	11374
7/22/17 11:34 AM	ADULT	PAGE ADULT	PAID	999AS
7/22/17 11:36 AM	ADULT	PAGE ADULT	PAID	90004
7/22/17 11:36 AM	ADULT	PAGE ADULT	PAID	90004
7/22/17 11:36 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 11:37 AM	ADULT	PAGE ADULT	PAID	94128
7/22/17 11:37 AM	ADULT	PAGE ADULT	PAID	94128
7/22/17 11:37 AM	ADULT	PAGE ADULT	PAID	94128
7/22/17 11:37 AM	ADULT	PAGE ADULT	PAID	94128

7/22/17 11:39 AM	ADULT	PAGE ADULT	PAID	87654
7/22/17 11:39 AM	ADULT	PAGE ADULT	PAID	87654
7/22/17 11:39 AM	ADULT	PAGE ADULT	PAID	30064
7/22/17 11:39 AM	ADULT	PAGE ADULT	PAID	63303
7/22/17 11:40 AM	ADULT	PAGE ADULT	PAID	IT999
7/22/17 11:40 AM	ADULT	PAGE ADULT	PAID	IT999
7/22/17 11:40 AM	ADULT	PAGE ADULT	PAID	0
7/22/17 11:41 AM	ADULT	PAGE ADULT	PAID	*9026
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7/22/17 12:58 PM	SENIOR	PAGE SENIOR	PAID	32547
7/22/17 12:39 PM	ADULT	PAGE TEACHER	SCHOOLS	93065
7/22/17 12:40 PM	ADULT	PAGE TEACHER	SCHOOLS	91342
7/22/17 12:42 PM	ADULT	PAGE TEACHER	SCHOOLS	91360
7/22/17 12:47 PM	ADULT	PAGE TEACHER	SCHOOLS	92118
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555

7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:04 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	93555
7/22/17 12:18 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92648
7/22/17 12:55 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	97006
7/22/17 12:02 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91910
7/22/17 12:09 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	222
7/22/17 12:10 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	98005
7/22/17 12:26 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	94579
7/22/17 12:35 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91011
7/22/17 12:40 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91342
7/22/17 12:41 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	222
7/22/17 12:55 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	95864
7/22/17 12:00 PM	STUDENT	PAGE STUDENT	PAID	74074
7/22/17 12:03 PM	STUDENT	PAGE STUDENT	PAID	999CN
7/22/17 12:03 PM	STUDENT	PAGE STUDENT	PAID	999CN
7/22/17 12:04 PM	STUDENT	PAGE STUDENT	PAID	999eu
7/22/17 12:04 PM	STUDENT	PAGE STUDENT	PAID	999eu
7/22/17 12:06 PM	STUDENT	PAGE STUDENT	PAID	31363
7/22/17 12:07 PM	STUDENT	PAGE STUDENT	PAID	94022
7/22/17 12:11 PM	STUDENT	PAGE STUDENT	PAID	91744
7/22/17 12:13 PM	STUDENT	PAGE STUDENT	PAID	90808
7/22/17 12:13 PM	STUDENT	PAGE STUDENT	PAID	6840
7/22/17 12:15 PM	STUDENT	PAGE STUDENT	PAID	91606
7/22/17 12:15 PM	STUDENT	PAGE STUDENT	PAID	91606
7/22/17 12:20 PM	STUDENT	PAGE STUDENT	PAID	93536
7/22/17 12:21 PM	STUDENT	PAGE STUDENT	PAID	95928
7/22/17 12:21 PM	STUDENT	PAGE STUDENT	PAID	95928
7/22/17 12:23 PM	STUDENT	PAGE STUDENT	PAID	999eu
7/22/17 12:23 PM	STUDENT	PAGE STUDENT	PAID	999eu
7/22/17 12:28 PM	STUDENT	PAGE STUDENT	PAID	90802
7/22/17 12:31 PM	STUDENT	PAGE STUDENT	PAID	92584
7/22/17 12:31 PM	STUDENT	PAGE STUDENT	PAID	92584
7/22/17 12:31 PM	STUDENT	PAGE STUDENT	PAID	53149
7/22/17 12:32 PM	STUDENT	PAGE STUDENT	PAID	93536
7/22/17 12:33 PM	STUDENT	PAGE STUDENT	PAID	222
7/22/17 12:40 PM	STUDENT	PAGE STUDENT	PAID	90026
7/22/17 12:40 PM	STUDENT	PAGE STUDENT	PAID	90026
7/22/17 12:43 PM	STUDENT	PAGE STUDENT	PAID	90057
7/22/17 12:47 PM	STUDENT	PAGE STUDENT	PAID	78649
7/22/17 12:51 PM	STUDENT	PAGE STUDENT	PAID	999AU
7/22/17 12:52 PM	STUDENT	PAGE STUDENT	PAID	999au
7/22/17 12:53 PM	STUDENT	PAGE STUDENT	PAID	94539
7/22/17 12:18 PM	CHILD (3-12)	PAGE COMP TICKET ADULT	UNPAID	92648
7/22/17 12:27 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90245
7/22/17 12:27 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90245
7/22/17 12:28 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90245
7/22/17 12:49 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90404
7/22/17 12:44 PM	TarPits Child Admission (2-Under)	PAGE ADULT WEB ND	PAID	90063
7/22/17 12:50 PM	TarPits Child Admission (2-Under)	PAGE ADULT WEB ND	PAID	90404
7/22/17 12:35 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	92612
7/22/17 12:35 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	92612
7/22/17 12:18 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	92648
7/22/17 12:51 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	111
7/22/17 12:53 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	111
7/22/17 12:11 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	GU34
7/22/17 12:11 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	GU34
7/22/17 12:33 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	89121
7/22/17 12:33 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	89121
7/22/17 12:44 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90063
7/22/17 12:49 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90404
7/22/17 12:49 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90404
7/22/17 12:58 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	93308
7/22/17 12:59 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	93308
7/22/17 12:04 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	93555

7/22/17 12:55 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	97006
7/22/17 12:55 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	97006
7/22/17 12:55 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	97006
7/22/17 12:02 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91910
7/22/17 12:26 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91107
7/22/17 12:31 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92584
7/22/17 12:39 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	93065
7/22/17 12:39 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	93065
7/22/17 12:39 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	93065
7/22/17 12:47 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92118
7/22/17 12:58 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	32547
7/22/17 12:15 PM	Complimentary Admission	NHM/PAGE COMP TICKET	UNPAID	92705
7/22/17 12:15 PM	Complimentary Admission	NHM/PAGE COMP TICKET	UNPAID	92705
7/22/17 1:02 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	222
7/22/17 1:09 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	97978
7/22/17 1:14 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	95292
7/22/17 1:27 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92870
7/22/17 1:28 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	222
7/22/17 1:33 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92688
7/22/17 1:33 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92688
7/22/17 1:38 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	2222
7/22/17 1:40 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	999EU
7/22/17 1:44 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92390
7/22/17 1:46 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91748
7/22/17 1:56 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	96789
7/22/17 1:37 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 1:37 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 1:37 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 1:37 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 1:20 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	3857
7/22/17 1:20 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	3857
7/22/17 1:06 PM	ADULT	PAGE COMBO ADULT	PAID	999UK
7/22/17 1:06 PM	ADULT	PAGE COMBO ADULT	PAID	999UK
7/22/17 1:00 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90804
7/22/17 1:00 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90804
7/22/17 1:16 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	78255
7/22/17 1:16 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	78255
7/22/17 1:38 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90740
7/22/17 1:14 PM	EBT Adult	Page EBT Adult	UNPAID	90230
7/22/17 1:14 PM	EBT Adult	Page EBT Adult	UNPAID	90230
7/22/17 1:46 PM	EBT Adult	Page EBT Adult	UNPAID	91702
7/22/17 1:46 PM	EBT Adult	Page EBT Adult	UNPAID	91702
7/22/17 1:54 PM	EBT Adult	Page EBT Adult	UNPAID	90001
7/22/17 1:14 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90230
7/22/17 1:14 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90230
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7/22/17 1:46 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	91702
7/22/17 1:54 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90001
7/22/17 1:16 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	78255
7/22/17 1:16 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	78255
7/22/17 1:38 PM	Tar Pits Student Admission	PAGE STUDENT WEB ND	PAID	90740
7/22/17 1:00 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90804
7/22/17 1:00 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90804
7/22/17 1:00 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90804
7/22/17 1:38 PM	Tar Pits Senior Admission	PAGE SENIOR WEB ND	PAID	90740
7/22/17 1:06 PM	STUDENT	PAGE COMBO STUDENT	PAID	999UK
7/22/17 1:06 PM	CHILD 3-12	PAGE COMBO CHILD (3-12)	PAID	999UK
7/22/17 1:00 PM	STUDENT	PAGE STUDENT	PAID	19701
7/22/17 1:01 PM	STUDENT	PAGE STUDENT	PAID	80109
7/22/17 1:02 PM	STUDENT	PAGE STUDENT	PAID	222
7/22/17 1:03 PM	STUDENT	PAGE STUDENT	PAID	91606
7/22/17 1:03 PM	STUDENT	PAGE STUDENT	PAID	999ko
7/22/17 1:04 PM	STUDENT	PAGE STUDENT	PAID	999UK
7/22/17 1:04 PM	STUDENT	PAGE STUDENT	PAID	999UK
7/22/17 1:05 PM	STUDENT	PAGE STUDENT	PAID	999ch

7/22/17 1:10 PM	STUDENT	PAGE STUDENT	PAID	20113
7/22/17 1:10 PM	STUDENT	PAGE STUDENT	PAID	20113
7/22/17 1:11 PM	STUDENT	PAGE STUDENT	PAID	96986
7/22/17 1:12 PM	STUDENT	PAGE STUDENT	PAID	0
7/22/17 1:16 PM	STUDENT	PAGE STUDENT	PAID	97812
7/22/17 1:17 PM	STUDENT	PAGE STUDENT	PAID	86574
7/22/17 1:19 PM	STUDENT	PAGE STUDENT	PAID	90002
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7/22/17 1:31 PM	STUDENT	PAGE STUDENT	PAID	90026
7/22/17 1:35 PM	STUDENT	PAGE STUDENT	PAID	92483
7/22/17 1:38 PM	STUDENT	PAGE STUDENT	PAID	92551
7/22/17 1:42 PM	STUDENT	PAGE STUDENT	PAID	94602
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7/22/17 1:50 PM	STUDENT	PAGE STUDENT	PAID	91732
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7/22/17 1:51 PM	STUDENT	PAGE STUDENT	PAID	1890
7/22/17 1:51 PM	STUDENT	PAGE STUDENT	PAID	1890
7/22/17 1:52 PM	STUDENT	PAGE STUDENT	PAID	9706
7/22/17 1:53 PM	STUDENT	PAGE STUDENT	PAID	90745
7/22/17 1:53 PM	STUDENT	PAGE STUDENT	PAID	90745
7/22/17 1:53 PM	STUDENT	PAGE STUDENT	PAID	90712
7/22/17 1:54 PM	STUDENT	PAGE STUDENT	PAID	27518
7/22/17 1:58 PM	STUDENT	PAGE STUDENT	PAID	93921
7/22/17 1:58 PM	STUDENT	PAGE STUDENT	PAID	75075
7/22/17 1:02 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	222
7/22/17 1:02 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90813
7/22/17 1:12 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	89014
7/22/17 1:16 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91606
7/22/17 1:18 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	80232
7/22/17 1:38 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	92551
7/22/17 1:51 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	0
7/22/17 1:19 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	3857
7/22/17 1:19 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	3857
7/22/17 1:48 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90036
7/22/17 1:16 PM	ADULT	PAGE TEACHER	SCHOOLS	91606
7/22/17 1:27 PM	ADULT	PAGE TEACHER	SCHOOLS	92870
7/22/17 1:09 PM	SENIOR	PAGE SENIOR	PAID	90004
7/22/17 1:10 PM	SENIOR	PAGE SENIOR	PAID	20113
7/22/17 1:11 PM	SENIOR	PAGE SENIOR	PAID	96986
7/22/17 1:23 PM	SENIOR	PAGE SENIOR	PAID	80020
7/22/17 1:38 PM	SENIOR	PAGE SENIOR	PAID	94574
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7/22/17 1:41 PM	SENIOR	PAGE SENIOR	PAID	96782
7/22/17 1:45 PM	SENIOR	PAGE SENIOR	PAID	92390
7/22/17 1:49 PM	SENIOR	PAGE SENIOR	PAID	91786
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7/22/17 1:50 PM	SENIOR	PAGE SENIOR	PAID	222
7/22/17 1:57 PM	SENIOR	PAGE SENIOR	PAID	90504
7/22/17 1:58 PM	SENIOR	PAGE SENIOR	PAID	93036
7/22/17 1:58 PM	SENIOR	PAGE SENIOR	PAID	93036
7/22/17 1:59 PM	SENIOR	PAGE SENIOR	PAID	85225
7/22/17 1:01 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91311
7/22/17 1:02 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/22/17 1:02 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/22/17 1:02 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90813

7/22/17 1:02 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93245
7/22/17 1:02 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93245
7/22/17 1:02 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93245
7/22/17 1:03 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999ko
7/22/17 1:05 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22141
7/22/17 1:05 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999ch
7/22/17 1:05 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999ch
7/22/17 1:07 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95353
7/22/17 1:09 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95543
7/22/17 1:09 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94706
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7/22/17 1:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	89014
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7/22/17 1:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93309
7/22/17 1:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93309
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7/22/17 1:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92337
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7/22/17 1:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92337
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7/22/17 1:19 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90002
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7/22/17 1:20 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91733
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7/22/17 1:20 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	96819
7/22/17 1:20 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	96819
7/22/17 1:23 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/22/17 1:23 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	22
7/22/17 1:27 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90019
7/22/17 1:27 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92870
7/22/17 1:27 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92870
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7/22/17 1:27 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92870
7/22/17 1:27 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92870
7/22/17 1:33 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92688
7/22/17 1:33 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90230
7/22/17 1:33 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90230
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7/22/17 1:35 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92483
7/22/17 1:35 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92483
7/22/17 1:38 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94574
7/22/17 1:38 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92551
7/22/17 1:38 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	2222
7/22/17 1:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999EU
7/22/17 1:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999EU
7/22/17 1:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92504
7/22/17 1:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92504
7/22/17 1:45 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90404
7/22/17 1:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999FR
7/22/17 1:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999FR
7/22/17 1:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90068
7/22/17 1:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90068
7/22/17 1:48 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91607
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7/22/17 2:03 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90037
7/22/17 2:04 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	8328
7/22/17 2:04 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/22/17 2:06 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	9361

7/22/17 2:06 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	9361
7/22/17 2:06 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90275
7/22/17 2:06 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90275
7/22/17 2:07 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95661
7/22/17 2:07 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	95661
7/22/17 2:09 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90016
7/22/17 2:09 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90016
7/22/17 2:09 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	60025
7/22/17 2:09 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	60025
7/22/17 2:09 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	60025
7/22/17 2:11 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	0
7/22/17 2:11 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90065
7/22/17 2:11 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91722
7/22/17 2:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	84721
7/22/17 2:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	84721
7/22/17 2:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	84721
7/22/17 2:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92410
7/22/17 2:12 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	48116
7/22/17 2:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85306
7/22/17 2:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85306
7/22/17 2:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85266
7/22/17 2:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92704
7/22/17 2:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92704
7/22/17 2:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92704
7/22/17 2:14 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	97330
7/22/17 2:15 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92704
7/22/17 2:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90004
7/22/17 2:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85050
7/22/17 2:17 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	85050
7/22/17 2:21 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90220
7/22/17 2:21 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90220
7/22/17 2:23 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91750
7/22/17 2:25 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90220
7/22/17 2:25 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90220
7/22/17 2:26 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92691
7/22/17 2:29 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	45237
7/22/17 2:29 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	45237
7/22/17 2:30 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	999KR
7/22/17 2:31 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92251
7/22/17 2:31 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92251
7/22/17 2:31 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92251
7/22/17 2:33 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92120
7/22/17 2:33 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90067
7/22/17 2:33 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92078
7/22/17 2:35 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91342
7/22/17 2:36 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90603
7/22/17 2:36 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90603
7/22/17 2:37 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90247
7/22/17 2:37 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90713
7/22/17 2:38 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94534
7/22/17 2:38 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94534
7/22/17 2:38 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	94534
7/22/17 2:39 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/22/17 2:39 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/22/17 2:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90272
7/22/17 2:40 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90272
7/22/17 2:41 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91362
7/22/17 2:41 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91362
7/22/17 2:41 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91754
7/22/17 2:41 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91202
7/22/17 2:42 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91390
7/22/17 2:43 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91403
7/22/17 2:43 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92064
7/22/17 2:43 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	92064
7/22/17 2:44 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	90014

7/22/17 2:45 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91505
7/22/17 2:45 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91505
7/22/17 2:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/22/17 2:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	222
7/22/17 2:47 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	93063
7/22/17 2:48 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91406
7/22/17 2:54 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91775
7/22/17 2:54 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	91775
7/22/17 2:56 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	43402
7/22/17 2:56 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	43402
7/22/17 2:58 PM	CHILD (3-12)	PAGE CHILD (3-12)	PAID	9235
7/22/17 2:02 PM	SENIOR	PAGE SENIOR	PAID	95003
7/22/17 2:02 PM	SENIOR	PAGE SENIOR	PAID	95003
7/22/17 2:09 PM	SENIOR	PAGE SENIOR	PAID	60025
7/22/17 2:09 PM	SENIOR	PAGE SENIOR	PAID	60025
7/22/17 2:11 PM	SENIOR	PAGE SENIOR	PAID	91722
7/22/17 2:12 PM	SENIOR	PAGE SENIOR	PAID	84721
7/22/17 2:15 PM	SENIOR	PAGE SENIOR	PAID	90630
7/22/17 2:18 PM	SENIOR	PAGE SENIOR	PAID	90242
7/22/17 2:18 PM	SENIOR	PAGE SENIOR	PAID	90242
7/22/17 2:18 PM	SENIOR	PAGE SENIOR	PAID	90242
7/22/17 2:18 PM	SENIOR	PAGE SENIOR	PAID	90242
7/22/17 2:42 PM	SENIOR	PAGE SENIOR	PAID	90027
7/22/17 2:42 PM	SENIOR	PAGE SENIOR	PAID	90027
7/22/17 2:44 PM	SENIOR	PAGE SENIOR	PAID	48178
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7/22/17 2:49 PM	SENIOR	PAGE SENIOR	PAID	999UK
7/22/17 2:49 PM	SENIOR	PAGE SENIOR	PAID	999UK
7/22/17 2:57 PM	SENIOR	PAGE SENIOR	PAID	21921
7/22/17 2:57 PM	SENIOR	PAGE SENIOR	PAID	21921
7/22/17 2:57 PM	SENIOR	PAGE SENIOR	PAID	91361
7/22/17 2:57 PM	SENIOR	PAGE SENIOR	PAID	91361
7/22/17 2:06 PM	ADULT	PAGE TEACHER	SCHOOLS	9361
7/22/17 2:25 PM	ADULT	PAGE TEACHER	SCHOOLS	90220
7/22/17 2:34 PM	ADULT	PAGE TEACHER	SCHOOLS	92557
7/22/17 2:35 PM	ADULT	PAGE TEACHER	SCHOOLS	92557
7/22/17 2:38 PM	ADULT	PAGE TEACHER	SCHOOLS	94534
7/22/17 2:41 PM	ADULT	PAGE TEACHER	SCHOOLS	91754
7/22/17 2:41 PM	ADULT	PAGE TEACHER	SCHOOLS	91202
7/22/17 2:06 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	77494
7/22/17 2:06 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	77494
7/22/17 2:18 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91731
7/22/17 2:18 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91731
7/22/17 2:23 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/22/17 2:23 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	222
7/22/17 2:29 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91731
7/22/17 2:29 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91731
7/22/17 2:38 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90803
7/22/17 2:38 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	90803
7/22/17 2:57 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92869
7/22/17 2:57 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	92869
7/22/17 2:59 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91791
7/22/17 2:59 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	91791
7/22/17 2:01 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	222
7/22/17 2:06 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90275
7/22/17 2:19 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	94588
7/22/17 2:38 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	94534
7/22/17 2:40 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	90028
7/22/17 2:45 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	91325
7/22/17 2:57 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	92869
7/22/17 2:58 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	9235
7/22/17 2:01 PM	STUDENT	PAGE STUDENT	PAID	95747
7/22/17 2:09 PM	STUDENT	PAGE STUDENT	PAID	93555
7/22/17 2:09 PM	STUDENT	PAGE STUDENT	PAID	93555
7/22/17 2:11 PM	STUDENT	PAGE STUDENT	PAID	0

7/22/17 2:11 PM	STUDENT	PAGE STUDENT	PAID	91722
7/22/17 2:13 PM	STUDENT	PAGE STUDENT	PAID	92860
7/22/17 2:13 PM	STUDENT	PAGE STUDENT	PAID	49684
7/22/17 2:14 PM	STUDENT	PAGE STUDENT	PAID	97330
7/22/17 2:15 PM	STUDENT	PAGE STUDENT	PAID	92704
7/22/17 2:15 PM	STUDENT	PAGE STUDENT	PAID	92704
7/22/17 2:19 PM	STUDENT	PAGE STUDENT	PAID	93446
7/22/17 2:19 PM	STUDENT	PAGE STUDENT	PAID	93446
7/22/17 2:19 PM	STUDENT	PAGE STUDENT	PAID	93446
7/22/17 2:19 PM	STUDENT	PAGE STUDENT	PAID	94588
7/22/17 2:20 PM	STUDENT	PAGE STUDENT	PAID	94588
7/22/17 2:24 PM	STUDENT	PAGE STUDENT	PAID	7950
7/22/17 2:24 PM	STUDENT	PAGE STUDENT	PAID	7950
7/22/17 2:26 PM	STUDENT	PAGE STUDENT	PAID	16801
7/22/17 2:29 PM	STUDENT	PAGE STUDENT	PAID	45237
7/22/17 2:32 PM	STUDENT	PAGE STUDENT	PAID	92647
7/22/17 2:32 PM	STUDENT	PAGE STUDENT	PAID	92647
7/22/17 2:32 PM	STUDENT	PAGE STUDENT	PAID	77386
7/22/17 2:32 PM	STUDENT	PAGE STUDENT	PAID	90404
7/22/17 2:33 PM	STUDENT	PAGE STUDENT	PAID	92120
7/22/17 2:33 PM	STUDENT	PAGE STUDENT	PAID	92120
7/22/17 2:34 PM	STUDENT	PAGE STUDENT	PAID	90019
7/22/17 2:35 PM	STUDENT	PAGE STUDENT	PAID	91342
7/22/17 2:35 PM	STUDENT	PAGE STUDENT	PAID	95032
7/22/17 2:37 PM	STUDENT	PAGE STUDENT	PAID	90247
7/22/17 2:40 PM	STUDENT	PAGE STUDENT	PAID	90028
7/22/17 2:42 PM	STUDENT	PAGE STUDENT	PAID	91390
7/22/17 2:42 PM	STUDENT	PAGE STUDENT	PAID	91390
7/22/17 2:45 PM	STUDENT	PAGE STUDENT	PAID	19123
7/22/17 2:45 PM	STUDENT	PAGE STUDENT	PAID	19125
7/22/17 2:46 PM	STUDENT	PAGE STUDENT	PAID	333
7/22/17 2:47 PM	STUDENT	PAGE STUDENT	PAID	2482
7/22/17 2:47 PM	STUDENT	PAGE STUDENT	PAID	2482
7/22/17 2:48 PM	STUDENT	PAGE STUDENT	PAID	90715
7/22/17 2:48 PM	STUDENT	PAGE STUDENT	PAID	90715
7/22/17 2:49 PM	STUDENT	PAGE STUDENT	PAID	90275
7/22/17 2:49 PM	STUDENT	PAGE STUDENT	PAID	90275
7/22/17 2:55 PM	STUDENT	PAGE STUDENT	PAID	92587
7/22/17 2:55 PM	STUDENT	PAGE STUDENT	PAID	92587
7/22/17 2:56 PM	STUDENT	PAGE STUDENT	PAID	91748
7/22/17 2:56 PM	STUDENT	PAGE STUDENT	PAID	10310
7/22/17 2:56 PM	STUDENT	PAGE STUDENT	PAID	95113
7/22/17 2:19 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	90069
7/22/17 2:14 PM	La Brea Tar Pits Adult General Admission	PAGE ADULT WEB ND	PAID	92821
7/22/17 2:14 PM	La Brea Tar Pits Adult General Admission	PAGE ADULT WEB ND	PAID	92879
7/22/17 2:14 PM	La Brea Tar Pits Adult General Admission	PAGE ADULT WEB ND	PAID	92879
7/22/17 2:33 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	92509
7/22/17 2:43 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90222
7/22/17 2:43 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90222
7/22/17 2:33 PM	EBT Adult	Page EBT Adult	UNPAID	92509
7/22/17 2:33 PM	EBT Adult	Page EBT Adult	UNPAID	92509
7/22/17 2:43 PM	EBT Adult	Page EBT Adult	UNPAID	90222
7/22/17 2:43 PM	EBT Adult	Page EBT Adult	UNPAID	90222
7/22/17 2:29 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:30 PM	COMPLIMENTARY BUSINESS GUEST	TARPITS COMP BUSINESS GUEST	UNPAID	90007
7/22/17 2:03 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	91764
7/22/17 2:19 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	90069

7/22/17 2:54 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	1426
7/22/17 2:23 PM	CHILD 3-12	PAGE COMBO CHILD (3-12)	PAID	78757
7/22/17 2:23 PM	ADULT	PAGE COMBO ADULT	PAID	78757
7/22/17 2:30 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	123
7/22/17 2:44 PM	GO LA CHILD	PAGE COMP TICKET CHILD	UNPAID	123
7/22/17 2:38 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/22/17 2:38 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/22/17 2:39 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/22/17 2:39 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
7/22/17 2:06 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	77494
7/22/17 2:06 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	77494
7/22/17 2:06 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	77494
7/22/17 2:06 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	77494
7/22/17 2:18 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91731
7/22/17 2:18 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91731
7/22/17 2:23 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	222
7/22/17 2:23 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	222
7/22/17 2:29 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91731
7/22/17 2:29 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91731
7/22/17 2:38 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	90803
7/22/17 2:30 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	123
7/22/17 2:30 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	123
7/22/17 2:30 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	123
7/22/17 2:44 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	123
7/22/17 2:44 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	123
7/22/17 2:03 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	333
7/22/17 2:19 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	93446
7/22/17 2:37 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	90247
7/22/17 2:38 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	94534
7/22/17 3:00 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91801
7/22/17 3:02 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92084
7/22/17 3:13 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92124
7/22/17 3:16 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	91709
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7/22/17 3:20 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	80921
7/22/17 3:20 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	80921
7/22/17 3:25 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	0
7/22/17 3:19 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	999ch
7/22/17 3:55 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 3:55 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 3:55 PM	GO LA ADULT	PAGE COMP TICKET ADULT	UNPAID	0
7/22/17 3:27 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91709
7/22/17 3:32 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	94030
7/22/17 3:32 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	94030
7/22/17 3:25 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	96793
7/22/17 3:26 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	96793
7/22/17 3:26 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	96793
7/22/17 3:26 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	96793
7/22/17 3:37 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	91701
7/22/17 3:37 PM	Tar Pits Adult Admission	PAGE ADULT WEB ND	PAID	91701
7/22/17 3:41 PM	PAGE COMPLIMENTARY ADULT	PAGE VOLUNTEER GUEST COMP	UNPAID	222
7/22/17 3:21 PM	EBT Adult	Page EBT Adult	UNPAID	91768
7/22/17 3:21 PM	EBT Adult	Page EBT Adult	UNPAID	91768
7/22/17 3:21 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	91768
7/22/17 3:31 PM	La Brea Tar Pits Adult General Admission	PAGE ADULT WEB ND	PAID	92620
7/22/17 3:31 PM	La Brea Tar Pits Adult General Admission	PAGE ADULT WEB ND	PAID	92620
7/22/17 3:31 PM	La Brea Tar Pits Adult General Admission	PAGE ADULT WEB ND	PAID	92620
7/22/17 3:31 PM	La Brea Tar Pits Adult General Admission	PAGE ADULT WEB ND	PAID	92620
7/22/17 3:26 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	96793
7/22/17 3:26 PM	Tar Pits Child Admission (Ages 3-12)	PAGE CHILD(3-12)WEB ND	PAID	96793
7/22/17 3:02 PM	STUDENT	PAGE STUDENT	PAID	92084
7/22/17 3:03 PM	STUDENT	PAGE STUDENT	PAID	94104
7/22/17 3:04 PM	STUDENT	PAGE STUDENT	PAID	1887
7/22/17 3:05 PM	STUDENT	PAGE STUDENT	PAID	999eu

7/22/17 3:08 PM	STUDENT	PAGE STUDENT	PAID	90606
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7/22/17 3:15 PM	STUDENT	PAGE STUDENT	PAID	94582
7/22/17 3:18 PM	STUDENT	PAGE STUDENT	PAID	77019
7/22/17 3:19 PM	STUDENT	PAGE STUDENT	PAID	999fr
7/22/17 3:20 PM	STUDENT	PAGE STUDENT	PAID	0
7/22/17 3:21 PM	STUDENT	PAGE STUDENT	PAID	999eu
7/22/17 3:21 PM	STUDENT	PAGE STUDENT	PAID	999eu
7/22/17 3:23 PM	STUDENT	PAGE STUDENT	PAID	80127
7/22/17 3:23 PM	STUDENT	PAGE STUDENT	PAID	80127
7/22/17 3:23 PM	STUDENT	PAGE STUDENT	PAID	80127
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7/22/17 3:23 PM	STUDENT	PAGE STUDENT	PAID	90003
7/22/17 3:24 PM	STUDENT	PAGE STUDENT	PAID	90003
7/22/17 3:25 PM	STUDENT	PAGE STUDENT	PAID	999br
7/22/17 3:29 PM	STUDENT	PAGE STUDENT	PAID	33157
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7/22/17 3:31 PM	STUDENT	PAGE STUDENT	PAID	91750
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7/22/17 3:36 PM	STUDENT	PAGE STUDENT	PAID	91303
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7/22/17 3:59 PM	STUDENT	PAGE STUDENT	PAID	98203
7/22/17 3:59 PM	STUDENT	PAGE STUDENT	PAID	98203
7/22/17 3:02 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	123
7/22/17 3:03 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	94104
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7/22/17 3:13 PM	CHILD (2-UNDER)	PAGE CHILD (2-UNDER)	UNPAID	92124
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7/22/17 3:32 PM	ADULT	PAGE COMP TICKET ADULT	UNPAID	94030
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7/22/17 4:05 PM	ADULT	PAGE ADULT	PAID	92626
7/22/17 4:07 PM	ADULT	PAGE ADULT	PAID	90313
7/22/17 4:07 PM	ADULT	PAGE ADULT	PAID	90313
7/22/17 4:07 PM	ADULT	PAGE ADULT	PAID	90313
7/22/17 4:09 PM	ADULT	PAGE ADULT	PAID	95111
7/22/17 4:11 PM	ADULT	PAGE ADULT	PAID	92843
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7/22/17 4:25 PM	ADULT	PAGE ADULT	PAID	19422
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7/22/17 4:28 PM	ADULT	PAGE ADULT	PAID	90034
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7/22/17 4:32 PM	ADULT	PAGE ADULT	PAID	90731

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7/22/17 4:09 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90031
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7/22/17 4:21 PM	EBT CHILD (3-17)	Page EBT Child	UNPAID	90012
7/22/17 4:09 PM	EBT Adult	Page EBT Adult	UNPAID	90031
7/22/17 4:12 PM	EBT Adult	Page EBT Adult	UNPAID	90033
7/22/17 4:12 PM	EBT Adult	Page EBT Adult	UNPAID	90033

7/22/17 4:20 PM	EBT Adult	Page EBT Adult	UNPAID	90012
7/22/17 4:20 PM	EBT Adult	Page EBT Adult	UNPAID	90012
7/22/17 4:04 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	91710
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7/22/17 4:23 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	97401
7/22/17 4:23 PM	CHILD (3-12)	PAGE COMP TICKET CHILD	UNPAID	97401
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7/22/17 4:07 PM	Tar Pits Admission Adult	GC TP GROUP ADULT	PAID	
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7/22/17 4:08 PM	Tar Pits Admission Student	GC TP GROUP STUDENT	PAID	
7/22/17 4:37 PM	ADULT	PAGE COMP TICKET CHILD	UNPAID	92562

Appendix 3 — Multimodal Traffic Count Sheets

Prepared by National Data & Surveying Services

Ogden Dr & 6th St

Peak Hour Turning Movement Count

ID: 22-020152-001
City: Los Angeles

Day: Thursday
Date: 5/12/2022

PEAK HOURS		COUNT PERIODS
08:00 AM - 09:00 AM		7:00 AM - 09:00 AM
01:00 PM - 02:00 PM		12:00 PM - 02:00 PM
04:00 PM - 05:00 PM		4:00 PM - 06:00 PM

SOUTHBOUND (Ogden Dr)

AM	42	0	18	0	16	AM
NOON	11	0	6	0	15	NOON
PM	19	0	10	0	30	PM
	0.5	0	0.5	0		

EASTBOUND (6th St)

AM	NOON	PM	
1280	678	586	
1	0	6	0
3	7	21	1
322	547	671	1
6	36	15	1

WESTBOUND (6th St)

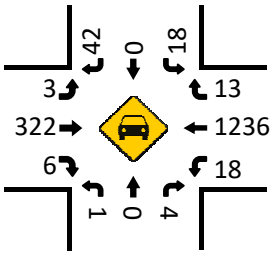
	PM	NOON	AM
0	9	7	13
2	525	644	1236
1	10	28	18
0	1	1	0
	735	587	344

NORTHBOUND (Ogden Dr)

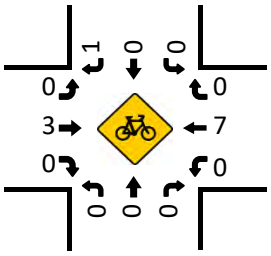
	0	0.5	0	0.5		
PM	25	0	36	0	53	PM
NOON	64	0	23	1	33	NOON
AM	24	0	1	0	4	AM

CONTROL			
Signalized			
TEV	1664	1344	1376
	AM	NOON	PM
PHF	0.97	0.94	0.93

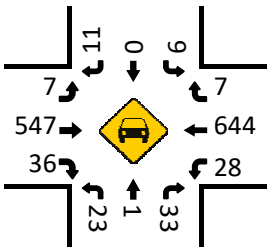
Totals (AM)



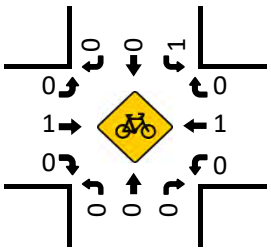
Total Bikes (AM)



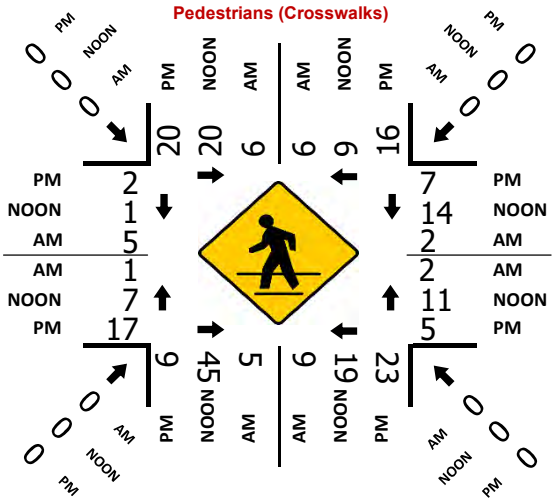
Totals (NOON)



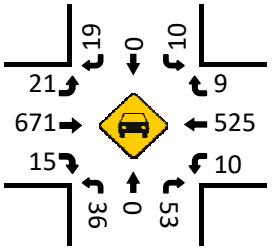
Total Bikes (NOON)



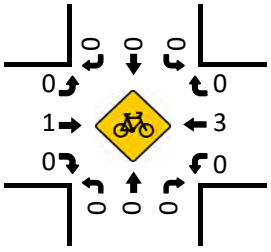
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Ogden Dr & 6th St

Peak Hour Turning Movement Count

ID: 22-020152-001
City: Los Angeles

Day: Saturday
Date: 5/14/2022

PEAK HOURS		COUNT PERIODS
NONE		NONE
01:00 PM - 02:00 PM		12:00 PM - 02:00 PM
NONE		NONE

SOUTHBOUND

Ogden Dr

AM	0	0	0	0	0	AM
NOON	21	0	9	0	18	NOON
PM	0	0	0	0	0	PM
	0.5	0	0.5	0		

EASTBOUND

6th St

AM	NOON	PM	
0	632	0	
0	0	0	0
0	15	0	1
0	479	0	1
0	70	0	1
AM	NOON	PM	

WESTBOUND

6th St

	PM	NOON	AM
0	0	3	0
2	0	570	0
1	0	44	0
0	0	3	0
	0	535	0
	PM	NOON	AM

CONTROL

Signalized

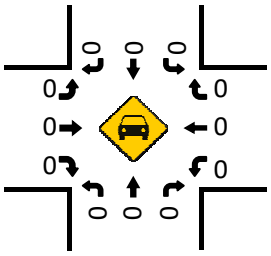
	AM	NOON	PM
TEV	0	1299	0
PHF		0.96	

NORTHBOUND

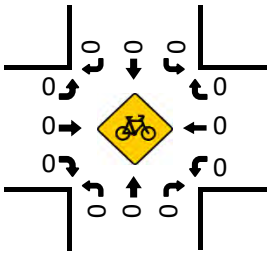
Ogden Dr

	0	0.5	0	0.5		
PM	0	0	0	0	0	PM
NOON	114	0	41	0	44	NOON
AM	0	0	0	0	0	AM

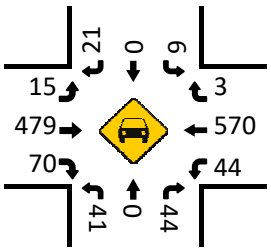
Totals (AM)



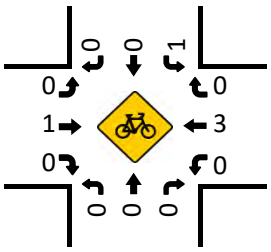
Total Bikes (AM)



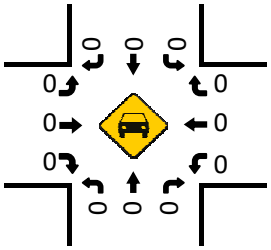
Totals (NOON)



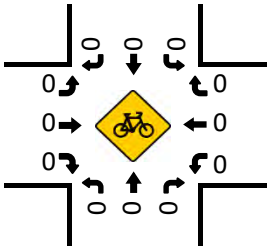
Total Bikes (NOON)



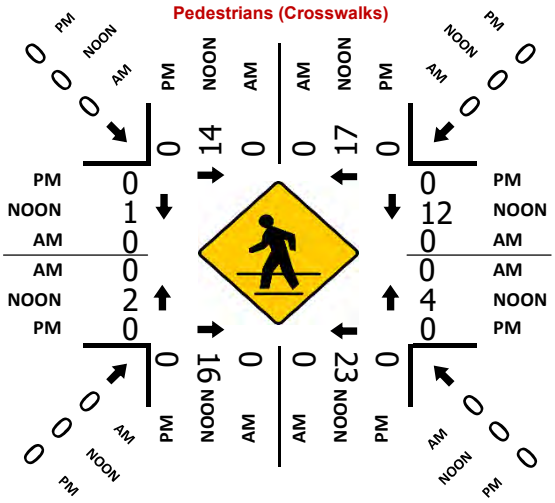
Totals (PM)



Total Bikes (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Curson Ave & 6th St

Peak Hour Turning Movement Count

ID: 22-020152-002
City: Los Angeles

Day: Thursday
Date: 5/12/2022

PEAK HOURS

AM	08:00 AM - 09:00 AM
NOON	01:00 PM - 02:00 PM
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	12:00 PM - 02:00 PM
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Curson Ave)

AM	44	85	50	0	109	AM
NOON	49	35	38	0	125	NOON
PM	29	52	53	0	165	PM
	0	1	1	0		

EASTBOUND (6th St)

AM	NOON	PM	
1285	678	540	⇦
1	4	2	0
13	30	35	1
296	466	651	1
49	73	51	1
AM	NOON	PM	

WESTBOUND (6th St)

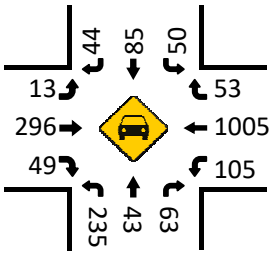
PM	NOON	AM	
70	44	53	0
441	521	1005	2
68	73	105	1
0	0	0	0
914	610	409	⇨
PM	NOON	AM	

NORTHBOUND (Curson Ave)

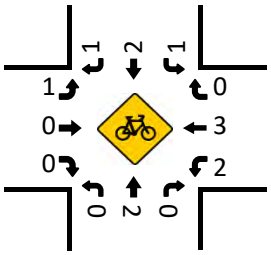
	0	1	1	0		
PM	171	0	68	60	210	PM
NOON	182	1	104	51	106	NOON
AM	239	0	235	43	63	AM

CONTROL			
Signalized			
TEV	2042	1595	1790
	AM	NOON	PM
PHF	0.95	0.95	0.97

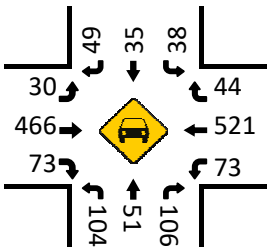
Totals (AM)



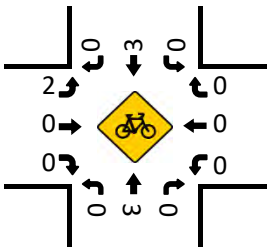
Total Bikes (AM)



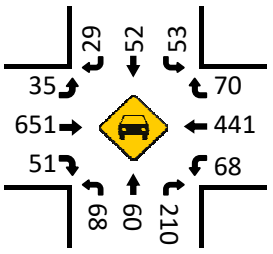
Totals (NOON)



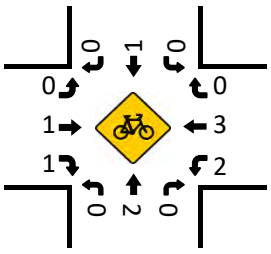
Total Bikes (NOON)



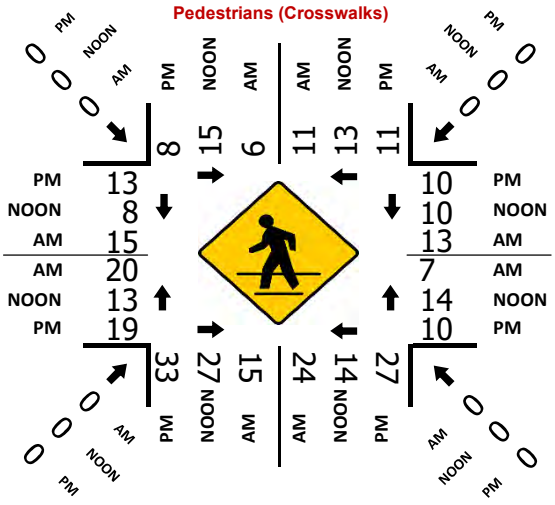
Totals (PM)



Total Bikes (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Curson Ave & 6th St

Peak Hour Turning Movement Count

ID: 22-020152-002
City: Los Angeles

Day: Saturday
Date: 5/14/2022

PEAK HOURS

NONE	
01:00 PM - 02:00 PM	
NONE	

COUNT PERIODS

NONE	
12:00 PM - 02:00 PM	
NONE	

SOUTHBOUND (Curson Ave)

AM	0	0	0	0	0	AM
NOON	32	54	48	0	137	NOON
PM	0	0	0	0	0	PM

0 1 1 0

EASTBOUND (6th St)

AM	NOON	PM	
0	618	0	
0	1	0	0
0	38	0	1
0	415	0	1
0	80	0	1
AM	NOON	PM	

WESTBOUND (6th St)

PM	NOON	AM	
0	55	0	0
0	504	0	2
0	81	0	1
0	2	0	0
0	555	0	
PM	NOON	AM	

CONTROL

Signalized

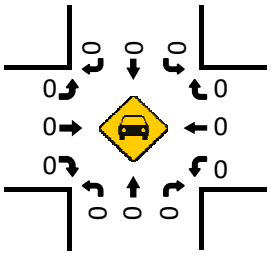
	AM	NOON	PM
TEV	0	1525	0
PHF		0.98	

NORTHBOUND (Curson Ave)

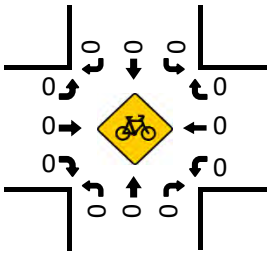
PM	0	0	0	0	0	PM
NOON	215	0	81	44	90	NOON
AM	0	0	0	0	0	AM

0 1 1 0

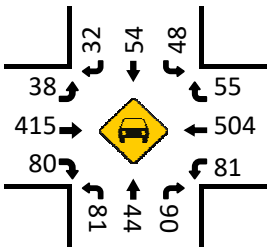
Totals (AM)



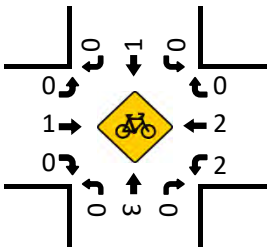
Total Bikes (AM)



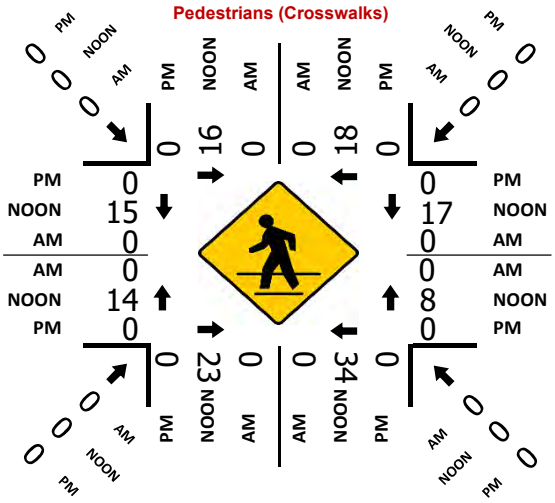
Totals (NOON)



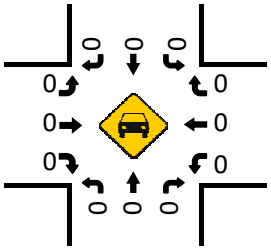
Total Bikes (NOON)



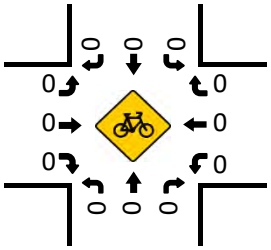
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Ogden Dr & Wilshire Blvd

Peak Hour Turning Movement Count

ID: 22-020152-005
City: Los Angeles

Day: Thursday
Date: 5/12/2022

Ogden Dr

SOUTHBOUND

AM	0	0	0	0	0	AM	7:00 AM - 09:00 AM
NOON	0	0	0	0	0	NOON	12:00 PM - 02:00 PM
PM	0	0	0	0	0	PM	4:00 PM - 06:00 PM

PEAK HOURS: 07:30 AM - 08:30 AM; 01:00 PM - 02:00 PM; 05:00 PM - 06:00 PM

COUNT PERIODS

EASTBOUND

AM	NOON	PM	
773	501	519	
0	1	0	0
0	0	0	0
364	702	1222	3
4	6	26	0

Wilshire Blvd

WESTBOUND

	PM	NOON	AM
0	0	0	0
2	502	497	769
1	11	2	2
0	1	1	0
	1247	717	366

Wilshire Blvd

		0	0	0	0	
		0	1	0	1	
PM	37	0	17	0	24	PM
NOON	9	1	3	0	14	NOON
AM	6	0	4	0	2	AM

NORTHBOUND

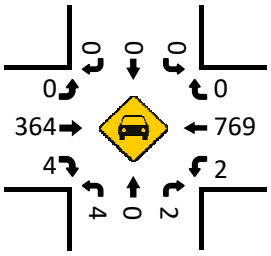
Ogden Dr

CONTROL

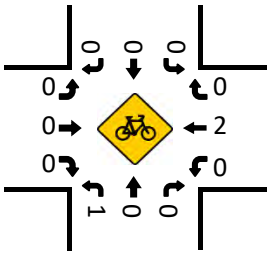
Signalized

	AM	NOON	PM
TEV	1145	1227	1803
PHF	0.91	0.93	0.94

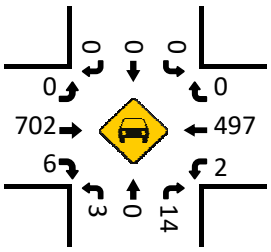
Totals (AM)



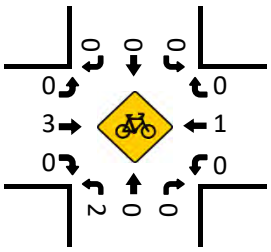
Total Bikes (AM)



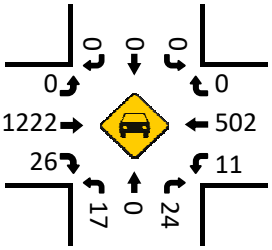
Totals (NOON)



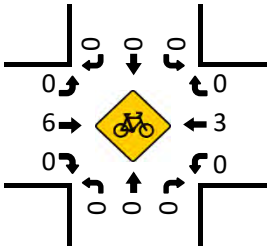
Total Bikes (NOON)



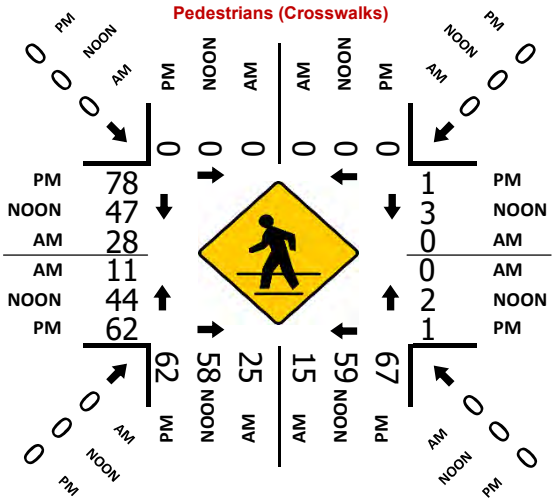
Totals (PM)



Total Bikes (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Ogden Dr & Wilshire Blvd

Peak Hour Turning Movement Count

ID: 22-020152-005
City: Los Angeles

Day: Saturday
Date: 5/14/2022

PEAK HOURS		COUNT PERIODS
NONE	AM	NONE
01:00 PM - 02:00 PM	NOON	12:00 PM - 02:00 PM
NONE	PM	NONE

SOUTHBOUND — Ogden Dr

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

0 0 0 0

EASTBOUND — Wilshire Blvd

AM	NOON	PM	
0	371	0	
0	0	0	0
0	0	0	0
0	476	0	3
0	11	0	0
AM	NOON	PM	

WESTBOUND — Wilshire Blvd

	PM	NOON	AM
0	0	0	0
2	0	370	0
1	0	0	0
0	0	0	0
	0	498	0
	PM	NOON	AM

CONTROL

Signalized

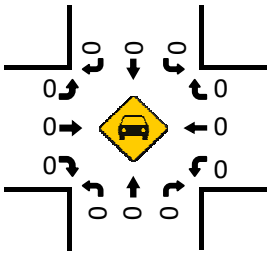
	AM	NOON	PM
TEV	0	880	0
PHF		0.91	

0 1 0 1

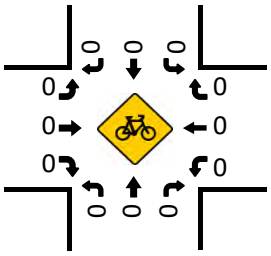
NORTHBOUND — Ogden Dr

PM	0	0	0	0	0	PM
NOON	11	0	1	0	22	NOON
AM	0	0	0	0	0	AM

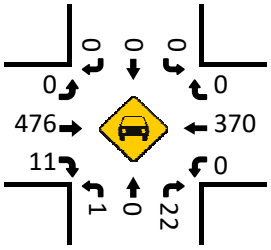
Totals (AM)



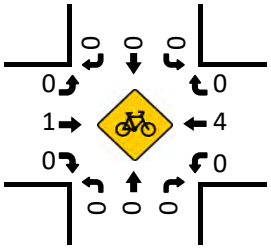
Total Bikes (AM)



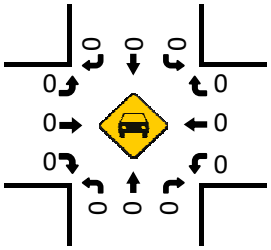
Totals (NOON)



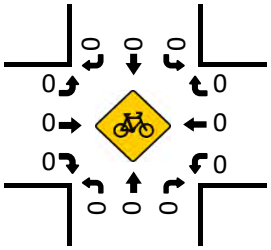
Total Bikes (NOON)



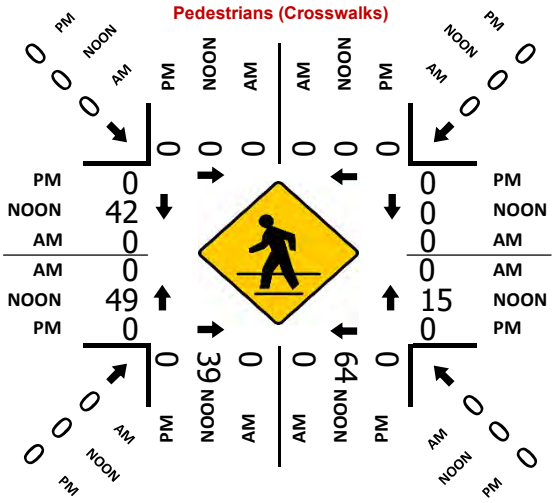
Totals (PM)



Total Bikes (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Spaulding Ave & Wilshire Blvd

Peak Hour Turning Movement Count

ID: 22-020152-004
City: Los Angeles

Day: Thursday
Date: 5/12/2022

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	01:00 PM - 02:00 PM
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	12:00 PM - 02:00 PM
PM	4:00 PM - 06:00 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	1200	1254	1810
PHF	0.93	0.93	0.95

SOUTHBOUND (Spaulding Ave)

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Wilshire Blvd)

AM	NOON	PM	
781	498	505	⇦
0	0	0	↶ 0
0	0	0	↱ 0
339	677	1220	→ 2
34	36	32	↷ 0

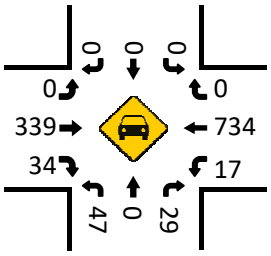
WESTBOUND (Wilshire Blvd)

PM	NOON	AM	
0	0	0	0 ↰
480	474	734	3 ←
17	19	17	1 ↶
0	0	0	0 ↱
1256	700	368	⇨

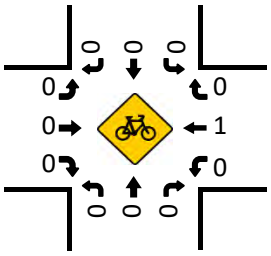
NORTHBOUND (Spaulding Ave)

PM	49	0	25	0	36	PM
NOON	56	1	24	0	23	NOON
AM	51	0	47	0	29	AM
		0	0	1	0	

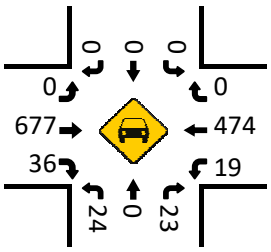
Totals (AM)



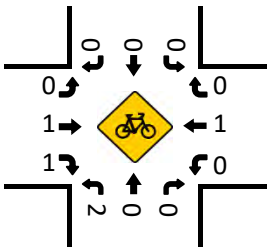
Total Bikes (AM)



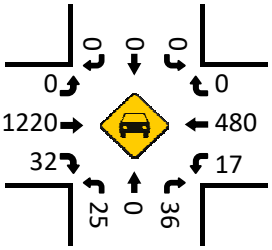
Totals (NOON)



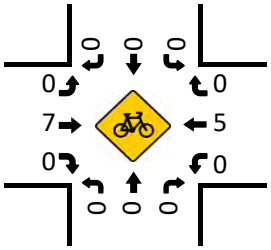
Total Bikes (NOON)



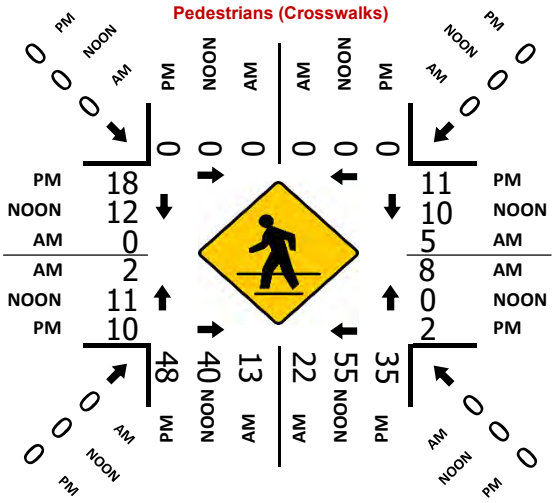
Totals (PM)



Total Bikes (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Spaulding Ave & Wilshire Blvd

Peak Hour Turning Movement Count

ID: 22-020152-004
City: Los Angeles

Day: Saturday
Date: 5/14/2022

PEAK HOURS

NONE

01:00 PM - 02:00 PM

NONE

COUNT PERIODS

NONE

12:00 PM - 02:00 PM

NONE

SOUTHBOUND (Spaulding Ave)

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Wilshire Blvd)

AM	NOON	PM	
0	364	0	
0	1	0	0
0	0	0	0
0	443	0	2
0	51	0	0
AM	NOON	PM	

WESTBOUND (Wilshire Blvd)

	PM	NOON	AM
0	0	0	0
3	0	339	0
1	0	26	0
0	0	0	0
	0	477	0
	PM	NOON	AM

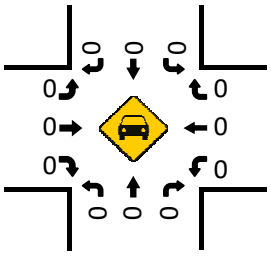
NORTHBOUND (Spaulding Ave)

PM	0	0	0	0	0	PM
NOON	77	0	24	0	34	NOON
AM	0	0	0	0	0	AM

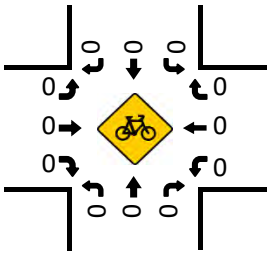
0 0 0 0 — 0 0 1 0

CONTROL			
Signalized			
TEV	0 AM	918 NOON	0 PM
PHF		0.92	

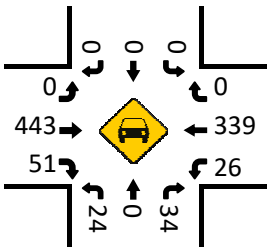
Totals (AM)



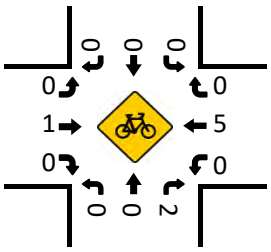
Total Bikes (AM)



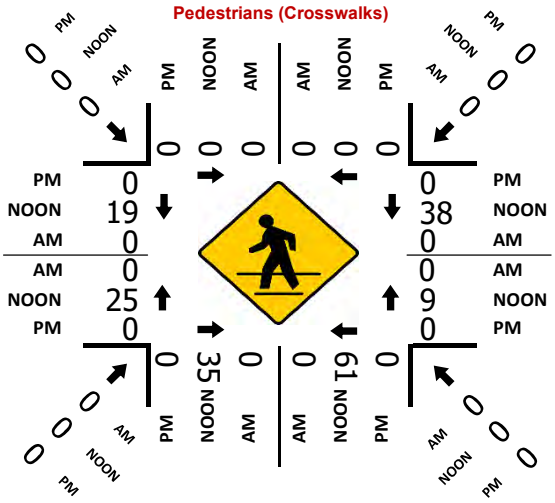
Totals (NOON)



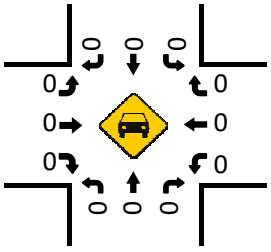
Total Bikes (NOON)



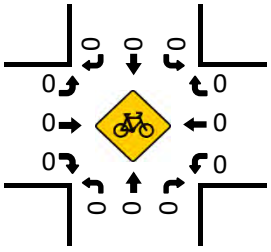
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Curson Ave & Wilshire Blvd

Peak Hour Turning Movement Count

ID: 22-020152-003
City: Los Angeles

Day: Thursday
Date: 5/12/2022

PEAK HOURS

AM	07:45 AM - 08:45 AM
NOON	01:00 PM - 02:00 PM
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	12:00 PM - 02:00 PM
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Curson Ave)

AM	38	158	38	0	321	AM
NOON	70	75	48	0	255	NOON
PM	44	118	40	0	338	PM
	0	1	0	0		

EASTBOUND (Wilshire Blvd)

AM	NOON	PM	
666	492	504	
2	2	2	0
36	61	108	1
372	592	1096	3
8	16	40	0

WESTBOUND (Wilshire Blvd)

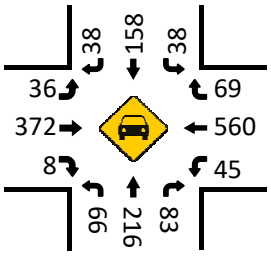
	PM	NOON	AM
0.5	64	61	69
1.5	435	389	560
1	18	14	45
0	16	11	4
	1216	710	497

NORTHBOUND (Curson Ave)

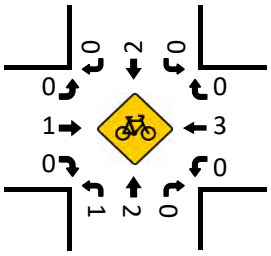
PM	176	0	23	166	64	PM
NOON	105	0	31	133	59	NOON
AM	211	0	66	216	83	AM
		0	0	1	0	

CONTROL			
Signalized			
TEV	1695 AM	1562 NOON	2234 PM
PHF	0.95	0.95	0.95

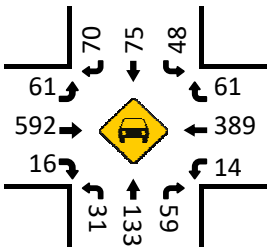
Totals (AM)



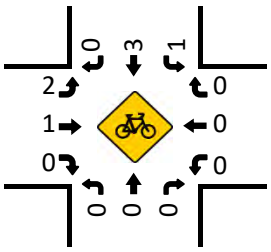
Total Bikes (AM)



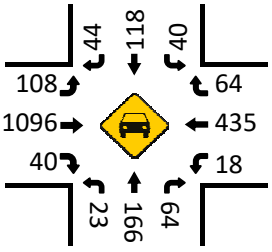
Totals (NOON)



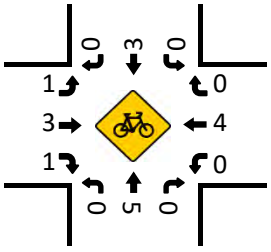
Total Bikes (NOON)



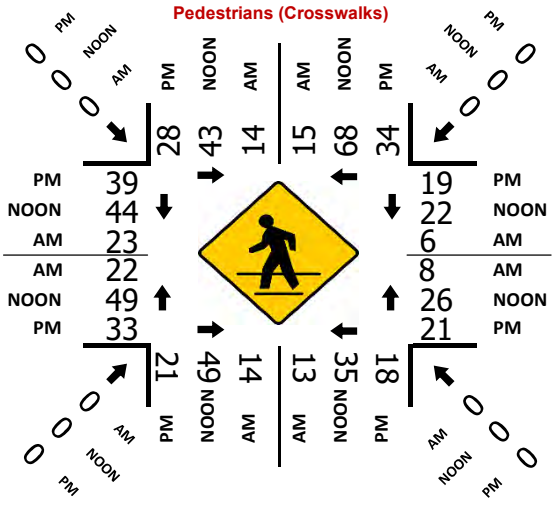
Totals (PM)



Total Bikes (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Curson Ave & Wilshire Blvd

Peak Hour Turning Movement Count

ID: 22-020152-003
City: Los Angeles

Day: Saturday
Date: 5/14/2022

PEAK HOURS

NONE

01:00 PM - 02:00 PM

NONE

COUNT PERIODS

NONE

12:00 PM - 02:00 PM

NONE

SOUTHBOUND (Curson Ave)

AM	0	0	0	0	0	AM
NOON	70	105	38	0	243	NOON
PM	0	0	0	0	0	PM

0 1 0 0

EASTBOUND (Wilshire Blvd)

AM	NOON	PM	
0	361	0	
0	4	0	0
0	57	0	1
0	401	0	3
0	14	0	0

WESTBOUND (Wilshire Blvd)

PM	NOON	AM	
0	38	0	0.5
0	264	0	1.5
0	12	0	1
0	6	0	0
0	485	0	

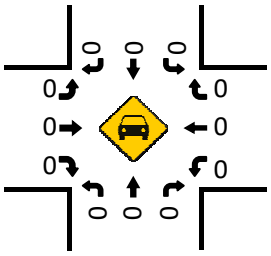
NORTHBOUND (Curson Ave)

PM	0	0	0	0	0	PM
NOON	131	0	23	148	40	NOON
AM	0	0	0	0	0	AM

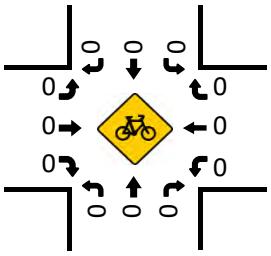
0 0 1 0

CONTROL			
Signalized			
TEV	0 AM	1220 NOON	0 PM
PHF		0.93	

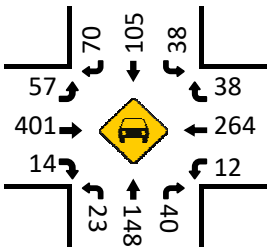
Totals (AM)



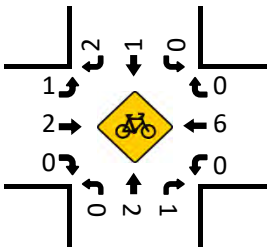
Total Bikes (AM)



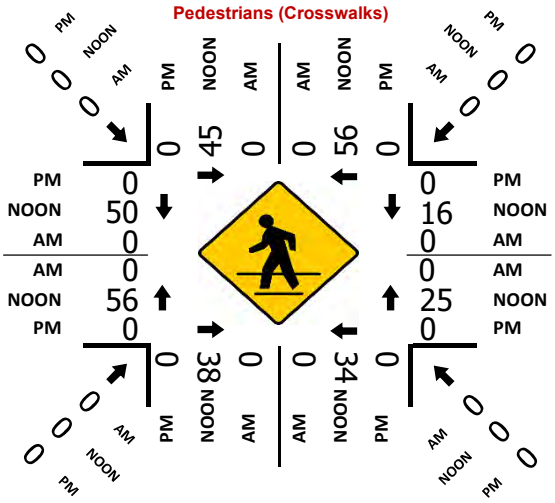
Totals (NOON)



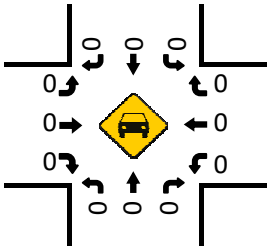
Total Bikes (NOON)



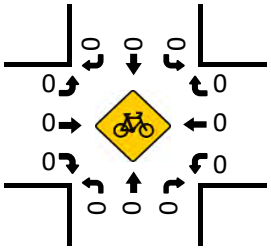
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by NDS/ATD

VOLUME

8th St Bet. Fairfax Ave & Orange Grove Ave

Day: Thursday
Date: 5/12/2022

City: Los Angeles
Project #: CA22_020153_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,648	3,695	7,343

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			3		4		7		12:00			44		41		85	
0:15			2		7		9		12:15			36		53		89	
0:30			1		6		7		12:30			47		30		77	
0:45			6	12	1	18	7	30	12:45			36	163	53	177	89	340
1:00			4		3		7		13:00			36		55		91	
1:15			4		1		5		13:15			48		44		92	
1:30			2		2		4		13:30			46		57		103	
1:45			1	11	1	7	2	18	13:45			52	182	42	198	94	380
2:00			1		0		1		14:00			60		41		101	
2:15			2		2		4		14:15			46		28		74	
2:30			2		2		4		14:30			66		34		100	
2:45			0	5	0	4	0	9	14:45			74	246	27	130	101	376
3:00			1		0		1		15:00			74		31		105	
3:15			0		0		0		15:15			79		57		136	
3:30			1		1		2		15:30			104		26		130	
3:45			1	3	1	2	2	5	15:45			93	350	36	150	129	500
4:00			2		4		6		16:00			117		25		142	
4:15			3		2		5		16:15			114		37		151	
4:30			7		4		11		16:30			140		23		163	
4:45			6	18	2	12	8	30	16:45			163	534	27	112	190	646
5:00			13		4		17		17:00			127		28		155	
5:15			8		3		11		17:15			146		36		182	
5:30			9		7		16		17:30			142		26		168	
5:45			11	41	7	21	18	62	17:45			152	567	28	118	180	685
6:00			17		12		29		18:00			120		35		155	
6:15			8		8		16		18:15			89		40		129	
6:30			8		26		34		18:30			50		27		77	
6:45			9	42	27	73	36	115	18:45			58	317	31	133	89	450
7:00			11		48		59		19:00			43		24		67	
7:15			18		101		119		19:15			43		13		56	
7:30			27		147		174		19:30			51		28		79	
7:45			39	95	156	452	195	547	19:45			53	190	21	86	74	276
8:00			47		156		203		20:00			43		26		69	
8:15			44		171		215		20:15			55		16		71	
8:30			24		196		220		20:30			39		15		54	
8:45			27	142	205	728	232	870	20:45			32	169	16	73	48	242
9:00			35		165		200		21:00			23		24		47	
9:15			23		181		204		21:15			23		12		35	
9:30			39		143		182		21:30			25		9		34	
9:45			33	130	114	603	147	733	21:45			17	88	16	61	33	149
10:00			18		73		91		22:00			16		11		27	
10:15			24		61		85		22:15			21		21		42	
10:30			21		71		92		22:30			24		16		40	
10:45			24	87	48	253	72	340	22:45			14	75	7	55	21	130
11:00			27		63		90		23:00			11		7		18	
11:15			41		62		103		23:15			11		8		19	
11:30			39		41		80		23:30			15		5		20	
11:45			29	136	37	203	66	339	23:45			8	45	6	26	14	71
TOTALS				722		2376		3098	TOTALS				2926		1319		4245
SPLIT %				23.3%		76.7%		42.2%	SPLIT %				68.9%		31.1%		57.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,648	3,695	7,343

AM Peak Hour			7:30	8:30	8:00	PM Peak Hour			16:45	12:45	16:45
AM Pk Volume			157	747	870	PM Pk Volume			578	209	695
Pk Hr Factor			0.835	0.911	0.938	Pk Hr Factor			0.887	0.917	0.914
7 - 9 Volume	0	0	237	1180	1417	4 - 6 Volume	0	0	1101	230	1331
7 - 9 Peak Hour			7:30	8:00	8:00	4 - 6 Peak Hour			16:45	17:00	16:45
7 - 9 Pk Volume	0	0	157	728	870	4 - 6 Pk Volume	0	0	578	118	695
Pk Hr Factor	0.000	0.000	0.835	0.888	0.938	Pk Hr Factor	0.000	0.000	0.887	0.819	0.914

Prepared by NDS/ATD

VOLUME

8th St Bet. Fairfax Ave & Orange Grove Ave

Day: Saturday
Date: 5/14/2022

City: Los Angeles
Project #: CA22_020153_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,252	2,528	4,780

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			10		13		23		12:00			34		51		85	
0:15			11		8		19		12:15			31		52		83	
0:30			9		17		26		12:30			36		56		92	
0:45			9	39	5	43	14	82	12:45			46	147	44	203	90	350
1:00			9		7		16		13:00			39		48		87	
1:15			13		5		18		13:15			30		43		73	
1:30			6		3		9		13:30			34		56		90	
1:45			6	34	0	15	6	49	13:45			40	143	64	211	104	354
2:00			4		0		4		14:00			40		66		106	
2:15			3		4		7		14:15			49		51		100	
2:30			3		5		8		14:30			45		66		111	
2:45			4	14	3	12	7	26	14:45			40	174	57	240	97	414
3:00			5		3		8		15:00			39		61		100	
3:15			4		3		7		15:15			45		42		87	
3:30			3		0		3		15:30			36		42		78	
3:45			5	17	1	7	6	24	15:45			37	157	43	188	80	345
4:00			4		3		7		16:00			41		39		80	
4:15			6		2		8		16:15			48		43		91	
4:30			6		7		13		16:30			31		39		70	
4:45			7	23	1	13	8	36	16:45			37	157	43	164	80	321
5:00			2		2		4		17:00			44		52		96	
5:15			1		2		3		17:15			29		41		70	
5:30			2		1		3		17:30			46		21		67	
5:45			0	5	5	10	5	15	17:45			45	164	38	152	83	316
6:00			1		4		5		18:00			39		23		62	
6:15			4		3		7		18:15			35		39		74	
6:30			4		10		14		18:30			37		36		73	
6:45			7	16	3	20	10	36	18:45			25	136	20	118	45	254
7:00			11		8		19		19:00			40		40		80	
7:15			9		9		18		19:15			45		46		91	
7:30			8		13		21		19:30			32		41		73	
7:45			9	37	12	42	21	79	19:45			42	159	38	165	80	324
8:00			10		14		24		20:00			28		32		60	
8:15			9		16		25		20:15			30		25		55	
8:30			12		18		30		20:30			25		28		53	
8:45			20	51	31	79	51	130	20:45			38	121	21	106	59	227
9:00			20		22		42		21:00			29		26		55	
9:15			32		37		69		21:15			22		17		39	
9:30			39		43		82		21:30			24		18		42	
9:45			36	127	26	128	62	255	21:45			22	97	17	78	39	175
10:00			35		33		68		22:00			18		19		37	
10:15			47		46		93		22:15			24		11		35	
10:30			32		46		78		22:30			18		23		41	
10:45			27	141	46	171	73	312	22:45			30	90	20	73	50	163
11:00			29		34		63		23:00			17		44		61	
11:15			42		39		81		23:15			21		36		57	
11:30			30		41		71		23:30			17		35		52	
11:45			38	139	40	154	78	293	23:45			9	64	21	136	30	200
TOTALS				643		694		**1337**	**TOTALS**				1609		1834		**3443**
SPLIT %				48.1%		51.9%		**28.0%**	**SPLIT %**				46.7%		53.3%		**72.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,252	2,528	4,780

AM Peak Hour			9:30	11:45	**11:45**	**PM Peak Hour**			13:45	13:45	**13:45**
AM Pk Volume			157	199	**338**	**PM Pk Volume**			174	247	**421**
Pk Hr Factor			0.835	0.888	**0.918**	**Pk Hr Factor**			0.888	0.936	**0.948**
7 - 9 Volume	0	0	88	121	**209**	**4 - 6 Volume**	0	0	321	316	**637**
7 - 9 Peak Hour			8:00	8:00	**8:00**	**4 - 6 Peak Hour**			17:00	16:15	**16:15**
7 - 9 Pk Volume	0	0	51	79	**130**	**4 - 6 Pk Volume**	0	0	164	177	**337**
Pk Hr Factor	0.000	0.000	0.638	0.637	**0.637**	**Pk Hr Factor**	0.000	0.000	0.891	0.851	**0.878**

Prepared by NDS/ATD

VOLUME

8th St Bet. Stanley Ave & Curson Ave

Day: Thursday
Date: 5/12/2022

City: Los Angeles
Project #: CA22_020153_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,684	3,141	6,825

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			4		1		5		12:00			43		34		77	
0:15			3		2		5		12:15			45		26		71	
0:30			1		7		8		12:30			34		36		70	
0:45			5	13	1	11	6	24	12:45			39	161	45	141	84	302
1:00			2		2		4		13:00			50		33		83	
1:15			1		1		2		13:15			49		35		84	
1:30			2		1		3		13:30			57		36		93	
1:45			0	5	1	5	1	10	13:45			44	200	29	133	73	333
2:00			0		0		0		14:00			62		30		92	
2:15			1		1		2		14:15			59		22		81	
2:30			2		0		2		14:30			59		48		107	
2:45			0	3	0	1	0	4	14:45			82	262	37	137	119	399
3:00			2		0		2		15:00			84		32		116	
3:15			1		1		2		15:15			82		31		113	
3:30			2		2		4		15:30			105		29		134	
3:45			0	5	1	4	1	9	15:45			108	379	38	130	146	509
4:00			2		2		4		16:00			118		35		153	
4:15			0		2		2		16:15			112		39		151	
4:30			2		2		4		16:30			123		31		154	
4:45			1	5	5	11	6	16	16:45			155	508	30	135	185	643
5:00			4		6		10		17:00			132		33		165	
5:15			5		9		14		17:15			139		33		172	
5:30			3		7		10		17:30			151		24		175	
5:45			2	14	13	35	15	49	17:45			113	535	39	129	152	664
6:00			6		8		14		18:00			125		31		156	
6:15			8		14		22		18:15			99		29		128	
6:30			15		20		35		18:30			55		25		80	
6:45			18	47	17	59	35	106	18:45			60	339	33	118	93	457
7:00			21		49		70		19:00			47		28		75	
7:15			23		67		90		19:15			45		20		65	
7:30			42		115		157		19:30			49		19		68	
7:45			47	133	125	356	172	489	19:45			30	171	14	81	44	252
8:00			68		145		213		20:00			32		22		54	
8:15			50		168		218		20:15			40		23		63	
8:30			44		188		232		20:30			24		10		34	
8:45			33	195	188	689	221	884	20:45			26	122	17	72	43	194
9:00			46		168		214		21:00			16		14		30	
9:15			41		127		168		21:15			15		12		27	
9:30			49		126		175		21:30			20		12		32	
9:45			31	167	82	503	113	670	21:45			13	64	12	50	25	114
10:00			43		48		91		22:00			12		10		22	
10:15			39		39		78		22:15			10		10		20	
10:30			38		47		85		22:30			9		6		15	
10:45			29	149	29	163	58	312	22:45			13	44	4	30	17	74
11:00			24		37		61		23:00			9		7		16	
11:15			37		29		66		23:15			7		4		11	
11:30			33		31		64		23:30			7		4		11	
11:45			42	136	31	128	73	264	23:45			4	27	5	20	9	47
TOTALS				872		1965		2837	TOTALS				2812		1176		3988
SPLIT %				30.7%		69.3%		41.6%	SPLIT %				70.5%		29.5%		58.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,684	3,141	6,825

AM Peak Hour			7:45	8:15	8:15	PM Peak Hour			16:45	12:30	16:45
AM Pk Volume			209	712	885	PM Pk Volume			577	149	697
Pk Hr Factor			0.768	0.947	0.954	Pk Hr Factor			0.931	0.828	0.942
7 - 9 Volume	0	0	328	1045	1373	4 - 6 Volume	0	0	1043	264	1307
7 - 9 Peak Hour			7:45	8:00	8:00	4 - 6 Peak Hour			16:45	16:00	16:45
7 - 9 Pk Volume	0	0	209	689	884	4 - 6 Pk Volume	0	0	577	135	697
Pk Hr Factor	0.000	0.000	0.768	0.916	0.953	Pk Hr Factor	0.000	0.000	0.931	0.865	0.942

Prepared by NDS/ATD

VOLUME

8th St Bet. Stanley Ave & Curson Ave

Day: Saturday
Date: 5/14/2022

City: Los Angeles
Project #: CA22_020153_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,910	1,504	3,414

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
0:00			6		5		11		12:00			26		31		57	
0:15			7		4		11		12:15			36		21		57	
0:30			2		10		12		12:30			37		29		66	
0:45			6	21	2	21	8	42	12:45			48	147	26	107	74	254
1:00			5		5		10		13:00			33		33		66	
1:15			5		8		13		13:15			41		23		64	
1:30			2		5		7		13:30			41		23		64	
1:45			5	17	1	19	6	36	13:45			35	150	31	110	66	260
2:00			2		1		3		14:00			37		33		70	
2:15			2		7		9		14:15			38		32		70	
2:30			2		4		6		14:30			30		24		54	
2:45			2	8	3	15	5	23	14:45			29	134	36	125	65	259
3:00			4		1		5		15:00			40		27		67	
3:15			2		4		6		15:15			47		21		68	
3:30			3		0		3		15:30			40		27		67	
3:45			2	11	3	8	5	19	15:45			32	159	25	100	57	259
4:00			1		3		4		16:00			33		28		61	
4:15			0		2		2		16:15			49		21		70	
4:30			2		3		5		16:30			38		29		67	
4:45			1	4	1	9	2	13	16:45			46	166	19	97	65	263
5:00			1		1		2		17:00			31		24		55	
5:15			1		2		3		17:15			45		25		70	
5:30			0		1		1		17:30			44		17		61	
5:45			3	5	4	8	7	13	17:45			30	150	27	93	57	243
6:00			3		2		5		18:00			43		14		57	
6:15			4		6		10		18:15			28		17		45	
6:30			1		2		3		18:30			29		26		55	
6:45			4	12	5	15	9	27	18:45			24	124	14	71	38	195
7:00			7		5		12		19:00			29		20		49	
7:15			3		6		9		19:15			23		23		46	
7:30			6		11		17		19:30			27		19		46	
7:45			13	29	23	45	36	74	19:45			24	103	16	78	40	181
8:00			10		21		31		20:00			31		14		45	
8:15			15		14		29		20:15			13		16		29	
8:30			17		13		30		20:30			19		14		33	
8:45			21	63	29	77	50	140	20:45			15	78	13	57	28	135
9:00			17		18		35		21:00			20		25		45	
9:15			25		26		51		21:15			12		11		23	
9:30			37		21		58		21:30			14		18		32	
9:45			26	105	23	88	49	193	21:45			11	57	17	71	28	128
10:00			27		41		68		22:00			15		10		25	
10:15			28		28		56		22:15			16		13		29	
10:30			40		31		71		22:30			14		7		21	
10:45			28	123	25	125	53	248	22:45			17	62	8	38	25	100
11:00			40		27		67		23:00			9		10		19	
11:15			31		21		52		23:15			15		6		21	
11:30			38		30		68		23:30			12		6		18	
11:45			33	142	22	100	55	242	23:45			4	40	5	27	9	67
TOTALS				540		530		1070	TOTALS				1370		974		2344
SPLIT %				50.5%		49.5%		31.3%	SPLIT %				58.4%		41.6%		68.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,910	1,504	3,414

AM Peak Hour			11:00	10:00	10:00	PM Peak Hour			16:00	14:00	12:30
AM Pk Volume			142	125	248	PM Pk Volume			166	125	270
Pk Hr Factor			0.888	0.762	0.873	Pk Hr Factor			0.847	0.868	0.912
7 - 9 Volume	0	0	92	122	214	4 - 6 Volume	0	0	316	190	506
7 - 9 Peak Hour			8:00	8:00	8:00	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	63	77	140	4 - 6 Pk Volume	0	0	166	97	263
Pk Hr Factor	0.000	0.000	0.750	0.664	0.700	Pk Hr Factor	0.000	0.000	0.847	0.836	0.939

Prepared by NDS/ATD

VOLUME

Orange Grove Ave Bet. Wilshire Blvd & 8th St

Day: Thursday
Date: 5/12/2022

City: Los Angeles
Project #: CA22_020153_003

DAILY TOTALS	NB	SB	EB	WB	Total
	211	576	0	0	787

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
0:00	1		2						3		12:00	1		5						6	
0:15	0		0						0		12:15	0		16						16	
0:30	0		1						1		12:30	3		15						18	
0:45	0	1	0	3					0	4	12:45	3	7	7	43					10	50
1:00	0		0						0		13:00	4		17						21	
1:15	0		0						0		13:15	5		16						21	
1:30	0		0						0		13:30	0		16						16	
1:45	0		0						0		13:45	5	14	18	67					23	81
2:00	0		0						0		14:00	0		16						16	
2:15	0		0						0		14:15	5		16						21	
2:30	0		0						0		14:30	4		16						20	
2:45	0		0						0		14:45	4	13	18	66					22	79
3:00	0		0						0		15:00	4		12						16	
3:15	0		0						0		15:15	3		23						26	
3:30	0		0						0		15:30	1		12						13	
3:45	0		0						0		15:45	3	11	15	62					18	73
4:00	0		0						0		16:00	2		14						16	
4:15	1		0						1		16:15	3		13						16	
4:30	3		2						5		16:30	2		10						12	
4:45	1	5	1	3					2	8	16:45	2	9	11	48					13	57
5:00	1		0						1		17:00	5		20						25	
5:15	1		0						1		17:15	2		11						13	
5:30	1		1						2		17:30	4		7						11	
5:45	1	4	0	1					1	5	17:45	0	11	8	46					8	57
6:00	0		1						1		18:00	1		16						17	
6:15	2		2						4		18:15	5		17						22	
6:30	0		5						5		18:30	4		16						20	
6:45	0	2	1	9					1	11	18:45	3	13	9	58					12	71
7:00	1		2						3		19:00	0		9						9	
7:15	0		1						1		19:15	1		5						6	
7:30	1		1						2		19:30	2		6						8	
7:45	3	5	2	6					5	11	19:45	3	6	1	21					4	27
8:00	13		6						19		20:00	4		9						13	
8:15	10		6						16		20:15	5		2						7	
8:30	11		3						14		20:30	2		3						5	
8:45	13	47	10	25					23	72	20:45	0	11	6	20					6	31
9:00	10		6						16		21:00	1		5						6	
9:15	3		0						3		21:15	0		1						1	
9:30	4		6						10		21:30	3		1						4	
9:45	5	22	7	19					12	41	21:45	4	8	7	14					11	22
10:00	2		3						5		22:00	0		2						2	
10:15	3		11						14		22:15	0		5						5	
10:30	4		2						6		22:30	1		9						10	
10:45	2	11	2	18					4	29	22:45	1	2	2	18					3	20
11:00	2		3						5		23:00	0		0						0	
11:15	2		11						13		23:15	1		3						4	
11:30	2		3						5		23:30	1		2						3	
11:45	1	7	7	24					8	31	23:45	0	2	0	5					0	7
TOTALS		104		108						**212**	**TOTALS**		107		468						**575**
SPLIT %		49.1%		50.9%						**26.9%**	**SPLIT %**		18.6%		81.4%						**73.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	211	576	0	0	787

AM Peak Hour	8:00	11:45			**8:00**	**PM Peak Hour**	14:15	14:30			**14:30**
AM Pk Volume	47	43			**72**	**PM Pk Volume**	17	69			**84**
Pk Hr Factor	0.904	0.672			**0.783**	**Pk Hr Factor**	0.850	0.750			**0.808**
7 - 9 Volume	52	31	0	0	**83**	**4 - 6 Volume**	20	94	0	0	**114**
7 - 9 Peak Hour	8:00	8:00			**8:00**	**4 - 6 Peak Hour**	16:45	16:15			**16:15**
7 - 9 Pk Volume	47	25	0	0	**72**	**4 - 6 Pk Volume**	13	54	0	0	**66**
Pk Hr Factor	0.904	0.625	0.000	0.000	**0.783**	**Pk Hr Factor**	0.650	0.675	0.000	0.000	**0.660**

Prepared by NDS/ATD

VOLUME

Orange Grove Ave Bet. Wilshire Blvd & 8th St

Day: Saturday
Date: 5/14/2022

City: Los Angeles
Project #: CA22_020153_003

DAILY TOTALS	NB	SB	EB	WB	Total
	225	929	0	0	1,154

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
0:00	0		2						2		12:00	3		17						20	
0:15	2		1						3		12:15	2		25						27	
0:30	0		1						1		12:30	2		20						22	
0:45	2	4	1	5					3	9	12:45	3	10	21	83					24	93
1:00	0		1						1		13:00	1		14						15	
1:15	0		1						1		13:15	2		16						18	
1:30	1		0						1		13:30	2		15						17	
1:45	0	1	1	3					1	4	13:45	5	10	26	71					31	81
2:00	0		0						0		14:00	4		17						21	
2:15	2		0						2		14:15	4		22						26	
2:30	1		0						1		14:30	8		30						38	
2:45	0	3	1	1					1	4	14:45	4	20	22	91					26	111
3:00	0		0						0		15:00	4		23						27	
3:15	0		0						0		15:15	3		16						19	
3:30	0		0						0		15:30	3		25						28	
3:45	0		1	1					1	1	15:45	4	14	17	81					21	95
4:00	1		0						1		16:00	4		14						18	
4:15	0		2						2		16:15	5		21						26	
4:30	2		2						4		16:30	3		18						21	
4:45	0	3	0	4					0	7	16:45	4	16	31	84					35	100
5:00	0		0						0		17:00	4		33						37	
5:15	0		0						0		17:15	2		22						24	
5:30	0		0						0		17:30	3		12						15	
5:45	0		0						0		17:45	5	14	10	77					15	91
6:00	0		0						0		18:00	2		8						10	
6:15	0		1						1		18:15	2		21						23	
6:30	0		3						3		18:30	7		13						20	
6:45	0		0	4					0	4	18:45	4	15	7	49					11	64
7:00	0		0						0		19:00	7		19						26	
7:15	2		1						3		19:15	6		28						34	
7:30	0		0						0		19:30	5		18						23	
7:45	0	2	1	2					1	4	19:45	3	21	13	78					16	99
8:00	0		0						0		20:00	2		14						16	
8:15	1		4						5		20:15	5		14						19	
8:30	1		2						3		20:30	6		8						14	
8:45	3	5	4	10					7	15	20:45	0	13	3	39					3	52
9:00	1		2						3		21:00	3		6						9	
9:15	2		4						6		21:15	1		4						5	
9:30	3		9						12		21:30	3		5						8	
9:45	5	11	1	16					6	27	21:45	3	10	10	25					13	35
10:00	4		6						10		22:00	2		9						11	
10:15	3		10						13		22:15	3		4						7	
10:30	6		8						14		22:30	2		17						19	
10:45	4	17	10	34					14	51	22:45	4	11	11	41					15	52
11:00	5		12						17		23:00	2		17						19	
11:15	7		11						18		23:15	2		30						32	
11:30	3		13						16		23:30	2		24						26	
11:45	3	18	13	49					16	67	23:45	1	7	10	81					11	88
TOTALS		64		129						**193**	**TOTALS**		161		800						**961**
SPLIT %		33.2%		66.8%						**16.7%**	**SPLIT %**		16.8%		83.2%						**83.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	225	929	0	0	1,154

AM Peak Hour	10:30	11:45			**11:45**	**PM Peak Hour**	18:30	16:30			**16:15**
AM Pk Volume	22	75			**85**	**PM Pk Volume**	24	104			**119**
Pk Hr Factor	0.786	0.750			**0.787**	**Pk Hr Factor**	0.857	0.788			**0.804**
7 - 9 Volume	7	12	0	0	**19**	**4 - 6 Volume**	30	161	0	0	**191**
7 - 9 Peak Hour	8:00	8:00			**8:00**	**4 - 6 Peak Hour**	16:00	16:30			**16:15**
7 - 9 Pk Volume	5	10	0	0	**15**	**4 - 6 Pk Volume**	16	104	0	0	**119**
Pk Hr Factor	0.417	0.625	0.000	0.000	**0.536**	**Pk Hr Factor**	0.800	0.788	0.000	0.000	**0.804**

Prepared by NDS/ATD

VOLUME

Ogden Dr Bet. Wilshire Blvd & 8th st

Day: Thursday
Date: 5/12/2022

City: Los Angeles
Project #: CA22_020153_004

DAILY TOTALS	NB	SB	EB	WB	Total
	173	222	0	0	395

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
0:00	0		1						1		12:00	0		0						0	
0:15	2		0						2		12:15	0		1						1	
0:30	0		0						0		12:30	0		0						0	
0:45	0	2	0	1					0	3	12:45	2	2	0	1					2	3
1:00	0		0						0		13:00	0		0						0	
1:15	0		0						0		13:15	1		1						2	
1:30	1		0						1		13:30	4		2						6	
1:45	0	1	0						0	1	13:45	5	10	1	4					6	14
2:00	0		0						0		14:00	5		6						11	
2:15	2		0						2		14:15	2		8						10	
2:30	0		0						0		14:30	3		6						9	
2:45	0	2	0						0	2	14:45	2	12	1	21					3	33
3:00	0		0						0		15:00	2		8						10	
3:15	0		1						1		15:15	8		5						13	
3:30	0		0						0		15:30	4		2						6	
3:45	1	1	0	1					1	2	15:45	3	17	11	26					14	43
4:00	1		1						2		16:00	4		3						7	
4:15	2		1						3		16:15	2		7						9	
4:30	0		1						1		16:30	6		5						11	
4:45	3	6	0	3					3	9	16:45	4	16	6	21					10	37
5:00	3		2						5		17:00	6		11						17	
5:15	4		2						6		17:15	3		4						7	
5:30	0		1						1		17:30	2		5						7	
5:45	0	7	1	6					1	13	17:45	4	15	4	24					8	39
6:00	0		0						0		18:00	6		10						16	
6:15	0		0						0		18:15	4		4						8	
6:30	0		0						0		18:30	4		6						10	
6:45	0		0						0		18:45	2	16	4	24					6	40
7:00	0		0						0		19:00	2		6						8	
7:15	0		0						0		19:15	3		8						11	
7:30	0		0						0		19:30	1		7						8	
7:45	0		0						0		19:45	2	8	7	28					9	36
8:00	1		0						1		20:00	3		5						8	
8:15	2		1						3		20:15	3		5						8	
8:30	1		0						1		20:30	4		5						9	
8:45	1	5	0	1					1	6	20:45	7	17	7	22					14	39
9:00	1		0						1		21:00	2		3						5	
9:15	0		1						1		21:15	4		3						7	
9:30	1		0						1		21:30	4		4						8	
9:45	0	2	1	2					1	4	21:45	4	14	2	12					6	26
10:00	1		0						1		22:00	4		2						6	
10:15	0		0						0		22:15	4		4						8	
10:30	0		0						0		22:30	2		4						6	
10:45	1	2	0						1	2	22:45	2	12	5	15					7	27
11:00	1		0						1		23:00	0		2						2	
11:15	0		0						0		23:15	3		6						9	
11:30	1		0						1		23:30	1		1						2	
11:45	0	2	0						0	2	23:45	0	4	1	10					1	14
TOTALS		30		14						44	TOTALS		143		208						351
SPLIT %		68.2%		31.8%						11.1%	SPLIT %		40.7%		59.3%						88.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	173	222	0	0	395

AM Peak Hour	4:30	5:00			4:30	PM Peak Hour	15:15	16:15			16:15
AM Pk Volume	10	6			15	PM Pk Volume	19	29			47
Pk Hr Factor	0.625	0.750			0.625	Pk Hr Factor	0.594	0.659			0.691
7 - 9 Volume	5	1	0	0	6	4 - 6 Volume	31	45	0	0	76
7 - 9 Peak Hour	8:00	7:30			8:00	4 - 6 Peak Hour	16:30	16:15			16:15
7 - 9 Pk Volume	5	1	0	0	6	4 - 6 Pk Volume	19	29	0	0	47
Pk Hr Factor	0.625	0.250	0.000	0.000	0.500	Pk Hr Factor	0.792	0.659	0.000	0.000	0.691

Prepared by NDS/ATD

VOLUME

Ogden Dr Bet. Wilshire Blvd & 8th st

Day: Saturday
Date: 5/14/2022

City: Los Angeles
Project #: CA22_020153_004

DAILY TOTALS	NB	SB	EB	WB	Total
	297	389	0	0	686

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
0:00	2		4						6		12:00	2		5						7	
0:15	2		1						3		12:15	4		3						7	
0:30	0		1						1		12:30	2		8						10	
0:45	0	4	1	7					1	11	12:45	4	12	6	22					10	34
1:00	1		0						1		13:00	3		8						11	
1:15	0		1						1		13:15	6		6						12	
1:30	3		1						4		13:30	5		4						9	
1:45	1	5	1	3					2	8	13:45	7	21	7	25					14	46
2:00	0		0						0		14:00	3		9						12	
2:15	0		3						3		14:15	7		5						12	
2:30	1		2						3		14:30	5		6						11	
2:45	1	2	0	5					1	7	14:45	3	18	5	25					8	43
3:00	1		0						1		15:00	8		10						18	
3:15	0		0						0		15:15	4		7						11	
3:30	0		0						0		15:30	5		11						16	
3:45	0	1	0						0	1	15:45	6	23	9	37					15	60
4:00	4		1						5		16:00	3		7						10	
4:15	8		1						9		16:15	1		10						11	
4:30	4		0						4		16:30	9		8						17	
4:45	3	19	0	2					3	21	16:45	7	20	13	38					20	58
5:00	1		0						1		17:00	1		8						9	
5:15	0		0						0		17:15	4		7						11	
5:30	1		0						1		17:30	5		2						7	
5:45	0	2	0						0	2	17:45	2	12	5	22					7	34
6:00	0		0						0		18:00	6		1						7	
6:15	1		1						2		18:15	3		5						8	
6:30	2		1						3		18:30	6		7						13	
6:45	1	4	1	3					2	7	18:45	7	22	6	19					13	41
7:00	2		1						3		19:00	5		15						20	
7:15	1		1						2		19:15	6		6						12	
7:30	2		0						2		19:30	3		5						8	
7:45	1	6	0	2					1	8	19:45	5	19	4	30					9	49
8:00	1		1						2		20:00	7		11						18	
8:15	1		1						2		20:15	3		3						6	
8:30	2		2						4		20:30	3		7						10	
8:45	5	9	2	6					7	15	20:45	2	15	4	25					6	40
9:00	1		3						4		21:00	1		10						11	
9:15	1		0						1		21:15	3		7						10	
9:30	6		3						9		21:30	3		6						9	
9:45	4	12	2	8					6	20	21:45	0	7	8	31					8	38
10:00	6		2						8		22:00	2		3						5	
10:15	3		9						12		22:15	4		5						9	
10:30	5		12						17		22:30	3		3						6	
10:45	8	22	9	32					17	54	22:45	3	12	4	15					7	27
11:00	10		7						17		23:00	2		1						3	
11:15	7		6						13		23:15	2		5						7	
11:30	3		6						9		23:30	1		3						4	
11:45	5	25	3	22					8	47	23:45	0	5	1	10					1	15
TOTALS		111		90						**201**	**TOTALS**		186		299						**485**
SPLIT %		55.2%		44.8%						**29.3%**	**SPLIT %**		38.4%		61.6%						**70.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	297	389	0	0	686

AM Peak Hour	10:30	10:15			**10:30**	**PM Peak Hour**	18:30	16:15			**15:00**
AM Pk Volume	30	37			**64**	**PM Pk Volume**	24	39			**60**
Pk Hr Factor	0.750	0.771			**0.941**	**Pk Hr Factor**	0.857	0.750			**0.833**
7 - 9 Volume	15	8	0	0	**23**	**4 - 6 Volume**	32	60	0	0	**92**
7 - 9 Peak Hour	8:00	8:00			**8:00**	**4 - 6 Peak Hour**	16:30	16:15			**16:00**
7 - 9 Pk Volume	9	6	0	0	**15**	**4 - 6 Pk Volume**	21	39	0	0	**58**
Pk Hr Factor	0.450	0.750	0.000	0.000	**0.536**	**Pk Hr Factor**	0.583	0.750	0.000	0.000	**0.725**

Prepared by NDS/ATD

VOLUME

Spaulding Ave Bet. Wilshire Blvd & 8th St

Day: Thursday
Date: 5/12/2022

City: Los Angeles
Project #: CA22_020153_005

DAILY TOTALS	NB	SB	EB	WB	Total
	758	720	0	0	1,478

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
0:00	0		5						5		12:00	11		11						22	
0:15	1		7						8		12:15	11		22						33	
0:30	0		3						3		12:30	10		11						21	
0:45	1	2	1	16					2	18	12:45	10	42	9	53					19	95
1:00	1		2						3		13:00	5		13						18	
1:15	1		0						1		13:15	15		8						23	
1:30	0		0						0		13:30	6		13						19	
1:45	0	2	0	2					0	4	13:45	11	37	14	48					25	85
2:00	0		0						0		14:00	9		16						25	
2:15	0		0						0		14:15	9		8						17	
2:30	0		0						0		14:30	13		8						21	
2:45	0		0						0		14:45	10	41	14	46					24	87
3:00	0		0						0		15:00	17		12						29	
3:15	0		1						1		15:15	11		14						25	
3:30	0		4						4		15:30	9		23						32	
3:45	1	1	0	5					1	6	15:45	12	49	17	66					29	115
4:00	1		0						1		16:00	7		9						16	
4:15	0		0						0		16:15	6		13						19	
4:30	1		0						1		16:30	14		10						24	
4:45	3	5	1	1					4	6	16:45	6	33	13	45					19	78
5:00	3		0						3		17:00	12		16						28	
5:15	8		0						8		17:15	5		17						22	
5:30	3		0						3		17:30	9		14						23	
5:45	11	25	2	2					13	27	17:45	10	36	12	59					22	95
6:00	16		8						24		18:00	5		8						13	
6:15	11		4						15		18:15	4		11						15	
6:30	10		5						15		18:30	8		11						19	
6:45	12	49	4	21					16	70	18:45	11	28	15	45					26	73
7:00	9		6						15		19:00	9		8						17	
7:15	16		10						26		19:15	8		9						17	
7:30	18		6						24		19:30	3		7						10	
7:45	22	65	11	33					33	98	19:45	3	23	10	34					13	57
8:00	22		10						32		20:00	4		11						15	
8:15	25		15						40		20:15	6		8						14	
8:30	32		11						43		20:30	7		7						14	
8:45	23	102	8	44					31	146	20:45	7	24	2	28					9	52
9:00	26		13						39		21:00	6		7						13	
9:15	20		14						34		21:15	1		2						3	
9:30	18		11						29		21:30	2		6						8	
9:45	17	81	10	48					27	129	21:45	3	12	2	17					5	29
10:00	8		8						16		22:00	3		6						9	
10:15	13		13						26		22:15	1		2						3	
10:30	13		6						19		22:30	2		4						6	
10:45	10	44	11	38					21	82	22:45	1	7	2	14					3	21
11:00	14		12						26		23:00	0		2						2	
11:15	15		9						24		23:15	0		4						4	
11:30	12		8						20		23:30	2		3						5	
11:45	7	48	16	45					23	93	23:45	0	2	1	10					1	12
TOTALS		424		255						**679**	**TOTALS**		334		465						**799**
SPLIT %		62.4%		37.6%						**45.9%**	**SPLIT %**		41.8%		58.2%						**54.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	758	720	0	0	1,478

AM Peak Hour	8:15	11:45			**8:15**	**PM Peak Hour**	14:30	15:00			**15:00**
AM Pk Volume	106	60			**153**	**PM Pk Volume**	51	66			**115**
Pk Hr Factor	0.828	0.682			**0.890**	**Pk Hr Factor**	0.750	0.717			**0.898**
7 - 9 Volume	167	77	0	0	**244**	**4 - 6 Volume**	69	104	0	0	**173**
7 - 9 Peak Hour	8:00	7:45			**7:45**	**4 - 6 Peak Hour**	16:15	16:45			**17:00**
7 - 9 Pk Volume	102	47	0	0	**148**	**4 - 6 Pk Volume**	38	60	0	0	**95**
Pk Hr Factor	0.797	0.783	0.000	0.000	**0.860**	**Pk Hr Factor**	0.679	0.882	0.000	0.000	**0.848**

Prepared by NDS/ATD

VOLUME

Spaulding Ave Bet. Wilshire Blvd & 8th St

Day: Saturday
Date: 5/14/2022

City: Los Angeles
Project #: CA22_020153_005

DAILY TOTALS	NB	SB	EB	WB	Total
	464	547	0	0	1,011

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
0:00	0		3						3		12:00	9		11						20	
0:15	3		6						9		12:15	7		11						18	
0:30	0		2						2		12:30	14		13						27	
0:45	2	5	2	13					4	18	12:45	10	40	17	52					27	92
1:00	1		2						3		13:00	15		14						29	
1:15	0		1						1		13:15	13		18						31	
1:30	3		1						4		13:30	13		18						31	
1:45	0	4	1	5					1	9	13:45	7	48	21	71					28	119
2:00	1		1						2		14:00	11		11						22	
2:15	0		0						0		14:15	12		12						24	
2:30	0		1						1		14:30	8		16						24	
2:45	0	1	0	2					0	3	14:45	11	42	14	53					25	95
3:00	1		0						1		15:00	12		11						23	
3:15	2		2						4		15:15	8		16						24	
3:30	0		5						5		15:30	9		9						18	
3:45	1	4	0	7					1	11	15:45	8	37	5	41					13	78
4:00	0		0						0		16:00	6		4						10	
4:15	0		0						0		16:15	11		15						26	
4:30	2		1						3		16:30	8		7						15	
4:45	0	2	0	1					0	3	16:45	4	29	8	34					12	63
5:00	1		2						3		17:00	6		9						15	
5:15	2		1						3		17:15	8		3						11	
5:30	0		0						0		17:30	5		12						17	
5:45	1	4	0	3					1	7	17:45	3	22	7	31					10	53
6:00	1		1						2		18:00	4		5						9	
6:15	1		0						1		18:15	5		4						9	
6:30	0		0						0		18:30	3		9						12	
6:45	3	5	1	2					4	7	18:45	7	19	4	22					11	41
7:00	4		2						6		19:00	5		7						12	
7:15	3		2						5		19:15	1		6						7	
7:30	7		0						7		19:30	3		4						7	
7:45	5	19	2	6					7	25	19:45	6	15	10	27					16	42
8:00	6		2						8		20:00	6		8						14	
8:15	6		5						11		20:15	4		9						13	
8:30	8		2						10		20:30	1		6						7	
8:45	11	31	4	13					15	44	20:45	8	19	7	30					15	49
9:00	5		2						7		21:00	6		5						11	
9:15	5		6						11		21:15	2		5						7	
9:30	9		4						13		21:30	3		9						12	
9:45	11	30	8	20					19	50	21:45	2	13	2	21					4	34
10:00	8		6						14		22:00	2		6						8	
10:15	8		6						14		22:15	1		4						5	
10:30	9		17						26		22:30	4		1						5	
10:45	3	28	4	33					7	61	22:45	1	8	2	13					3	21
11:00	6		12						18		23:00	3		6						9	
11:15	7		5						12		23:15	5		3						8	
11:30	7		5						12		23:30	3		5						8	
11:45	7	27	8	30					15	57	23:45	1	12	3	17					4	29
TOTALS		160		135						**295**	**TOTALS**		304		412						**716**
SPLIT %		54.2%		45.8%						**29.2%**	**SPLIT %**		42.5%		57.5%						**70.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	464	547	0	0	1,011

AM Peak Hour	11:45	11:45			**11:45**	**PM Peak Hour**	12:30	13:00			**13:00**
AM Pk Volume	37	43			**80**	**PM Pk Volume**	52	71			**119**
Pk Hr Factor	0.661	0.827			**0.741**	**Pk Hr Factor**	0.867	0.845			**0.960**
7 - 9 Volume	50	19	0	0	**69**	**4 - 6 Volume**	51	65	0	0	**116**
7 - 9 Peak Hour	8:00	8:00			**8:00**	**4 - 6 Peak Hour**	16:00	16:15			**16:15**
7 - 9 Pk Volume	31	13	0	0	**44**	**4 - 6 Pk Volume**	29	39	0	0	**68**
Pk Hr Factor	0.705	0.650	0.000	0.000	**0.733**	**Pk Hr Factor**	0.659	0.650	0.000	0.000	**0.654**

Prepared by NDS/ATD

VOLUME

Stanley Ave Bet. Wilshire Blvd & 8th St

Day: Thursday
Date: 5/12/2022

City: Los Angeles
Project #: CA22_020153_006

DAILY TOTALS	NB	SB	EB	WB	Total
	381	515	0	0	896

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	1		1						2		12:00	11		5						16	
00:15	1		0						1		12:15	8		6						14	
00:30	2		0						2		12:30	7		8						15	
00:45	0	4	0	1					0	5	12:45	5	31	6	25					11	56
01:00	0		0						0		13:00	8		6						14	
01:15	0		0						0		13:15	4		18						22	
01:30	0		0						0		13:30	5		10						15	
01:45	0		0						0		13:45	6	23	10	44					16	67
02:00	0		0						0		14:00	6		12						18	
02:15	0		0						0		14:15	6		18						24	
02:30	0		0						0		14:30	6		11						17	
02:45	0		0						0		14:45	2	20	14	55					16	75
03:00	0		0						0		15:00	2		25						27	
03:15	1		0						1		15:15	2		17						19	
03:30	0		1						1		15:30	3		10						13	
03:45	0	1	0	1					0	2	15:45	6	13	10	62					16	75
04:00	1		0						1		16:00	5		12						17	
04:15	0		0						0		16:15	4		7						11	
04:30	1		0						1		16:30	3		7						10	
04:45	1	3	1	1					2	4	16:45	3	15	15	41					18	56
05:00	2		0						2		17:00	3		16						19	
05:15	1		1						2		17:15	4		6						10	
05:30	1		0						1		17:30	6		13						19	
05:45	3	7	2	3					5	10	17:45	8	21	14	49					22	70
06:00	5		3						8		18:00	3		14						17	
06:15	1		0						1		18:15	6		6						12	
06:30	2		2						4		18:30	7		13						20	
06:45	2	10	2	7					4	17	18:45	3	19	11	44					14	63
07:00	5		3						8		19:00	3		8						11	
07:15	3		4						7		19:15	1		3						4	
07:30	13		6						19		19:30	7		8						15	
07:45	9	30	3	16					12	46	19:45	3	14	6	25					9	39
08:00	6		6						12		20:00	5		3						8	
08:15	8		12						20		20:15	4		1						5	
08:30	9		6						15		20:30	3		2						5	
08:45	12	35	19	43					31	78	20:45	2	14	2	8					4	22
09:00	10		10						20		21:00	2		2						4	
09:15	9		7						16		21:15	3		4						7	
09:30	6		8						14		21:30	2		1						3	
09:45	4	29	5	30					9	59	21:45	1	8	0	7					1	15
10:00	7		7						14		22:00	1		2						3	
10:15	4		2						6		22:15	2		2						4	
10:30	13		3						16		22:30	3		0						3	
10:45	10	34	7	19					17	53	22:45	0	6	2	6					2	12
11:00	11		6						17		23:00	2		1						3	
11:15	11		8						19		23:15	1		0						1	
11:30	6		2						8		23:30	2		1						3	
11:45	7	35	9	25					16	60	23:45	4	9	1	3					5	12
TOTALS		188		146						**334**	**TOTALS**		193		369						**562**
SPLIT %		56.3%		43.7%						**37.3%**	**SPLIT %**		34.3%		65.7%						**62.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	381	515	0	0	896

AM Peak Hour	10:30	08:15			**08:15**	**PM Peak Hour**	12:00	14:15			**14:15**
AM Pk Volume	45	47			**86**	**PM Pk Volume**	31	68			**84**
Pk Hr Factor	0.865	0.618			**0.694**	**Pk Hr Factor**	0.705	0.680			**0.778**
7 - 9 Volume	65	59	0	0	**124**	**4 - 6 Volume**	36	90	0	0	**126**
7 - 9 Peak Hour	07:30	08:00			**08:00**	**4 - 6 Peak Hour**	17:00	16:45			**17:00**
7 - 9 Pk Volume	36	43	0	0	**78**	**4 - 6 Pk Volume**	21	50	0	0	**70**
Pk Hr Factor	0.692	0.566	0.000	0.000	**0.629**	**Pk Hr Factor**	0.656	0.781	0.000	0.000	**0.795**

Prepared by NDS/ATD

VOLUME

Stanley Ave Bet. Wilshire Blvd & 8th St

Day: Friday
Date: 5/14/2022

City: Los Angeles
Project #: CA22_020153_006

DAILY TOTALS	NB	SB	EB	WB	Total
	303	275	0	0	578

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		2						2		12:00	9		4						13	
00:15	0		2						2		12:15	10		5						15	
00:30	2		3						5		12:30	3		5						8	
00:45	0	2	1	8					1	10	12:45	4	26	2	16					6	42
01:00	1		1						2		13:00	4		4						8	
01:15	1		0						1		13:15	5		4						9	
01:30	1		4						5		13:30	5		5						10	
01:45	3	6	2	7					5	13	13:45	4	18	7	20					11	38
02:00	1		1						2		14:00	7		7						14	
02:15	1		0						1		14:15	5		4						9	
02:30	0		1						1		14:30	6		5						11	
02:45	1	3	0	2					1	5	14:45	7	25	3	19					10	44
03:00	1		3						4		15:00	6		6						12	
03:15	2		2						4		15:15	6		2						8	
03:30	0		0						0		15:30	4		2						6	
03:45	1	4	1	6					2	10	15:45	2	18	3	13					5	31
04:00	0		0						0		16:00	1		3						4	
04:15	0		0						0		16:15	6		5						11	
04:30	0		1						1		16:30	6		9						15	
04:45	1	1	0	1					1	2	16:45	6	19	5	22					11	41
05:00	1		0						1		17:00	3		6						9	
05:15	1		0						1		17:15	3		6						9	
05:30	0		1						1		17:30	6		3						9	
05:45	0	2	0	1					0	3	17:45	3	15	4	19					7	34
06:00	0		0						0		18:00	3		4						7	
06:15	0		0						0		18:15	6		3						9	
06:30	4		2						6		18:30	6		6						12	
06:45	0	4	0	2					0	6	18:45	4	19	10	23					14	42
07:00	0		1						1		19:00	6		4						10	
07:15	3		0						3		19:15	4		1						5	
07:30	3		2						5		19:30	7		3						10	
07:45	5	11	0	3					5	14	19:45	8	25	9	17					17	42
08:00	3		1						4		20:00	1		1						2	
08:15	0		2						2		20:15	7		2						9	
08:30	3		4						7		20:30	6		2						8	
08:45	1	7	2	9					3	16	20:45	4	18	3	8					7	26
09:00	4		2						6		21:00	1		5						6	
09:15	4		2						6		21:15	2		4						6	
09:30	3		0						3		21:30	2		3						5	
09:45	2	13	3	7					5	20	21:45	1	6	1	13					2	19
10:00	3		7						10		22:00	0		2						2	
10:15	7		1						8		22:15	4		3						7	
10:30	7		5						12		22:30	0		4						4	
10:45	8	25	4	17					12	42	22:45	1	5	3	12					4	17
11:00	5		5						10		23:00	2		1						3	
11:15	6		3						9		23:15	2		5						7	
11:30	8		9						17		23:30	3		1						4	
11:45	3	22	5	22					8	44	23:45	2	9	1	8					3	17
TOTALS		100		85						185	TOTALS		203		190						393
SPLIT %		54.1%		45.9%						32.0%	SPLIT %		51.7%		48.3%						68.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	303	275	0	0	578

AM Peak Hour	11:30	11:30			11:30	PM Peak Hour	12:00	16:30			16:15
AM Pk Volume	30	23			53	PM Pk Volume	26	26			46
Pk Hr Factor	0.750	0.639			0.779	Pk Hr Factor	0.650	0.722			0.767
7 - 9 Volume	18	12	0	0	30	4 - 6 Volume	34	41	0	0	75
7 - 9 Peak Hour	07:15	08:00			07:45	4 - 6 Peak Hour	16:15	16:30			16:15
7 - 9 Pk Volume	14	9	0	0	18	4 - 6 Pk Volume	21	26	0	0	46
Pk Hr Factor	0.700	0.563	0.000	0.000	0.643	Pk Hr Factor	0.875	0.722	0.000	0.000	0.767

Prepared by NDS/ATD

VOLUME

Curson Ave Bet. Wilshire Blvd & 8th St

Day: Thursday
Date: 5/12/2022

City: Los Angeles
Project #: CA22_020153_007

DAILY TOTALS	NB	SB	EB	WB	Total
	3,250	1,918	0	0	5,168

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		3						3		12:00	55		22						77	
00:15	1		1						2		12:15	47		23						70	
00:30	3		2						5		12:30	47		35						82	
00:45	2	6	1	7					3	13	12:45	44	193	24	104					68	297
01:00	0		2						2		13:00	60		18						78	
01:15	1		0						1		13:15	59		21						80	
01:30	0		3						3		13:30	44		30						74	
01:45	1	2	4	9					5	11	13:45	48	211	31	100					79	311
02:00	0		1						1		14:00	42		34						76	
02:15	1		4						5		14:15	46		39						85	
02:30	3		2						5		14:30	52		35						87	
02:45	0	4	0	7					0	11	14:45	47	187	43	151					90	338
03:00	0		1						1		15:00	68		32						100	
03:15	0		0						0		15:15	44		49						93	
03:30	0		1						1		15:30	36		43						79	
03:45	0		0	2					0	2	15:45	47	195	39	163					86	358
04:00	1		0						1		16:00	45		40						85	
04:15	1		0						1		16:15	53		38						91	
04:30	0		0						0		16:30	49		41						90	
04:45	1	3	1	1					2	4	16:45	59	206	36	155					95	361
05:00	3		3						6		17:00	48		47						95	
05:15	3		0						3		17:15	64		51						115	
05:30	1		3						4		17:30	55		41						96	
05:45	8	15	3	9					11	24	17:45	66	233	40	179					106	412
06:00	8		5						13		18:00	69		37						106	
06:15	10		2						12		18:15	59		25						84	
06:30	17		8						25		18:30	58		34						92	
06:45	39	74	9	24					48	98	18:45	55	241	32	128					87	369
07:00	36		11						47		19:00	59		25						84	
07:15	52		16						68		19:15	46		28						74	
07:30	64		29						93		19:30	47		18						65	
07:45	78	230	41	97					119	327	19:45	28	180	14	85					42	265
08:00	71		48						119		20:00	39		13						52	
08:15	77		56						133		20:15	43		20						63	
08:30	69		60						129		20:30	25		17						42	
08:45	74	291	61	225					135	516	20:45	22	129	8	58					30	187
09:00	65		37						102		21:00	21		10						31	
09:15	58		29						87		21:15	19		6						25	
09:30	65		22						87		21:30	12		11						23	
09:45	96	284	29	117					125	401	21:45	15	67	11	38					26	105
10:00	66		31						97		22:00	15		9						24	
10:15	48		24						72		22:15	6		8						14	
10:30	49		23						72		22:30	9		7						16	
10:45	67	230	31	109					98	339	22:45	13	43	3	27					16	70
11:00	51		24						75		23:00	4		5						9	
11:15	55		28						83		23:15	6		5						11	
11:30	49		28						77		23:30	9		6						15	
11:45	40	195	24	104					64	299	23:45	12	31	3	19					15	50
TOTALS		1334		711						2045	TOTALS		1916		1207						3123
SPLIT %		65.2%		34.8%						39.6%	SPLIT %		61.4%		38.6%						60.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	3,250	1,918	0	0	5,168

AM Peak Hour	07:45	08:00			08:00	PM Peak Hour	17:15	17:00			17:15
AM Pk Volume	295	225			516	PM Pk Volume	254	179			423
Pk Hr Factor	0.946	0.922			0.956	Pk Hr Factor	0.920	0.877			0.920
7 - 9 Volume	521	322	0	0	843	4 - 6 Volume	439	334	0	0	773
7 - 9 Peak Hour	07:45	08:00			08:00	4 - 6 Peak Hour	17:00	17:00			17:00
7 - 9 Pk Volume	295	225	0	0	516	4 - 6 Pk Volume	233	179	0	0	412
Pk Hr Factor	0.946	0.922	0.000	0.000	0.956	Pk Hr Factor	0.883	0.877	0.000	0.000	0.896

Prepared by NDS/ATD

VOLUME

Curson Ave Bet. Wilshire Blvd & 8th St

Day: Saturday
Date: 5/14/2022

City: Los Angeles
Project #: CA22_020153_007

DAILY TOTALS	NB	SB	EB	WB	Total
	2,194	1,470	0	0	3,664

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	8		2						10		12:00	64		29						93	
00:15	8		1						9		12:15	37		25						62	
00:30	6		9						15		12:30	49		28						77	
00:45	5	27	2	14					7	41	12:45	46	196	27	109					73	305
01:00	3		3						6		13:00	63		32						95	
01:15	4		3						7		13:15	51		26						77	
01:30	7		2						9		13:30	50		30						80	
01:45	2	16	1	9					3	25	13:45	40	204	42	130					82	334
02:00	2		4						6		14:00	39		48						87	
02:15	3		0						3		14:15	54		25						79	
02:30	7		5						12		14:30	44		25						69	
02:45	3	15	0	9					3	24	14:45	40	177	39	137					79	314
03:00	0		1						1		15:00	55		26						81	
03:15	0		4						4		15:15	35		25						60	
03:30	2		1						3		15:30	31		23						54	
03:45	2	4	2	8					4	12	15:45	38	159	30	104					68	263
04:00	1		1						2		16:00	37		22						59	
04:15	0		1						1		16:15	36		19						55	
04:30	1		0						1		16:30	25		32						57	
04:45	1	3	0	2					1	5	16:45	39	137	30	103					69	240
05:00	1		1						2		17:00	37		38						75	
05:15	2		1						3		17:15	37		29						66	
05:30	2		0						2		17:30	34		21						55	
05:45	3	8	3	5					6	13	17:45	37	145	17	105					54	250
06:00	5		2						7		18:00	34		13						47	
06:15	4		5						9		18:15	20		25						45	
06:30	0		4						4		18:30	26		22						48	
06:45	10	19	3	14					13	33	18:45	29	109	28	88					57	197
07:00	8		4						12		19:00	25		25						50	
07:15	6		4						10		19:15	25		22						47	
07:30	7		4						11		19:30	28		16						44	
07:45	10	31	13	25					23	56	19:45	27	105	13	76					40	181
08:00	10		10						20		20:00	19		19						38	
08:15	12		16						28		20:15	28		22						50	
08:30	27		14						41		20:30	18		13						31	
08:45	31	80	12	52					43	132	20:45	19	84	18	72					37	156
09:00	25		13						38		21:00	18		19						37	
09:15	28		15						43		21:15	13		7						20	
09:30	34		21						55		21:30	14		15						29	
09:45	42	129	26	75					68	204	21:45	13	58	15	56					28	114
10:00	41		23						64		22:00	13		17						30	
10:15	45		23						68		22:15	10		16						26	
10:30	45		16						61		22:30	11		5						16	
10:45	50	181	21	83					71	264	22:45	16	50	11	49					27	99
11:00	45		25						70		23:00	5		10						15	
11:15	42		30						72		23:15	10		8						18	
11:30	61		29						90		23:30	13		7						20	
11:45	77	225	32	116					109	341	23:45	4	32	4	29					8	61
TOTALS		738		412						1150	TOTALS		1456		1058						2514
SPLIT %		64.2%		35.8%						31.4%	SPLIT %		57.9%		42.1%						68.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	2,194	1,470	0	0	3,664

AM Peak Hour	11:15	11:15			11:15	PM Peak Hour	12:45	13:15			13:00
AM Pk Volume	244	120			364	PM Pk Volume	210	146			334
Pk Hr Factor	0.792	0.938			0.835	Pk Hr Factor	0.833	0.760			0.879
7 - 9 Volume	111	77	0	0	188	4 - 6 Volume	282	208	0	0	490
7 - 9 Peak Hour	08:00	07:45			08:00	4 - 6 Peak Hour	16:45	16:30			16:30
7 - 9 Pk Volume	80	53	0	0	132	4 - 6 Pk Volume	147	129	0	0	267
Pk Hr Factor	0.645	0.828	0.000	0.000	0.767	Pk Hr Factor	0.942	0.849	0.000	0.000	0.890

Appendix 4 — Existing (2022) Intersection LOS and Queuing Worksheets

La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Report File: H:\...\Existing_AM.pdf

Scenario 1 Existing Weekday AM
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	SB Right	0.638	6.5	A
2	Curson Ave/6th St	Signalized	HCM 6th Edition	WB Right	0.900	35.5	D
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.399	1.9	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.446	6.6	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	0.694	24.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	6.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.638

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	2	0	6	27	0	63	6	485	9	27	1861	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	6	27	0	63	6	485	9	27	1861	20
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	7	0	16	2	125	2	7	480	5
Total Analysis Volume [veh/h]	2	0	6	28	0	65	6	500	9	28	1919	21
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			3			3			2		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			2		
v_co, Outbound Pedestrian Volume crossing	7			6			7			6		
v_ci, Inbound Pedestrian Volume crossing mi	7			6			7			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			7		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	69.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	8	8	73	73	73	73	73	73
g / C, Green / Cycle	0.09	0.09	0.81	0.81	0.81	0.81	0.81	0.81
(v / s)_i Volume / Saturation Flow Rate	0.00	0.06	0.03	0.27	0.01	0.03	0.52	0.52
s, saturation flow rate [veh/h]	1695	1537	228	1870	1542	889	1870	1861
c, Capacity [veh/h]	196	184	209	1509	1245	710	1509	1502
d1, Uniform Delay [s]	37.73	39.86	8.68	2.28	1.68	3.96	3.47	3.49
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	2.13	0.25	0.59	0.01	0.10	2.12	2.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.50	0.03	0.33	0.01	0.04	0.64	0.65
d, Delay for Lane Group [s/veh]	37.81	41.99	8.93	2.87	1.69	4.06	5.59	5.64
Lane Group LOS	D	D	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.17	2.08	0.06	1.56	0.02	0.15	4.77	4.80
50th-Percentile Queue Length [ft/ln]	4.13	52.03	1.59	39.05	0.53	3.70	119.26	120.02
95th-Percentile Queue Length [veh/ln]	0.30	3.75	0.11	2.81	0.04	0.27	8.35	8.39
95th-Percentile Queue Length [ft/ln]	7.43	93.66	2.86	70.29	0.95	6.65	208.80	209.86

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.81	37.81	37.81	41.99	41.99	41.99	8.93	2.87	1.69	4.06	5.61	5.64
Movement LOS	D	D	D	D	D	D	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	37.81			41.99			2.92			5.59		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	6.47											
Intersection LOS	A											
Intersection V/C	0.638											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
I_p,int, Pedestrian LOS Score for Intersection	1.776	1.781	2.790	2.780
Crosswalk LOS	A	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	469	469	1319	1319
d_b, Bicycle Delay [s]	26.35	26.36	5.23	5.24
I_b,int, Bicycle LOS Score for Intersection	1.573	1.713	2.409	3.183
Bicycle LOS	A	A	B	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	35.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.900

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	354	65	95	75	128	66	21	446	74	158	1513	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	354	65	95	75	128	66	21	446	74	158	1513	80
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	93	17	25	20	34	17	6	117	19	42	398	21
Total Analysis Volume [veh/h]	373	68	100	79	135	69	22	469	78	166	1593	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			17			18			10		
v_di, Inbound Pedestrian Volume crossing m	10			18			17			10		
v_co, Outbound Pedestrian Volume crossing	20			9			19			8		
v_ci, Inbound Pedestrian Volume crossing mi	19			8			20			9		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			4			1			5		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	24.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	23	23	23	23	27	27	27	27	27	27
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.45	0.45	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.32	0.10	0.07	0.12	0.07	0.25	0.05	0.19	0.45	0.46
s, saturation flow rate [veh/h]	1157	1640	1195	1736	295	1870	1489	853	1870	1828
c, Capacity [veh/h]	415	613	439	649	120	847	675	326	847	828
d1, Uniform Delay [s]	23.97	13.11	17.27	13.34	30.01	11.99	9.45	21.45	16.31	16.42
k, delay calibration	0.30	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.94	0.24	0.19	0.27	3.34	2.60	0.35	5.60	28.99	34.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.27	0.18	0.31	0.18	0.55	0.12	0.51	0.99	1.01
d, Delay for Lane Group [s/veh]	40.91	13.35	17.47	13.61	33.35	14.59	9.79	27.04	45.30	50.41
Lane Group LOS	D	B	B	B	C	B	A	C	D	F
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	7.09	1.45	0.81	1.79	0.41	4.53	0.58	2.52	16.37	17.29
50th-Percentile Queue Length [ft/ln]	177.33	36.26	20.29	44.76	10.36	113.28	14.47	63.10	409.20	432.33
95th-Percentile Queue Length [veh/ln]	11.46	2.61	1.46	3.22	0.75	8.02	1.04	4.54	23.00	24.31
95th-Percentile Queue Length [ft/ln]	286.53	65.27	36.52	80.56	18.65	200.55	26.05	113.58	575.07	607.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.91	13.35	13.35	17.47	13.61	13.61	33.35	14.59	9.79	27.04	47.72	50.41
Movement LOS	D	B	B	B	B	B	C	B	A	C	D	D
d_A, Approach Delay [s/veh]	32.35			14.69			14.66			45.98		
Approach LOS	C			B			B			D		
d_I, Intersection Delay [s/veh]	35.46											
Intersection LOS	D											
Intersection V/C	0.900											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.453	2.097	3.316	2.825
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.69	9.08	9.10
I_b,int, Bicycle LOS Score for Intersection	2.452	2.027	2.498	3.080
Bicycle LOS	B	B	B	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	1.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.399

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	6	3	548	6	3	1158
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	3	548	6	3	1158
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	151	2	1	318
Total Analysis Volume [veh/h]	7	3	602	7	3	1273
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		20		0	
v_di, Inbound Pedestrian Volume crossing m	0		19		0	
v_co, Outbound Pedestrian Volume crossing	20		20		19	
v_ci, Inbound Pedestrian Volume crossing mi	20		20		20	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	1		0		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	2	2	77	77	77	77
g / C, Green / Cycle	0.02	0.02	0.86	0.86	0.86	0.86
(v / s)_i Volume / Saturation Flow Rate	0.01	0.00	0.17	0.00	0.00	0.36
s, saturation flow rate [veh/h]	1175	1555	3560	1552	807	3560
c, Capacity [veh/h]	27	36	3042	1326	721	3042
d1, Uniform Delay [s]	43.17	42.99	1.15	0.96	1.91	1.48
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.82	0.97	0.15	0.01	0.01	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.08	0.20	0.01	0.00	0.42
d, Delay for Lane Group [s/veh]	47.99	43.96	1.29	0.96	1.92	1.91
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.19	0.07	0.33	0.01	0.01	0.91
50th-Percentile Queue Length [ft/ln]	4.71	1.86	8.23	0.20	0.22	22.79
95th-Percentile Queue Length [veh/ln]	0.34	0.13	0.59	0.01	0.02	1.64
95th-Percentile Queue Length [ft/ln]	8.47	3.35	14.82	0.35	0.40	41.02

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.99	43.96	1.29	0.96	1.92	1.91
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	46.78		1.29		1.91	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	1.95					
Intersection LOS	A					
Intersection V/C	0.399					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	295.73	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.950	2.668	0.000
Crosswalk LOS	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.39	13.40
I_b,int, Bicycle LOS Score for Intersection	1.560	2.062	2.612
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	6.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.446

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	71	44	510	51	26	1105
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	44	510	51	26	1105
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	12	137	14	7	297
Total Analysis Volume [veh/h]	76	47	548	55	28	1188
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6		1		7	
v_di, Inbound Pedestrian Volume crossing m	7		1		6	
v_co, Outbound Pedestrian Volume crossing	18		17		1	
v_ci, Inbound Pedestrian Volume crossing mi	17		18		1	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	12	68	68	68	68
g / C, Green / Cycle	0.13	0.75	0.75	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.17	0.03	0.33
s, saturation flow rate [veh/h]	1703	1870	1803	813	3560
c, Capacity [veh/h]	223	1409	1359	630	2683
d1, Uniform Delay [s]	36.63	3.25	3.28	4.89	4.10
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.31	0.35	0.38	0.13	0.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.21	0.22	0.04	0.44
d, Delay for Lane Group [s/veh]	40.95	3.60	3.66	5.02	4.63
Lane Group LOS	D	A	A	A	A
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.77	1.31	1.32	0.17	3.11
50th-Percentile Queue Length [ft/ln]	69.15	32.73	33.10	4.35	77.69
95th-Percentile Queue Length [veh/ln]	4.98	2.36	2.38	0.31	5.59
95th-Percentile Queue Length [ft/ln]	124.47	58.91	59.58	7.83	139.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.95	40.95	3.63	3.66	5.02	4.63
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	40.95		3.63		4.64	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	6.62					
Intersection LOS	A					
Intersection V/C	0.446					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	1.855	2.586	2.747
Crosswalk LOS	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.17	11.14	11.15
I_b,int, Bicycle LOS Score for Intersection	1.763	2.057	2.563
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.694

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	99	325	125	57	238	57	57	560	12	74	843	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	90
Total Hourly Volume [veh/h]	99	325	125	57	238	57	57	560	12	74	843	14
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	86	33	15	63	15	15	147	3	19	222	4
Total Analysis Volume [veh/h]	104	342	132	60	251	60	60	589	13	78	887	15
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			22			23			7		
v_di, Inbound Pedestrian Volume crossing m	7			23			22			7		
v_co, Outbound Pedestrian Volume crossing	14			15			13			14		
v_ci, Inbound Pedestrian Volume crossing mi	13			14			14			15		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.38	0.27	0.10	0.16	0.16	0.10	0.25	0.01
s, saturation flow rate [veh/h]	1510	1394	618	1870	1851	814	3560	1509
c, Capacity [veh/h]	623	578	274	938	928	392	1786	757
d1, Uniform Delay [s]	27.85	22.00	23.38	13.31	13.32	18.93	14.87	11.27
k, delay calibration	0.43	0.21	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.58	2.30	1.83	0.91	0.92	1.14	0.99	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.64	0.22	0.32	0.32	0.20	0.50	0.02
d, Delay for Lane Group [s/veh]	47.43	24.30	25.21	14.22	14.24	20.06	15.86	11.32
Lane Group LOS	D	C	C	B	B	C	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	15.22	6.40	1.09	3.68	3.66	1.21	5.90	0.16
50th-Percentile Queue Length [ft/ln]	380.45	159.92	27.14	92.12	91.62	30.13	147.49	3.88
95th-Percentile Queue Length [veh/ln]	21.62	10.54	1.95	6.63	6.60	2.17	9.88	0.28
95th-Percentile Queue Length [ft/ln]	540.40	263.61	48.85	165.82	164.91	54.24	247.07	6.98

Movement, Approach, & Intersection Results

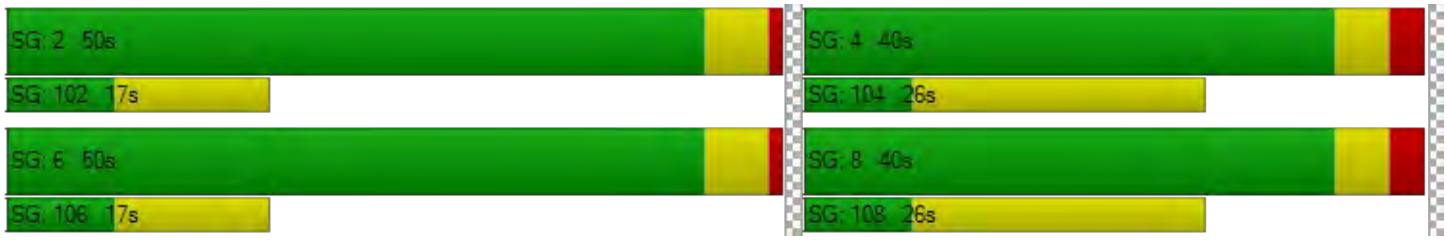
d_M, Delay for Movement [s/veh]	47.43	47.43	47.43	24.30	24.30	24.30	25.21	14.23	14.24	20.06	15.86	11.32
Movement LOS	D	D	D	C	C	C	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	47.43			24.30			15.23			16.12		
Approach LOS	D			C			B			B		
d_I, Intersection Delay [s/veh]	24.05											
Intersection LOS	C											
Intersection V/C	0.694											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
I_p,int, Pedestrian LOS Score for Intersection	2.274	2.228	2.781	2.966
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	765	1003	1003
d_b, Bicycle Delay [s]	17.17	17.18	11.18	11.19
I_b,int, Bicycle LOS Score for Intersection	2.513	2.172	2.106	2.442
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Report File: H:\...\Existing_Midday.pdf

Scenario 2 Existing Weekday Midday
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	NB Right	0.547	6.5	A
2	Curson Ave/6th St	Signalized	HCM 6th Edition	SB Left	0.425	10.5	B
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.328	2.6	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.358	5.0	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	SB Thru	0.469	15.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	6.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.547

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	31	1	44	8	0	15	9	737	49	39	868	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	1	44	8	0	15	9	737	49	39	868	9
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	12	2	0	4	2	196	13	10	231	2
Total Analysis Volume [veh/h]	33	1	47	9	0	16	10	784	52	41	923	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			4			4			13		
v_di, Inbound Pedestrian Volume crossing m	13			4			4			12		
v_co, Outbound Pedestrian Volume crossing	32			15			32			14		
v_ci, Inbound Pedestrian Volume crossing mi	32			14			32			15		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	2.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	8	8	42	42	42	42	42	42
g / C, Green / Cycle	0.14	0.14	0.70	0.70	0.70	0.70	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.05	0.02	0.02	0.42	0.04	0.06	0.25	0.25
s, saturation flow rate [veh/h]	1476	1556	599	1870	1486	657	1870	1861
c, Capacity [veh/h]	291	299	450	1309	1040	400	1309	1303
d1, Uniform Delay [s]	23.37	22.53	6.16	4.65	2.79	10.51	3.60	3.60
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	0.12	0.09	2.03	0.09	0.51	0.76	0.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.08	0.02	0.60	0.05	0.10	0.36	0.36
d, Delay for Lane Group [s/veh]	23.89	22.65	6.25	6.68	2.88	11.02	4.36	4.37
Lane Group LOS	C	C	A	A	A	B	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.02	0.30	0.06	3.56	0.14	0.35	1.58	1.57
50th-Percentile Queue Length [ft/ln]	25.52	7.53	1.45	88.96	3.47	8.69	39.47	39.37
95th-Percentile Queue Length [veh/ln]	1.84	0.54	0.10	6.41	0.25	0.63	2.84	2.83
95th-Percentile Queue Length [ft/ln]	45.93	13.55	2.61	160.13	6.24	15.63	71.04	70.86

Movement, Approach, & Intersection Results

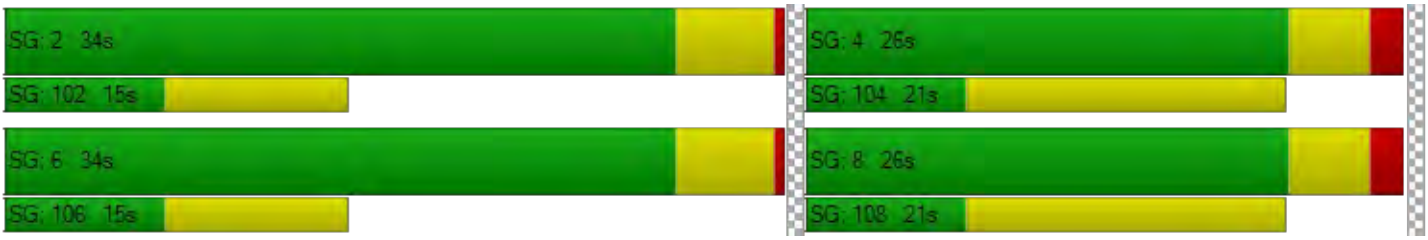
d_M, Delay for Movement [s/veh]	23.89	23.89	23.89	22.65	22.65	22.65	6.25	6.68	2.88	11.02	4.36	4.37
Movement LOS	C	C	C	C	C	C	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	23.89			22.65			6.44			4.64		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	6.47											
Intersection LOS	A											
Intersection V/C	0.547											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
I_p,int, Pedestrian LOS Score for Intersection	1.835	1.729	2.679	2.563
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	703	703	977	977
d_b, Bicycle Delay [s]	12.61	12.62	7.86	7.86
I_b,int, Bicycle LOS Score for Intersection	1.693	1.601	2.956	2.363
Bicycle LOS	A	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	10.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.425

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	105	51	106	38	35	49	34	466	73	73	521	44
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	51	106	38	35	49	34	466	73	73	521	44
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	13	28	10	9	13	9	123	19	19	137	12
Total Analysis Volume [veh/h]	111	54	112	40	37	52	36	491	77	77	548	46
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			10			11			12		
v_di, Inbound Pedestrian Volume crossing m	12			11			10			12		
v_co, Outbound Pedestrian Volume crossing	21			14			20			14		
v_ci, Inbound Pedestrian Volume crossing mi	20			14			21			14		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			3			2			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	12	12	12	12	37	37	37	37	37	37
g / C, Green / Cycle	0.20	0.20	0.20	0.20	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.09	0.11	0.03	0.05	0.04	0.26	0.05	0.09	0.16	0.16
s, saturation flow rate [veh/h]	1277	1571	1176	1646	819	1870	1505	841	1870	1812
c, Capacity [veh/h]	331	321	264	336	505	1164	937	453	1164	1128
d1, Uniform Delay [s]	22.92	21.27	23.92	20.11	8.83	5.80	4.49	12.04	5.09	5.10
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.59	1.30	0.26	0.42	0.27	1.12	0.17	0.81	0.54	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.52	0.15	0.26	0.07	0.42	0.08	0.17	0.26	0.26
d, Delay for Lane Group [s/veh]	23.51	22.56	24.18	20.52	9.11	6.92	4.66	12.86	5.63	5.66
Lane Group LOS	C	C	C	C	A	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.40	2.04	0.51	1.02	0.26	2.63	0.32	0.71	1.39	1.37
50th-Percentile Queue Length [ft/ln]	34.92	51.11	12.64	25.41	6.56	65.71	8.00	17.76	34.82	34.15
95th-Percentile Queue Length [veh/ln]	2.51	3.68	0.91	1.83	0.47	4.73	0.58	1.28	2.51	2.46
95th-Percentile Queue Length [ft/ln]	62.85	91.99	22.76	45.75	11.82	118.28	14.40	31.98	62.68	61.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.51	22.56	22.56	24.18	20.52	20.52	9.11	6.92	4.66	12.86	5.64	5.66
Movement LOS	C	C	C	C	C	C	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	22.94			21.66			6.76			6.47		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	10.46											
Intersection LOS	B											
Intersection V/C	0.425											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.02	20.02	20.02	18.42
I_p,int, Pedestrian LOS Score for Intersection	2.179	2.055	2.692	2.482
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.68	11.68	9.09	9.08
I_b,int, Bicycle LOS Score for Intersection	2.017	1.772	2.556	2.113
Bicycle LOS	B	A	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	2.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.328

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	5	19	946	8	4	670
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	19	946	8	4	670
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	254	2	1	180
Total Analysis Volume [veh/h]	5	20	1017	9	4	720
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		46		0	
v_di, Inbound Pedestrian Volume crossing m	0		45		0	
v_co, Outbound Pedestrian Volume crossing	59		58		45	
v_ci, Inbound Pedestrian Volume crossing mi	58		59		46	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		3		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	4	4	75	75	75	75
g / C, Green / Cycle	0.05	0.05	0.83	0.83	0.83	0.83
(v / s)_i Volume / Saturation Flow Rate	0.00	0.01	0.29	0.01	0.01	0.20
s, saturation flow rate [veh/h]	1149	1556	3560	1446	545	3560
c, Capacity [veh/h]	55	74	2956	1200	478	2956
d1, Uniform Delay [s]	40.99	41.33	1.82	1.30	3.29	1.63
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.72	1.94	0.32	0.01	0.03	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.27	0.34	0.01	0.01	0.24
d, Delay for Lane Group [s/veh]	41.70	43.27	2.13	1.32	3.33	1.82
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.12	0.46	1.09	0.02	0.02	0.69
50th-Percentile Queue Length [ft/ln]	2.90	11.60	27.23	0.40	0.49	17.20
95th-Percentile Queue Length [veh/ln]	0.21	0.84	1.96	0.03	0.04	1.24
95th-Percentile Queue Length [ft/ln]	5.22	20.88	49.01	0.72	0.89	30.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.70	43.27	2.13	1.32	3.33	1.82
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	42.96		2.13		1.83	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	2.58					
Intersection LOS	A					
Intersection V/C	0.328					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	125.68	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.958	2.641	0.000
Crosswalk LOS	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.97	13.41	13.39
I_b,int, Bicycle LOS Score for Intersection	1.560	2.406	2.157
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	5.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.358

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	34	31	912	49	26	639
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	31	912	49	26	639
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	8	245	13	7	172
Total Analysis Volume [veh/h]	37	33	981	53	28	687
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	5		12		5	
v_di, Inbound Pedestrian Volume crossing m	5		11		5	
v_co, Outbound Pedestrian Volume crossing	48		47		11	
v_ci, Inbound Pedestrian Volume crossing mi	47		48		12	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		2		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	10	70	70	70	70
g / C, Green / Cycle	0.11	0.77	0.77	0.77	0.77
(v / s)_i Volume / Saturation Flow Rate	0.04	0.28	0.28	0.05	0.19
s, saturation flow rate [veh/h]	1685	1870	1818	544	3560
c, Capacity [veh/h]	189	1444	1404	435	2750
d1, Uniform Delay [s]	37.00	3.22	3.26	5.74	2.89
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.46	0.69	0.75	0.28	0.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.36	0.37	0.06	0.25
d, Delay for Lane Group [s/veh]	39.46	3.92	4.00	6.02	3.11
Lane Group LOS	D	A	A	A	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.54	2.28	2.31	0.21	1.27
50th-Percentile Queue Length [ft/ln]	38.49	56.90	57.77	5.14	31.83
95th-Percentile Queue Length [veh/ln]	2.77	4.10	4.16	0.37	2.29
95th-Percentile Queue Length [ft/ln]	69.29	102.42	103.98	9.25	57.29

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.46	39.46	3.96	4.00	6.02	3.11
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	39.46		3.96		3.22	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	5.04					
Intersection LOS	A					
Intersection V/C	0.358					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	1.828	2.559	2.733
Crosswalk LOS	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.18	11.15	11.15
I_b,int, Bicycle LOS Score for Intersection	1.675	2.413	2.149
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.469

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	42	179	79	65	101	94	85	798	22	34	524	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	69
Total Hourly Volume [veh/h]	42	179	79	65	101	94	85	798	22	34	524	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	47	21	17	27	25	22	210	6	9	138	3
Total Analysis Volume [veh/h]	44	188	83	68	106	99	89	840	23	36	552	14
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	24			46			47			24		
v_di, Inbound Pedestrian Volume crossing m	24			47			46			24		
v_co, Outbound Pedestrian Volume crossing	42			56			42			55		
v_ci, Inbound Pedestrian Volume crossing mi	42			55			42			56		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			4			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	24	24	56	56	56	56	56	56
g / C, Green / Cycle	0.26	0.26	0.62	0.62	0.62	0.62	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.19	0.19	0.11	0.23	0.23	0.06	0.16	0.01
s, saturation flow rate [veh/h]	1646	1405	830	1870	1841	638	3560	1447
c, Capacity [veh/h]	478	419	517	1160	1142	386	2209	898
d1, Uniform Delay [s]	29.94	29.90	11.31	8.44	8.45	12.88	7.67	6.54
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.55	1.71	0.72	0.92	0.95	0.48	0.27	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.65	0.17	0.37	0.38	0.09	0.25	0.02
d, Delay for Lane Group [s/veh]	31.49	31.61	12.04	9.36	9.40	13.35	7.94	6.57
Lane Group LOS	C	C	B	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	6.22	5.44	1.00	4.03	4.01	0.44	2.25	0.10
50th-Percentile Queue Length [ft/ln]	155.46	135.94	24.97	100.86	100.22	10.94	56.15	2.54
95th-Percentile Queue Length [veh/ln]	10.31	9.26	1.80	7.26	7.22	0.79	4.04	0.18
95th-Percentile Queue Length [ft/ln]	257.70	231.55	44.95	181.54	180.40	19.69	101.07	4.56

Movement, Approach, & Intersection Results

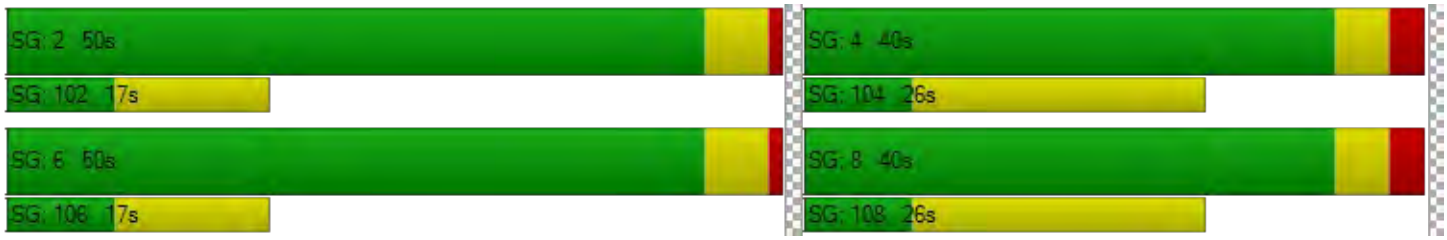
d_M, Delay for Movement [s/veh]	31.49	31.49	31.49	31.61	31.61	31.61	12.04	9.38	9.40	13.35	7.94	6.57
Movement LOS	C	C	C	C	C	C	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	31.49			31.61			9.63			8.23		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	15.25											
Intersection LOS	B											
Intersection V/C	0.469											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.65	34.65	34.65	34.65
I_p,int, Pedestrian LOS Score for Intersection	2.000	2.150	2.683	2.917
Crosswalk LOS	A	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	765	1003	1003
d_b, Bicycle Delay [s]	17.16	17.19	11.20	11.19
I_b,int, Bicycle LOS Score for Intersection	2.079	2.010	2.345	2.113
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

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Report File: H:\...\Existing_PM.pdf

Scenario 3 Existing Weekday PM
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	NB Right	0.628	7.9	A
2	Curson Ave/6th St	Signalized	HCM 6th Edition	WB Left	0.789	21.8	C
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.535	4.5	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.555	6.9	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	0.672	16.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.628

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	46	0	68	13	0	24	34	857	19	14	671	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	0	68	13	0	24	34	857	19	14	671	11
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	0	18	3	0	6	9	230	5	4	180	3
Total Analysis Volume [veh/h]	49	0	73	14	0	26	37	922	20	15	722	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6			9			10			6		
v_di, Inbound Pedestrian Volume crossing m	6			10			9			6		
v_co, Outbound Pedestrian Volume crossing	16			18			16			18		
v_ci, Inbound Pedestrian Volume crossing mi	16			18			16			18		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	10	10	70	70	70	70	70	70
g / C, Green / Cycle	0.11	0.11	0.78	0.78	0.78	0.78	0.78	0.78
(v / s)_i Volume / Saturation Flow Rate	0.08	0.02	0.05	0.49	0.01	0.03	0.20	0.20
s, saturation flow rate [veh/h]	1541	1613	720	1870	1525	595	1870	1856
c, Capacity [veh/h]	231	237	583	1458	1189	399	1458	1447
d1, Uniform Delay [s]	38.11	36.21	4.33	4.30	2.21	9.94	2.72	2.72
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.86	0.33	0.21	2.10	0.03	0.18	0.42	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.17	0.06	0.63	0.02	0.04	0.25	0.25
d, Delay for Lane Group [s/veh]	39.98	36.54	4.54	6.40	2.24	10.11	3.13	3.14
Lane Group LOS	D	D	A	A	A	B	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.66	0.81	0.22	5.60	0.06	0.15	1.37	1.36
50th-Percentile Queue Length [ft/ln]	66.51	20.30	5.39	140.01	1.54	3.84	34.14	34.00
95th-Percentile Queue Length [veh/ln]	4.79	1.46	0.39	9.48	0.11	0.28	2.46	2.45
95th-Percentile Queue Length [ft/ln]	119.72	36.55	9.71	237.04	2.77	6.91	61.45	61.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.98	39.98	39.98	36.54	36.54	36.54	4.54	6.40	2.24	10.11	3.14	3.14
Movement LOS	D	D	D	D	D	D	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	39.98			36.54			6.25			3.28		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	7.89											
Intersection LOS	A											
Intersection V/C	0.628											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
I_p,int, Pedestrian LOS Score for Intersection	1.812	1.810	2.715	2.579
Crosswalk LOS	A	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	469	469	1319	1319
d_b, Bicycle Delay [s]	26.35	26.35	5.22	5.23
I_b,int, Bicycle LOS Score for Intersection	1.761	1.626	3.175	2.178
Bicycle LOS	A	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.789

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	87	77	268	68	66	37	47	831	65	87	563	89
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	77	268	68	66	37	47	831	65	87	563	89
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	20	69	18	17	10	12	214	17	22	145	23
Total Analysis Volume [veh/h]	90	79	276	70	68	38	48	857	67	90	580	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			16			16			10		
v_di, Inbound Pedestrian Volume crossing m	10			16			16			10		
v_co, Outbound Pedestrian Volume crossing	30			10			30			9		
v_ci, Inbound Pedestrian Volume crossing mi	30			9			30			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			1			2			5		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	17.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	20	20	20	20	30	30	30	30	30	30
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.07	0.06	0.06	0.46	0.05	0.15	0.18	0.19
s, saturation flow rate [veh/h]	1260	1576	1014	1730	762	1870	1460	605	1870	1757
c, Capacity [veh/h]	437	527	220	579	387	920	719	147	920	865
d1, Uniform Delay [s]	18.10	17.15	26.16	14.15	13.51	14.28	8.08	29.60	9.48	9.52
k, delay calibration	0.11	0.12	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.23	1.72	0.82	0.15	0.66	17.07	0.26	17.56	1.16	1.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.67	0.32	0.18	0.12	0.93	0.09	0.61	0.37	0.38
d, Delay for Lane Group [s/veh]	18.33	18.87	26.98	14.30	14.17	31.36	8.34	47.16	10.64	10.78
Lane Group LOS	B	B	C	B	B	C	A	D	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.96	4.01	0.96	0.95	0.48	13.20	0.44	1.96	2.65	2.56
50th-Percentile Queue Length [ft/ln]	23.93	100.28	24.05	23.76	11.94	329.96	11.05	48.94	66.22	63.97
95th-Percentile Queue Length [veh/ln]	1.72	7.22	1.73	1.71	0.86	19.16	0.80	3.52	4.77	4.61
95th-Percentile Queue Length [ft/ln]	43.07	180.51	43.30	42.77	21.50	478.91	19.89	88.10	119.19	115.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.33	18.87	18.87	26.98	14.30	14.30	14.17	31.36	8.34	47.16	10.70	10.78
Movement LOS	B	B	B	C	B	B	B	C	A	D	B	B
d_A, Approach Delay [s/veh]	18.76			19.35			28.92			15.02		
Approach LOS	B			B			C			B		
d_I, Intersection Delay [s/veh]	21.79											
Intersection LOS	C											
Intersection V/C	0.789											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.263	2.114	2.733	2.684
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.66	9.08	9.10
I_b,int, Bicycle LOS Score for Intersection	2.294	1.850	3.163	2.188
Bicycle LOS	B	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	4.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	22	31	1561	33	15	641
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	31	1561	33	15	641
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	8	415	9	4	170
Total Analysis Volume [veh/h]	23	33	1661	35	16	682
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		70		0	
v_di, Inbound Pedestrian Volume crossing m	0		70		0	
v_co, Outbound Pedestrian Volume crossing	65		64		70	
v_ci, Inbound Pedestrian Volume crossing mi	64		65		70	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		6		3	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	7	7	72	72	72	72
g / C, Green / Cycle	0.08	0.08	0.80	0.80	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate	0.02	0.02	0.47	0.02	0.06	0.19
s, saturation flow rate [veh/h]	1157	1589	3560	1428	289	3560
c, Capacity [veh/h]	88	121	2854	1145	252	2854
d1, Uniform Delay [s]	39.16	39.20	3.32	1.81	7.89	2.19
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.54	1.20	0.87	0.05	0.49	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.27	0.58	0.03	0.06	0.24
d, Delay for Lane Group [s/veh]	40.70	40.39	4.20	1.86	8.38	2.39
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.51	0.72	3.56	0.09	0.16	0.95
50th-Percentile Queue Length [ft/ln]	12.81	18.04	89.08	2.24	3.93	23.75
95th-Percentile Queue Length [veh/ln]	0.92	1.30	6.41	0.16	0.28	1.71
95th-Percentile Queue Length [ft/ln]	23.05	32.47	160.34	4.04	7.07	42.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.70	40.39	4.20	1.86	8.38	2.39
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	40.52		4.15		2.53	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	4.52					
Intersection LOS	A					
Intersection V/C	0.535					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	81.06	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.997	2.768	0.000
Crosswalk LOS	A	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.43	13.41
I_b,int, Bicycle LOS Score for Intersection	1.560	2.959	2.135
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	6.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.555

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	32	46	1558	41	22	613
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	46	1558	41	22	613
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	12	410	11	6	161
Total Analysis Volume [veh/h]	34	48	1640	43	23	645
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6		14		7	
v_di, Inbound Pedestrian Volume crossing m	7		14		6	
v_co, Outbound Pedestrian Volume crossing	42		41		14	
v_ci, Inbound Pedestrian Volume crossing mi	41		42		14	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		7		5	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	11	68	68	68	68
g / C, Green / Cycle	0.12	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.05	0.45	0.46	0.08	0.18
s, saturation flow rate [veh/h]	1664	1870	1844	293	3560
c, Capacity [veh/h]	206	1422	1403	235	2708
d1, Uniform Delay [s]	36.33	4.69	4.74	10.90	3.15
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.53	1.82	1.90	0.83	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.59	0.60	0.10	0.24
d, Delay for Lane Group [s/veh]	38.86	6.50	6.64	11.73	3.35
Lane Group LOS	D	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.79	5.44	5.52	0.28	1.29
50th-Percentile Queue Length [ft/ln]	44.64	136.07	138.05	6.92	32.36
95th-Percentile Queue Length [veh/ln]	3.21	9.27	9.38	0.50	2.33
95th-Percentile Queue Length [ft/ln]	80.36	231.72	234.40	12.45	58.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.86	38.86	6.57	6.64	11.73	3.35
Movement LOS	D	D	A	A	B	A
d_A, Approach Delay [s/veh]	38.86		6.57		3.64	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	6.86					
Intersection LOS	A					
Intersection V/C	0.555					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	1.819	2.706	2.835
Crosswalk LOS	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.17	11.18	11.17
I_b,int, Bicycle LOS Score for Intersection	1.695	2.948	2.111
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.672

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	29	212	82	51	151	56	140	1400	51	43	556	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	77
Total Hourly Volume [veh/h]	29	212	82	51	151	56	140	1400	51	43	556	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	56	22	13	40	15	37	368	13	11	146	1
Total Analysis Volume [veh/h]	31	223	86	54	159	59	147	1474	54	45	585	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			36			36			20		
v_di, Inbound Pedestrian Volume crossing m	20			36			36			20		
v_co, Outbound Pedestrian Volume crossing	20			31			19			31		
v_ci, Inbound Pedestrian Volume crossing mi	19			31			20			31		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			3			5			4		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	23	23	57	57	57	57	57	57
g / C, Green / Cycle	0.25	0.25	0.63	0.63	0.63	0.63	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.20	0.18	0.18	0.41	0.41	0.13	0.16	0.00
s, saturation flow rate [veh/h]	1718	1479	819	1870	1838	341	3560	1478
c, Capacity [veh/h]	474	419	518	1183	1163	198	2252	935
d1, Uniform Delay [s]	31.34	30.38	11.83	10.29	10.37	22.08	7.27	6.09
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.04	1.70	1.37	2.75	2.89	2.64	0.28	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.65	0.28	0.65	0.66	0.23	0.26	0.01
d, Delay for Lane Group [s/veh]	33.38	32.09	13.20	13.04	13.25	24.72	7.55	6.10
Lane Group LOS	C	C	B	B	B	C	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	6.95	5.43	1.76	9.10	9.14	0.84	2.30	0.03
50th-Percentile Queue Length [ft/ln]	173.83	135.77	44.08	227.55	228.61	21.07	57.44	0.86
95th-Percentile Queue Length [veh/ln]	11.28	9.25	3.17	14.05	14.10	1.52	4.14	0.06
95th-Percentile Queue Length [ft/ln]	281.94	231.31	79.35	351.24	352.59	37.92	103.39	1.55

Movement, Approach, & Intersection Results

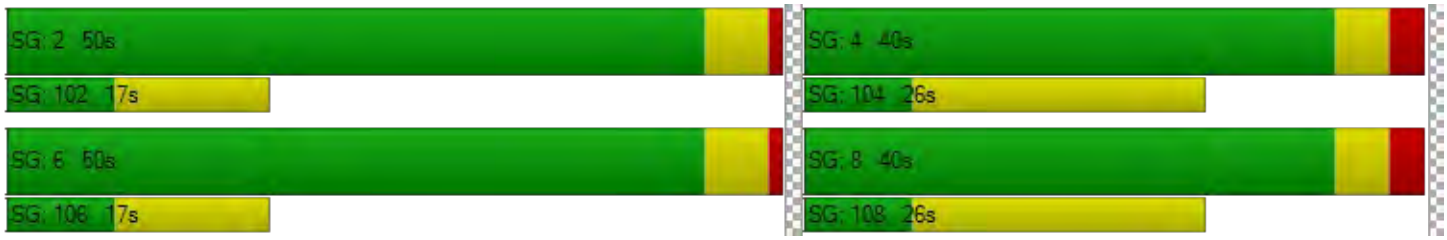
d_M, Delay for Movement [s/veh]	33.38	33.38	33.38	32.09	32.09	32.09	13.20	13.14	13.25	24.72	7.55	6.10
Movement LOS	C	C	C	C	C	C	B	B	B	C	A	A
d_A, Approach Delay [s/veh]	33.38			32.09			13.15			8.75		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	16.31											
Intersection LOS	B											
Intersection V/C	0.672											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.65	34.65	34.65	34.65
I_p,int, Pedestrian LOS Score for Intersection	2.070	2.276	2.802	3.017
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	765	1003	1003
d_b, Bicycle Delay [s]	17.20	17.18	11.21	11.21
I_b,int, Bicycle LOS Score for Intersection	2.121	2.008	2.941	2.147
Bicycle LOS	B	B	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Scenario 4 Existing Weekend Midday
Report File: H:\...\Existing_Saturday.pdf
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	NB Right	0.634	7.9	A
2	Curson Ave/6th St	Signalized	HCM 6th Edition	SB Left	0.361	10.1	B
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.302	3.4	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.354	8.0	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	SB Thru	0.529	18.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	70	0	75	15	0	36	25	812	119	80	967	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	0	75	15	0	36	25	812	119	80	967	5
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	0	20	4	0	9	7	211	31	21	252	1
Total Analysis Volume [veh/h]	73	0	78	16	0	38	26	846	124	83	1007	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	8			1			2			8		
v_di, Inbound Pedestrian Volume crossing m	8			2			1			8		
v_co, Outbound Pedestrian Volume crossing	20			16			19			15		
v_ci, Inbound Pedestrian Volume crossing mi	19			15			20			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	2.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	9	9	42	42	42	42	42	42
g / C, Green / Cycle	0.15	0.15	0.69	0.69	0.69	0.69	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.10	0.03	0.05	0.45	0.08	0.14	0.27	0.27
s, saturation flow rate [veh/h]	1557	1668	556	1870	1513	579	1870	1866
c, Capacity [veh/h]	319	324	417	1295	1047	346	1295	1292
d1, Uniform Delay [s]	23.91	22.53	6.81	5.19	3.08	13.03	3.90	3.90
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.09	0.24	0.29	2.58	0.23	1.63	0.89	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.17	0.06	0.65	0.12	0.24	0.39	0.39
d, Delay for Lane Group [s/veh]	25.00	22.77	7.10	7.77	3.31	14.67	4.79	4.79
Lane Group LOS	C	C	A	A	A	B	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.98	0.66	0.17	4.36	0.37	0.86	1.86	1.86
50th-Percentile Queue Length [ft/ln]	49.39	16.38	4.13	108.89	9.14	21.51	46.53	46.48
95th-Percentile Queue Length [veh/ln]	3.56	1.18	0.30	7.78	0.66	1.55	3.35	3.35
95th-Percentile Queue Length [ft/ln]	88.91	29.48	7.44	194.46	16.45	38.71	83.76	83.67

Movement, Approach, & Intersection Results

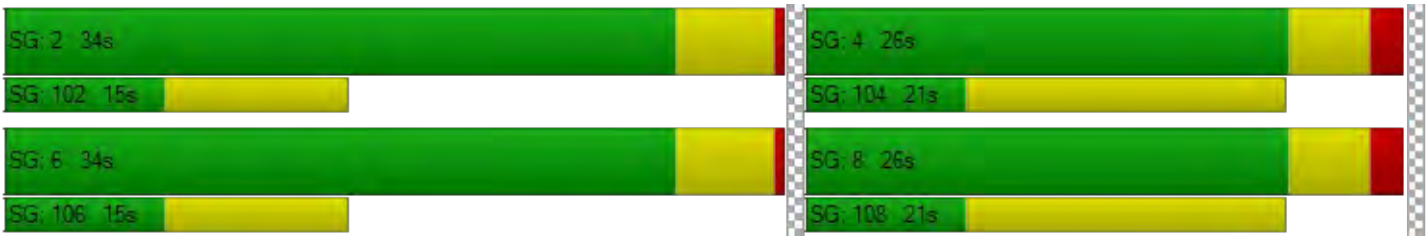
d_M, Delay for Movement [s/veh]	25.00	25.00	25.00	22.77	22.77	22.77	7.10	7.77	3.31	14.67	4.79	4.79
Movement LOS	C	C	C	C	C	C	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	25.00			22.77			7.19			5.54		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	7.94											
Intersection LOS	A											
Intersection V/C	0.634											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
I_p,int, Pedestrian LOS Score for Intersection	1.985	1.771	2.793	2.627
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	703	703	977	977
d_b, Bicycle Delay [s]	12.61	12.62	7.86	7.87
I_b,int, Bicycle LOS Score for Intersection	1.809	1.649	3.203	2.463
Bicycle LOS	A	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.361

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	81	44	90	48	54	32	39	415	80	83	504	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	81	44	90	48	54	32	39	415	80	83	504	55
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	11	23	12	14	8	10	106	20	21	129	14
Total Analysis Volume [veh/h]	83	45	92	49	55	33	40	423	82	85	514	56
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			14			15			13		
v_di, Inbound Pedestrian Volume crossing m	13			15			14			12		
v_co, Outbound Pedestrian Volume crossing	29			17			28			17		
v_ci, Inbound Pedestrian Volume crossing mi	28			17			29			17		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			1			1			4		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	13	13	13	13	37	37	37	37	37	37
g / C, Green / Cycle	0.22	0.22	0.22	0.22	0.61	0.61	0.61	0.61	0.61	0.61
(v / s)_i Volume / Saturation Flow Rate	0.07	0.09	0.04	0.05	0.05	0.23	0.06	0.10	0.15	0.16
s, saturation flow rate [veh/h]	1271	1573	1208	1715	834	1870	1484	882	1870	1785
c, Capacity [veh/h]	293	340	245	370	545	1142	907	534	1142	1090
d1, Uniform Delay [s]	23.95	20.21	25.14	19.45	7.57	5.87	4.79	9.35	5.38	5.39
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	0.77	0.40	0.33	0.26	0.92	0.20	0.64	0.53	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.40	0.20	0.24	0.07	0.37	0.09	0.16	0.25	0.26
d, Delay for Lane Group [s/veh]	24.48	20.98	25.54	19.77	7.83	6.80	4.99	9.98	5.91	5.96
Lane Group LOS	C	C	C	B	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.06	1.60	0.64	0.98	0.26	2.27	0.36	0.66	1.41	1.38
50th-Percentile Queue Length [ft/ln]	26.60	40.00	16.06	24.44	6.55	56.69	9.05	16.40	35.16	34.39
95th-Percentile Queue Length [veh/ln]	1.92	2.88	1.16	1.76	0.47	4.08	0.65	1.18	2.53	2.48
95th-Percentile Queue Length [ft/ln]	47.89	71.99	28.91	43.99	11.79	102.05	16.29	29.52	63.28	61.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.48	20.98	20.98	25.54	19.77	19.77	7.83	6.80	4.99	9.98	5.93	5.96
Movement LOS	C	C	C	C	B	B	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	22.30			21.84			6.60			6.46		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	10.10											
Intersection LOS	B											
Intersection V/C	0.361											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.182	2.065	2.625	2.472
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.66	9.08	9.09
I_b,int, Bicycle LOS Score for Intersection	1.923	1.786	2.459	2.100
Bicycle LOS	A	A	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	3.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.302

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	2	37	807	19	0	627
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	37	807	19	0	627
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	222	5	0	172
Total Analysis Volume [veh/h]	2	41	887	21	0	689
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		46		0	
v_di, Inbound Pedestrian Volume crossing m	0		45		0	
v_co, Outbound Pedestrian Volume crossing	52		51		45	
v_ci, Inbound Pedestrian Volume crossing mi	51		52		46	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		1		4	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	6	6	73	73	73	73
g / C, Green / Cycle	0.07	0.07	0.81	0.81	0.81	0.81
(v / s)_i Volume / Saturation Flow Rate	0.00	0.03	0.25	0.01	0.00	0.19
s, saturation flow rate [veh/h]	1208	1589	3560	1458	614	3560
c, Capacity [veh/h]	81	106	2887	1182	521	2887
d1, Uniform Delay [s]	39.24	40.21	2.14	1.63	0.00	1.99
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	2.28	0.28	0.03	0.00	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.39	0.31	0.02	0.00	0.24
d, Delay for Lane Group [s/veh]	39.36	42.49	2.42	1.66	0.00	2.19
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.04	0.93	1.19	0.05	0.00	0.86
50th-Percentile Queue Length [ft/ln]	1.09	23.20	29.79	1.20	0.00	21.50
95th-Percentile Queue Length [veh/ln]	0.08	1.67	2.14	0.09	0.00	1.55
95th-Percentile Queue Length [ft/ln]	1.97	41.76	53.62	2.16	0.00	38.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.36	42.49	2.42	1.66	0.00	2.19
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	42.34		2.40		2.19	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	3.36					
Intersection LOS	A					
Intersection V/C	0.302					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	125.68	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.960	2.611	0.000
Crosswalk LOS	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.39	13.41
I_b,int, Bicycle LOS Score for Intersection	1.560	2.309	2.128
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.354

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	41	58	751	86	44	575
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	41	58	751	86	44	575
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	16	204	23	12	156
Total Analysis Volume [veh/h]	45	63	816	93	48	625
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	23		22		24	
v_di, Inbound Pedestrian Volume crossing m	24		22		23	
v_co, Outbound Pedestrian Volume crossing	48		48		22	
v_ci, Inbound Pedestrian Volume crossing mi	48		48		22	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		1		5	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	18	62	62	62	62
g / C, Green / Cycle	0.20	0.69	0.69	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.06	0.24	0.26	0.08	0.18
s, saturation flow rate [veh/h]	1664	1870	1765	612	3560
c, Capacity [veh/h]	328	1285	1213	416	2446
d1, Uniform Delay [s]	30.98	5.82	5.93	9.97	5.34
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.18	0.76	0.89	0.56	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.35	0.37	0.12	0.26
d, Delay for Lane Group [s/veh]	32.16	6.58	6.82	10.54	5.59
Lane Group LOS	C	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.09	3.23	3.31	0.50	1.95
50th-Percentile Queue Length [ft/ln]	52.32	80.74	82.83	12.57	48.80
95th-Percentile Queue Length [veh/ln]	3.77	5.81	5.96	0.90	3.51
95th-Percentile Queue Length [ft/ln]	94.17	145.32	149.09	22.62	87.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.16	32.16	6.69	6.82	10.54	5.59
Movement LOS	C	C	A	A	B	A
d_A, Approach Delay [s/veh]	32.16		6.70		5.95	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	8.03					
Intersection LOS	A					
Intersection V/C	0.354					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.65	34.65	34.65
I_p,int, Pedestrian LOS Score for Intersection	1.904	2.515	2.705
Crosswalk LOS	A	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.18	11.14	11.16
I_b,int, Bicycle LOS Score for Intersection	1.738	2.310	2.115
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	18.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	39	251	68	64	178	119	103	680	24	31	448	64
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	8
Total Hourly Volume [veh/h]	39	251	68	64	178	119	103	680	24	31	448	56
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	67	18	17	48	32	28	183	6	8	120	15
Total Analysis Volume [veh/h]	42	270	73	69	191	128	111	731	26	33	482	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			53			53			21		
v_di, Inbound Pedestrian Volume crossing m	21			53			53			20		
v_co, Outbound Pedestrian Volume crossing	36			51			36			50		
v_ci, Inbound Pedestrian Volume crossing mi	36			50			36			51		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			3			3			6		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	27	27	52	52	52	52	52	52
g / C, Green / Cycle	0.30	0.30	0.58	0.58	0.58	0.58	0.58	0.58
(v / s)_i Volume / Saturation Flow Rate	0.24	0.28	0.13	0.20	0.21	0.05	0.14	0.04
s, saturation flow rate [veh/h]	1588	1401	846	1870	1834	703	3560	1417
c, Capacity [veh/h]	522	468	501	1090	1069	401	2075	826
d1, Uniform Delay [s]	28.43	30.03	13.06	9.83	9.85	13.97	9.05	8.14
k, delay calibration	0.17	0.23	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.15	7.77	1.02	0.88	0.91	0.40	0.26	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.83	0.22	0.35	0.35	0.08	0.23	0.07
d, Delay for Lane Group [s/veh]	31.58	37.80	14.08	10.71	10.76	14.38	9.32	8.31
Lane Group LOS	C	D	B	B	B	B	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	7.77	8.86	1.38	3.88	3.85	0.42	2.18	0.51
50th-Percentile Queue Length [ft/ln]	194.23	221.50	34.50	97.09	96.26	10.41	54.59	12.77
95th-Percentile Queue Length [veh/ln]	12.34	13.74	2.48	6.99	6.93	0.75	3.93	0.92
95th-Percentile Queue Length [ft/ln]	308.51	343.54	62.10	174.76	173.26	18.74	98.26	22.98

Movement, Approach, & Intersection Results

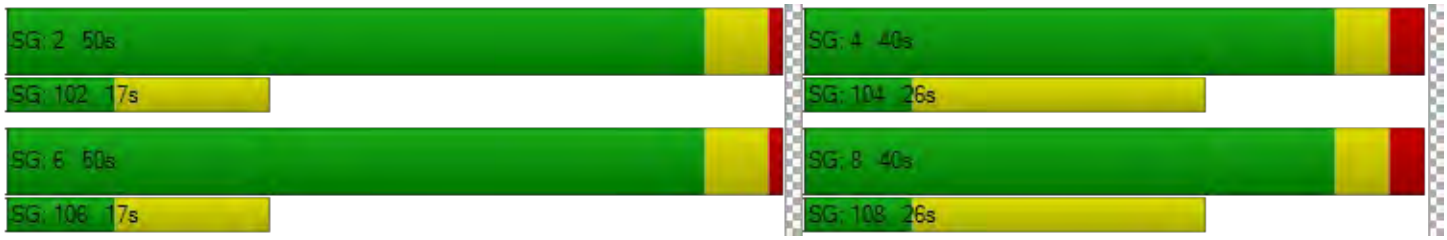
d_M, Delay for Movement [s/veh]	31.58	31.58	31.58	37.80	37.80	37.80	14.08	10.74	10.76	14.38	9.32	8.31
Movement LOS	C	C	C	D	D	D	B	B	B	B	A	A
d_A, Approach Delay [s/veh]	31.58			37.80			11.16			9.50		
Approach LOS	C			D			B			A		
d_I, Intersection Delay [s/veh]	18.94											
Intersection LOS	B											
Intersection V/C	0.529											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	2.071	2.280	2.655	2.798
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	765	1002	1002
d_b, Bicycle Delay [s]	17.19	17.19	11.21	11.23
I_b,int, Bicycle LOS Score for Intersection	2.195	2.200	2.276	2.041
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix 5 — Plans, Policies and Programs Consistency Worksheet

LADOT

Plans, Policies and Programs Consistency Worksheet

The worksheet provides a structured approach to evaluate the threshold T-1 question below, that asks whether a project conflicts with a program, plan, ordinance or policy addressing the circulation system. The intention of the worksheet is to streamline the project review by highlighting the most relevant plans, policies and programs when assessing potential impacts to the City's circulation system.

> ***Threshold T-1***: Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities?

This worksheet does not include an exhaustive list of City policies, and does not include community plans, specific plans, or any area-specific regulatory overlays. The Department of City Planning project planner will need to be consulted to determine if the project would obstruct the City from carrying out a policy or program in a community plan, specific plan, streetscape plan, or regulatory overlay that was adopted to support multimodal transportation options or public safety. LADOT staff should be consulted if a project would lead to a conflict with a mobility investment in the Public Right of Way (PROW) that is currently undergoing planning, design, or delivery. This worksheet must be completed for all projects that meet the Section I. Screening Criteria. For description of the relevant planning documents, **see Attachment D.1.**

For any response to the following questions that checks the box in **bold text** ((i.e. ☐ **Yes** or ☐ **No**), further analysis is needed to demonstrate that the project does not conflict with a plan, policy, or program.

I. SCREENING CRITERIA FOR POLICY ANALYSIS

If the answer is 'yes' to any of the following questions, further analysis will be required:

Does the project require a discretionary action that requires the decision maker to find that the project would substantially conform to the purpose, intent and provisions of the General Plan?

☒ Yes ☐ No

Is the project known to directly conflict with a transportation plan, policy, or program adopted to support multimodal transportation options or public safety?

☐ Yes ☒ No

Is the project required to or proposing to make any voluntary modifications to the public right-of-way (i.e., dedications and/or improvements in the right-of-way, reconfigurations of curb line, etc.)?

☒ Yes ☐ No

II. PLAN CONSISTENCY ANALYSIS

A. Mobility Plan 2035 PROW Classification Standards for Dedications and Improvements

These questions address potential conflict with:

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Mobility Plan 2035 Policy 2.1 *– Adaptive Reuse of Streets. Design, plan, and operate streets to serve multiple purposes and provide flexibility in design to adapt to future demands.*

Mobility Plan 2035 Policy 2.3 *– Pedestrian Infrastructure. Recognize walking as a component of every trip, and ensure high quality pedestrian access in all site planning and public right-of-way modifications to provide a safe and comfortable walking environment.*

Mobility Plan 2035 Policy 3.2 – *People with Disabilities. Accommodate the needs of people with disabilities when modifying or installing infrastructure in the public right-of-way.*

Mobility Plan 2035 Street Designations and Standard Roadway Dimensions

A.1 Does the project include additions or new construction along a street designated as a Boulevard I, and II, and/or Avenue I, II, or III on property zoned for R3 or less restrictive zone? ☐ Yes ☒ No

Wilshire Boulevard is an Avenue I and 6th Street is an Avenue II, but the property is not zoned for R3 or a less restrictive zone.

A.2 If **A.1 is yes**, is the project required to make additional dedications or improvements to the Public Right of Way as demonstrated by the street designation. ☐ Yes ☐ No ☒ N/A

A.3 If **A.2 is yes**, is the project making the dedications and improvements as necessary to meet the designated dimensions of the fronting street (Boulevard I, and II, or Avenue I, II, or III)?

☐ Yes ☐ No ☒ N/A

If the answer is to **A.1 or A.2 is NO, or to A.1, A.2 and A.3. is YES**, then the project does not conflict with the dedication and improvement requirements that are needed to comply with the Mobility Plan 2035 Street Designations and Standard Roadway Dimensions.

The answer to A.1 is NO. Therefore, the project does not conflict with the dedication and improvement requirements that are needed to comply with the Mobility Plan 2035 Street Designations and Standard Roadway Dimensions.

A.4 If the answer to **A.3. is NO**, is the project applicant asking to waive from the dedication standards?

☐ **Yes** ☐ **No** ☒ N/A

Lists any streets subject to dedications or voluntary dedications and include existing roadway and sidewalk widths, required roadway and sidewalk widths, and proposed roadway and sidewalk width or waivers.

Frontage 1 Existing PROW'/Curb' : Existing
_____Required_____Proposed_____

Frontage 2 Existing PROW'/Curb' : Existing
_____Required_____Proposed_____

Frontage 3 Existing PROW'/Curb' : Existing
_____Required_____Proposed_____

Frontage 4 Existing PROW'/Curb' : Existing
_____Required_____Proposed_____

If the answer to **A.4 is NO**, the project is inconsistent with Mobility Plan 2035 street designations and must file for a waiver of street dedication and improvement.

If the answer to **A.4 is YES**, additional analysis is necessary to determine if the dedication and/or improvements are necessary to meet the City's mobility needs for the next 20 years. The following factors may contribute to determine if the dedication or improvement is necessary:

Is the project site along any of the following networks identified in the City's Mobility Plan?

- Transit Enhanced Network
- Bicycle Enhanced Network
- Bicycle Lane Network
- Pedestrian Enhanced District
- Neighborhood Enhanced Network

To see the location of the above networks, see **Transportation Assessment Support Map**.[1]

Is the project within the service area of Metro Bike Share, or is there demonstrated demand for micro-mobility services?

If the project dedications and improvements asking to be waived are necessary to meet the City's mobility needs, the project may be found to conflict with a plan that is adopted to protect the environment.

B. Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes

B.1 Project-Initiated Changes to the PROW Dimensions

These questions address potential conflict with:

Mobility Plan 2035 Policy 2.1 *– Adaptive Reuse of Streets. Design, plan, and operate streets to serve multiple purposes and provide flexibility in design to adapt to future demands.*

Mobility Plan 2035 Policy 2.3 *– Pedestrian Infrastructure. Recognize walking as a component of every trip, and ensure high quality pedestrian access in all site planning and public right-of-way modifications to provide a safe and comfortable walking environment.*

Mobility Plan 2035 Policy 3.2 – *People with Disabilities. Accommodate the needs of people with disabilities when modifying or installing infrastructure in the public right-of-way.*

Mobility Plan 2035 Policy 2.10 *– Loading Areas. Facilitate the provision of adequate on and off-site street loading areas.*

Mobility Plan 2035 Street Designations and Standard Roadway Dimensions

B.1 Does the project physically modify the curb placement or turning radius and/or physically alter the sidewalk and parkways space that changes how people access a property?

Examples of physical changes to the public right-of-way include:

[1] LADOT Transportation Assessment Support Map https://arcg.is/fubbD

- widening the roadway,
- narrowing the sidewalk,
- adding space for vehicle turn outs or loading areas,
- removing bicycle lanes, bike share stations, or bicycle parking
- modifying existing bus stop, transit shelter, or other street furniture
- paving, narrowing, shifting or removing an existing parkway or tree well

The proposed project includes modifying curb placement for the curbside loading on the west side of Curson Avenue. ☒ **Yes** ☐ No

B.2 Driveway Access

These questions address potential conflict with:

Mobility Plan 2035 Policy 2.10 *– Loading Areas. Facilitate the provision of adequate on and off-site street loading areas.*

Mobility Plan 2035 Program PL.1. Driveway Access. *Require driveway access to buildings from non-arterial streets or alleys (where feasible) in order to minimize interference with pedestrian access and vehicular movement.*

Citywide Design Guidelines - Guideline 2*: Carefully incorporate vehicular access such that it does not degrade the pedestrian experience.*

Site Planning Best Practices:

- *Prioritize pedestrian access first and automobile access second. Orient parking and driveways toward the rear or side of buildings and away from the public right-of-way. On corner lots, parking should be oriented as far from the corner as possible.*
- *Minimize both the number of driveway entrances and overall driveway widths.*
- *Do not locate drop-off/pick-up areas between principal building entrances and the adjoining sidewalks.*
- *Orient vehicular access as far from street intersections as possible.*
- *Place drive-thru elements away from intersections and avoid placing them so that they create a barrier between the sidewalk and building entrance(s).*
- *Ensure that loading areas do not interfere with on-site pedestrian and vehicular circulation by separating loading areas and larger commercial vehicles from areas that are used for public parking and public entrances.*

B.2 Does the project add new driveways along a street designated as an Avenue or a Boulevard that conflict with LADOT's Driveway Design Guidelines (See Sec. 321 in the Manual of Policies and Procedures) by any of the following:

- locating new driveways for residential properties on an Avenue or Boulevard, and access is otherwise possible using an alley or a collector/local street, or
- locating new driveways for industrial or commercial properties on an Avenue or Boulevard and access is possible along a collector/local street, or
- the total number of new driveways exceeds 1 driveway per every 200 feet[2] along on the Avenue or Boulevard frontage, or

[2] for a project frontage that exceeds 400 feet along an Avenue or Boulevard, the incremental additional driveway above 2 is more than 1 driveway for every 400 additional feet.

- locating new driveways on an Avenue or Boulevard within 150 feet from the intersecting street, or
- locating new driveways on a collector or local street within 75 feet from the intersecting street, or
- locating new driveways near mid-block crosswalks, requiring relocation of the mid-block crosswalk

The proposed project includes a new driveway on 6th Street (an Avenue II). However, this does not result in exceeding 1 driveway per every 200 feet along the Avenue II frontage, locating it within 150 feet of the intersecting street, or locating it near a mid-block crosswalk.

☐ **Yes** ☒ No

If the answer to **B.1 and B.2 are both NO**, then the project would not conflict with a plan or policies that govern the PROW as a result of the project-initiated changes to the PROW.

The answer to B.1 is YES.

Impact Analysis

If the answer to either **B.1 or B.2 are YES**, City plans and policies should be reviewed in light of the proposed physical changes to determine if the City would be obstructed from carrying out the plans and policies. The analysis should pay special consideration to substantial changes to the Public Right of Way that may either degrade existing facilities for people walking and bicycling (e.g., removing a bicycle lane), or preclude the City from completing complete street infrastructure as identified in the Mobility Plan 2035, especially if the physical changes are along streets that are on the High Injury Network (HIN). The analysis should also consider if the project is in a Transit Oriented Community (TOC) area, and would degrade or inhibit trips made by biking, walking and/ or transit ridership. The streets that need special consideration are those that are included on the following networks identified in the Mobility Plan 2035, or the HIN:

- Transit Enhanced Network
- Bicycle Enhanced Network
- Bicycle Lane Network
- Pedestrian Enhanced District
- Neighborhood Enhanced Network
- High Injury Network

Curson Avenue along the project frontage is not on the HIN. It is not a part of one of the designated multimodal networks.
There are no existing or planned transit lines, transit stops, or bikeways. The existing sidewalk would be maintained. The project proposes to modify the curb line to create a bay for a section of curb that is already designated as a bus zone. This moves loading/unloading out of the travel lanes and reduces conflicts such as pedestrians vs. vehicles and bicycles vs. buses.

To see the location of the above networks, see **Transportation Assessment Support Map**.[3]

Once the project is reviewed relevant to plans and policies, and existing facilities that may be impacted by the project, the analysis will need to answer the following two questions in concluding if there is an impact due to plan inconsistency.

B.2.1 Would the physical changes in the public right of way or new driveways that conflict with LADOT's Driveway Design Guidelines degrade the experience of vulnerable roadway users such as modify, remove, or otherwise negatively impact existing bicycle, transit, and/or pedestrian infrastructure?

☐ **Yes** ☒ No ☐ N/A

B.2.2 Would the physical modifications or new driveways that conflict with LADOT's Driveway Design Guidelines preclude the City from advancing the safety of vulnerable roadway users?

☐ **Yes** ☒ No ☐ N/A

[3] LADOT Transportation Assessment Support Map https://arcg.is/fubbD

If either of the answers to either **B.2.1 or B.2.2 are YES**, the project may conflict with the Mobility Plan 2035, and therefore conflict with a plan that is adopted to protect the environment. If either of the answers to both **B.2.1. or B.2.2. are NO**, then the project would not be shown to conflict with plans or policies that govern the Public Right-of-Way.

The answers to B.2.1 and B.2.2 are NO. Therefore, the project would not conflict with plans or policies that govern the Public Right-of-Way.

C. Network Access

C. 1 Alley, Street and Stairway Access

These questions address potential conflict with:

Mobility Plan Policy 3.9 *Increased Network Access: Discourage the vacation of public rights-of-way.*

C.1.1 Does the project propose to vacate or otherwise restrict public access to a street, alley, or public stairway?

☐ Yes ☒ No

C.1.2 If the answer to C.1.1 is Yes, will the project provide or maintain public access to people walking and biking on the street, alley or stairway?

☐ Yes ☐ **No** ☒ N/A

C.2 New Cul-de-sacs

These questions address potential conflict with:

Mobility Plan 2035 Policy 3.10 *Cul-de-sacs: Discourage the use of cul-de-sacs that do not provide access for active transportation options.*

C.2.1 Does the project create a cul-de-sac or is the project located adjacent to an existing cul-de-sac?

☐ Yes ☒ No

C.2.2 If yes, will the cul-de-sac maintain convenient and direct public access to people walking and biking to the adjoining street network?

☐ Yes ☐ **No** ☒ N/A

If the answers to either C.1.2 or C.2.2 are YES, then the project would not conflict with a plan or policies that ensures access for all modes of travel. If the answer to either **C.1.2 or C.2.2 are NO**, the project may conflict with a plan or policies that governs multimodal access to a property. Further analysis must assess to the degree that pedestrians and bicyclists have sufficient public access to the transportation network. The answers to C.1.2 and C.2.2 are N/A. The project would not conflict with a plan or policies that ensures access for all modes of travel.

D. Parking Supply and Transportation Demand Management

These questions address potential conflict with:

Mobility Plan 2035 Policy 3.8 *– Bicycle Parking, Provide bicyclists with convenient, secure and well maintained bicycle parking facilities.*

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Mobility Plan 2035 Policy 4.8 *– Transportation Demand Management Strategies. Encourage greater utilization of Transportation Demand Management Strategies to reduce dependence on single-occupancy vehicles.*

Mobility Plan 2035 Policy 4.13 *– Parking and Land Use Management: Balance on-street and off-street parking supply with other transportation and land use objectives.*

D.1 Would the project propose a supply of onsite parking that exceeds the baseline amount[4] as required in the Los Angeles Municipal Code or a Specific plan, whichever requirement prevails?

No increase in the on-site parking supply is anticipated.

□ Yes ☒ No

D.2 If the answer to D.1. is YES, would the project propose to actively manage the demand of parking by independently pricing the supply to all users (e.g. parking cash-out), or for residential properties, unbundle the supply from the lease or sale of residential units?

□ Yes □ **No** ☒ N/A

If the answer to **D.2. is NO** the project may conflict with parking management policies. Further analysis is needed to demonstrate how the supply of parking above city requirements will not result in additional (induced) drive-alone trips as compared to an alternative that provided no more parking than the baseline required by the LAMC or Specific Plan. If there is potential for the supply of parking to result in induced demand for drive-alone trips, the project should further explore transportation demand management (TDM) measures to further off-set the induced demands of driving and vehicle miles travelled (VMT) that may result from higher amounts of on-site parking. The TDM measures should specifically focus on strategies that encourage dynamic and context-sensitive pricing solutions and ensure the parking is efficiently allocated, such as providing real time information. Research has demonstrated that charging a user cost for parking or providing a 'cash-out' option in return for not using it is the most effective strategy to reduce the instances of drive-alone trips and increase non-auto mode share to further reduce VMT. To ensure the parking is efficiently managed and reduce the need to build parking for future uses, further strategies should include sharing parking with other properties and/or the general public. The answer to D.2 is N/A -- would not conflict with parking management policies.

D.3. Would the project provide the minimum on and off-site bicycle parking spaces as required by Section 12.21 A.16 of the LAMC?

The site plan is conceptual and does not indicate if requirements will be met. Short-term parking requirement: 1 per 10KSF (min. 2) = 4 spaces.Long-term parking requirement: 1 per 5KSF (min. 2) = 8 spaces.

□ Yes ☒ **No**

D.4. Does the Project include more than 25,000 square feet of gross floor area construction of new non-residential gross floor?

42,000 square feet of new non-residential floor area

☒Yes □ No

D.5 If the answer to D.4. is YES, does the project comply with the City's TDM Ordinance in Section 12.26 J of the LAMC?

The site plan is conceptual and does not indicate if requirements will be met: Transportation information display with public transit information, contact info for rideshare and transit, ridesharing promotional material, bike route and facility information, and listing of on-site services or facilities.

□ Yes ☒ **No** □ N/A

[4] The baseline parking is defined here as the default parking requirements in section 12.21 A.4 of the Los Angeles Municipal Code or any applicable Specific Plan, whichever prevails, for each applicable use not taking into consideration other parking incentives to reduce the amount of required parking.

If the answer to **D.3. or D.5. is NO** the project conflicts with LAMC code requirements of bicycle parking and TDM measures. If the project includes uses that require bicycle parking (Section 12.21 A.16) or TDM (Section 12.26 J), and the project does not comply with those Sections of the LAMC, further analysis is required to ensure that the project supports the intent of the two LAMC sections. To meet the intent of bicycle parking requirements, the analysis should identify how the project commits to providing safe access to those traveling by bicycle and accommodates storing their bicycle in locations that demonstrates priority over vehicle access.

Similarly, to meet the intent of the TDM requirements of Section 12.26 J of the LAMC, the analysis should identify how the project commits to providing effective strategies in either physical facilities or programs that encourage non-drive alone trips to and from the project site and changes in work schedule that move trips out of the peak period or eliminate them altogether (as in the case in telecommuting or compressed work weeks).

The answers to D.3 and D.5 are NO. The project may conflict with LAMC code requirements for bicycle parking and TDM measures. Mitigation measures may be required to ensure the project is consistent with requirements

E. Consistency with Regional Plans

This section addresses potential inconsistencies with greenhouse gas (GHG) reduction targets forecasted in the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) / Sustainable Communities Strategy (SCS).

E.1 Does the Project or Plan apply one the City's efficiency-based impact thresholds (i.e. VMT per capita, VMT per employee, or VMT per service population) as discussed in **Section 2.2.3** of the TAG?

This project applies the total VMT threshold.

☐ Yes ☒ No

E.2 If the Answer to **E.1 is YES**, does the Project or Plan result in a significant VMT impact?

☐ **Yes** ☐ No ☒ N/A

E.3 If the Answer to **E.1 is NO**, does the Project result in a net increase in VMT?

☒ **Yes** ☐ No ☐ N/A

If the Answer to **E.2 or E.3 is NO**, then the Project or Plan is shown to align with the long-term VMT and GHG reduction goals of SCAG's RTP/SCS.

E.4 If the Answer to **E.2 or E.3 is YES**, then further evaluation would be necessary to determine whether such a project or land use plan would be shown to be consistent with VMT and GHG reduction goals of the SCAG RTP/SCS. For the purpose of making a finding that a project is consistent with the GHG reduction targets forecasted in the SCAG RTP/SCS, the project analyst should consult **Section 2.2.4** of the Transportation Assessment Guidelines (TAG). **Section 2.2.4** provides the methodology for evaluating a land use project's cumulative impacts to VMT, and the appropriate reliance on SCAG's most recently adopted RTP/SCS in reaching that conclusion. The answer to E.3 is YES. More evaluation is required.

The analysis methods therein can further support findings that the project is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy for which the State Air Resources Board, pursuant to Section 65080(b)(2)(H) of the Government Code, has accepted a metropolitan planning organization's determination that the sustainable communities strategy or the alternative planning strategy would, if implemented, achieve the greenhouse gas emission reduction targets.

Without mitigation measures, the project may be inconsistent with SCAG's goals related to improving mobility and accessibility, ensuring safety, maximizing transportation productivity, encouraging active transportation, and improving air quality. The proposed project does not include transportation improvements to encourage and improve active transportation and public transit outside of on-site access and circulation improvements.

Appendix 6 — Visitor Zip Code and VMT Data

Zip Code	Quantity	One-Way Distance	Total One-Way VMT
90001	723	12.28	8,881
90002	1044	14.12	14,745
90003	885	11.60	10,269
90004	1707	3.38	5,767
90005	1375	3.03	4,162
90006	1058	4.54	4,808
90007	2543	6.66	16,930
90008	472	5.28	2,494
90009	21	8.70	183
90010	152	2.70	410
90011	1507	9.36	14,108
90012	508	7.72	3,921
90013	187	7.81	1,460
90014	137	6.92	948
90015	424	6.81	2,885
90016	789	3.23	2,548
90017	524	5.59	2,928
90018	633	4.34	2,746
90019	2056	1.99	4,087
90020	962	3.10	2,984
90021	126	8.04	1,013
90022	860	14.01	12,045
90023	608	10.67	6,485
90024	1650	5.04	8,310
90025	1630	6.17	10,056
90026	1352	6.42	8,674
90027	1139	7.84	8,927
90028	725	4.09	2,969
90029	524	5.22	2,737
90030	27	9.90	267
90031	492	9.98	4,912
90032	623	12.76	7,947
90033	686	9.62	6,602
90034	1918	5.28	10,125
90035	1347	2.62	3,530
90036	5617	1.06	5,942
90037	610	8.18	4,988
90038	511	3.37	1,720
90039	651	9.14	5,950
90040	121	15.42	1,866
90041	565	13.50	7,630
90042	983	12.35	12,139
90043	779	7.77	6,049
90044	657	11.39	7,481
90045	1333	10.69	14,246
90046	1771	3.79	6,704

90047	610	10.30	6,286
90048	1678	2.00	3,351
90049	970	10.22	9,911
90050	14	15.00	210
90051	2	15.80	32
90052	12	12.90	155
90053	13	9.90	129
90054	37	9.90	366
90055	11	7.80	86
90056	141	6.28	885
90057	318	4.86	1,545
90058	86	11.16	959
90059	378	16.07	6,073
90061	517	15.05	7,783
90062	604	6.90	4,167
90063	828	11.29	9,347
90064	1364	5.87	8,012
90065	1265	11.41	14,428
90066	2219	6.95	15,422
90067	127	4.16	529
90068	662	7.41	4,903
90069	597	3.71	2,217
90071	54	6.38	344
90073	9	6.76	61
90077	302	7.73	2,334
90089	32	6.77	217
90094	391	8.25	3,227
90095	193	5.81	1,122
90201	692	19.30	13,353
90210	989	5.96	5,897
90211	562	1.85	1,042
90212	518	3.29	1,702
90220	556	20.28	11,274
90221	406	21.00	8,525
90222	242	17.77	4,301
90230	1205	6.44	7,756
90232	985	4.71	4,635
90240	395	18.44	7,286
90241	449	19.97	8,964
90242	461	21.15	9,748
90245	547	12.05	6,594
90247	496	17.39	8,625
90248	111	19.20	2,131
90249	234	14.49	3,390
90250	992	12.49	12,385
90254	491	17.03	8,363
90255	734	12.80	9,399

90260	583	13.86	8,081
90262	946	18.39	17,392
90263	24	23.62	567
90265	332	30.29	10,056
90266	1095	13.63	14,924
90270	136	13.88	1,888
90272	913	16.20	14,789
90274	485	24.82	12,039
90275	791	28.04	22,179
90277	746	21.07	15,721
90278	1202	14.73	17,703
90280	863	17.84	15,398
90290	220	21.57	4,746
90291	806	8.73	7,037
90292	470	9.22	4,334
90293	255	10.65	2,715
90301	291	8.81	2,564
90302	375	7.68	2,880
90303	471	11.73	5,526
90304	228	10.20	2,326
90305	93	10.37	964
90401	214	9.69	2,073
90402	408	10.20	4,162
90403	982	9.18	9,011
90404	646	8.34	5,387
90405	953	9.16	8,728
90501	435	21.51	9,356
90502	236	20.95	4,945
90503	747	19.28	14,403
90504	787	16.16	12,717
90505	521	21.66	11,284
90506	20	15.42	308
90601	466	23.39	10,902
90602	210	24.77	5,202
90603	242	28.32	6,853
90604	449	25.78	11,576
90605	361	28.40	10,252
90606	306	21.13	6,467
90620	379	28.72	10,886
90621	167	28.00	4,676
90623	188	28.90	5,433
90630	503	30.81	15,496
90631	493	31.87	15,711
90638	804	28.05	22,549
90640	478	16.74	8,000
90650	949	22.60	21,443
90660	657	19.97	13,123

90670	110	21.32	2,346
90680	112	32.36	3,624
90701	218	25.65	5,592
90703	691	26.05	18,003
90706	578	23.78	13,743
90710	295	23.89	7,048
90712	306	27.24	8,336
90713	317	27.45	8,701
90715	135	27.54	3,717
90716	117	28.48	3,332
90717	369	23.74	8,762
90720	261	32.34	8,440
90723	425	22.19	9,430
90731	689	28.03	19,315
90732	415	28.45	11,806
90740	247	35.02	8,651
90742	14	36.51	511
90743	11	35.63	392
90744	474	25.66	12,162
90745	503	22.67	11,403
90746	332	21.52	7,144
90755	83	27.81	2,308
90802	383	29.79	11,409
90803	545	31.39	17,108
90804	425	30.17	12,822
90805	511	23.63	12,074
90806	285	26.42	7,530
90807	349	26.85	9,370
90808	906	29.26	26,512
90810	188	24.75	4,654
90813	188	28.37	5,334
90814	168	31.30	5,259
90815	435	29.85	12,986
91001	680	20.18	13,724
91006	452	24.46	11,057
91007	360	22.78	8,199
91008	6	27.54	165
91010	443	30.55	13,533
91011	647	34.82	22,531
91016	525	28.64	15,039
91020	158	18.66	2,949
91024	275	23.31	6,410
91030	850	14.04	11,936
91040	344	16.22	5,578
91042	253	29.15	7,374
91101	400	17.00	6,800
91103	317	17.20	5,452

91104	637	19.26	12,268
91105	287	15.04	4,316
91106	404	17.75	7,170
91107	545	20.54	11,194
91108	455	17.19	7,823
91201	346	11.25	3,894
91202	323	12.09	3,904
91203	194	10.90	2,115
91204	334	9.77	3,262
91205	314	10.53	3,305
91206	443	12.78	5,660
91207	161	18.42	2,966
91208	269	16.10	4,330
91210	22	10.70	235
91214	772	20.48	15,808
91301	434	33.39	14,492
91302	584	27.58	16,104
91303	300	23.50	7,050
91304	469	26.48	12,417
91306	434	22.65	9,829
91307	427	29.21	12,474
91311	509	28.61	14,565
91316	505	15.82	7,989
91321	547	26.77	14,643
91324	324	23.04	7,464
91325	1177	20.08	23,638
91326	807	24.30	19,608
91330	223	22.14	4,936
91331	1739	16.30	28,353
91335	704	19.93	14,029
91340	529	19.16	10,137
91342	1329	31.15	41,401
91343	790	18.61	14,704
91344	816	22.02	17,966
91345	169	18.69	3,159
91350	522	31.79	16,596
91351	290	31.98	9,275
91352	334	14.40	4,810
91354	488	33.61	16,404
91355	692	36.24	25,075
91356	495	19.73	9,764
91364	445	22.10	9,836
91367	701	22.85	16,020
91381	321	30.87	9,908
91384	263	42.06	11,062
91387	704	30.55	21,508
91390	196	43.85	8,595

91401	571	11.58	6,612
91402	670	15.77	10,566
91403	564	12.06	6,803
91405	502	14.72	7,391
91406	615	17.26	10,616
91411	468	13.27	6,212
91423	959	9.57	9,174
91436	381	14.61	5,566
91501	275	12.05	3,313
91502	170	10.76	1,829
91504	507	12.73	6,453
91505	1083	9.46	10,244
91506	372	9.32	3,467
91601	497	9.16	4,553
91602	444	7.91	3,513
91604	871	7.10	6,184
91605	662	12.22	8,087
91606	540	10.66	5,755
91607	850	9.14	7,767
91608	12	6.80	82
91702	426	51.74	22,041
91706	523	25.63	13,406
91711	655	41.84	27,408
91722	485	29.01	14,072
91723	224	29.46	6,598
91724	247	31.86	7,871
91731	252	20.29	5,114
91732	421	21.46	9,033
91733	394	20.52	8,083
91740	190	34.37	6,531
91741	328	37.03	12,147
91744	449	26.93	12,094
91745	720	26.02	18,736
91746	232	23.28	5,402
91748	328	30.71	10,072
91750	413	39.72	16,404
91754	310	15.07	4,671
91755	212	17.05	3,616
91765	526	37.14	19,537
91766	488	37.35	18,228
91767	290	37.64	10,916
91768	498	34.81	17,335
91770	491	17.59	8,635
91773	392	34.32	13,453
91775	317	18.84	5,973
91776	249	17.76	4,422
91780	387	20.73	8,024

91789	704	33.62	23,666
91790	518	25.85	13,390
91791	400	28.51	11,406
91792	165	30.83	5,087
91801	612	16.18	9,902
91803	390	14.05	5,480
92602	275	48.04	13,212
92603	201	53.11	10,674
92604	278	46.41	12,901
92606	194	46.02	8,927
92610	127	55.69	7,072
92612	183	48.51	8,878
92614	199	46.31	9,215
92617	103	50.13	5,163
92618	353	48.80	17,226
92620	788	46.41	36,574
92624	44	65.42	2,879
92625	105	52.04	5,465
92626	359	45.02	16,164
92627	377	47.18	17,788
92629	261	64.66	16,877
92630	444	53.49	23,748
92637	62	53.45	3,314
92646	438	43.95	19,251
92647	449	38.85	17,443
92648	335	42.36	14,190
92649	371	38.47	14,271
92651	300	56.15	16,846
92653	225	56.10	12,623
92655	17	39.20	666
92656	423	56.68	23,974
92657	71	53.41	3,792
92660	242	49.53	11,986
92661	24	50.94	1,223
92662	22	51.00	1,122
92663	136	48.31	6,571
92672	206	74.01	15,246
92673	180	67.02	12,064
92675	258	70.69	18,239
92676	37	55.43	2,051
92677	442	61.12	27,017
92679	225	68.01	15,303
92683	806	36.84	29,690
92688	330	59.49	19,631
92691	423	55.95	23,668
92692	367	57.24	21,008
92694	365	59.77	21,816

92697	1	49.04	49
92701	395	39.82	15,731
92703	126	38.56	4,858
92704	302	42.45	12,819
92705	317	43.08	13,657
92706	121	38.22	4,625
92707	216	42.16	9,107
92708	496	42.06	20,863
92780	287	41.76	11,984
92782	340	44.01	14,963
92801	297	31.17	9,257
92802	202	34.32	6,934
92804	334	32.40	10,822
92805	400	34.20	13,682
92806	234	36.03	8,431
92807	342	40.67	13,910
92808	167	49.52	8,270
92821	379	36.96	14,007
92823	45	42.13	1,896
92831	198	34.37	6,806
92832	271	32.02	8,678
92833	463	30.69	14,207
92835	167	33.50	5,594
92840	204	36.09	7,361
92841	111	34.91	3,875
92843	194	37.48	7,270
92844	117	38.81	4,541
92845	174	32.91	5,726
92861	61	40.65	2,480
92865	160	37.57	6,010
92866	137	39.57	5,421
92867	483	38.64	18,662
92868	201	36.86	7,409
92869	248	43.70	10,837
92870	483	38.23	18,467
92886	498	42.40	21,114
92887	207	45.06	9,327
93510	96	46.30	4,445
93532	11	81.84	900
93534	516	68.47	35,332
93535	332	80.69	26,791
93536	788	78.62	61,956
93543	158	65.39	10,331
93544	10	77.02	770
93550	539	48.66	26,230
93551	847	63.73	53,980
93552	221	61.49	13,590

93553	29	69.53	2,016
93591	35	78.93	2,763
	182,259		3,590,911

19.70

Appendix 7 — Opening Year (2032) Intersection LOS and Queuing Worksheets

La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Report File: H:\...\OpeningYear_AM.pdf

Scenario 5 Opening Year Weekday AM
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	SB Right	0.719	8.3	A
2	Curson Ave/6th St	Signalized	HCM 6th Edition	NB Left	1.050	59.0	E
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.480	2.2	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.533	7.2	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	SB Left	2.002	269.4	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	3	0	7	30	0	70	7	966	33	33	2102	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	7	30	0	70	7	966	33	33	2102	22
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	8	0	18	2	249	9	9	542	6
Total Analysis Volume [veh/h]	3	0	7	31	0	72	7	996	34	34	2167	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			3			3			2		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			2		
v_co, Outbound Pedestrian Volume crossing	7			6			7			6		
v_ci, Inbound Pedestrian Volume crossing mi	7			6			7			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			7		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	69.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	8	8	72	72	72	72	72	72
g / C, Green / Cycle	0.09	0.09	0.80	0.80	0.80	0.80	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.04	0.53	0.02	0.06	0.59	0.59
s, saturation flow rate [veh/h]	1708	1537	179	1870	1542	548	1870	1862
c, Capacity [veh/h]	211	195	167	1496	1234	377	1496	1489
d1, Uniform Delay [s]	37.19	39.51	12.46	3.84	1.84	10.04	4.33	4.36
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.09	2.20	0.47	2.36	0.04	0.47	3.20	3.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.53	0.04	0.67	0.03	0.09	0.73	0.74
d, Delay for Lane Group [s/veh]	37.28	41.72	12.93	6.20	1.88	10.51	7.53	7.63
Lane Group LOS	D	D	B	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.20	2.30	0.09	5.47	0.09	0.36	6.89	6.95
50th-Percentile Queue Length [ft/ln]	5.11	57.49	2.37	136.68	2.18	8.98	172.31	173.73
95th-Percentile Queue Length [veh/ln]	0.37	4.14	0.17	9.30	0.16	0.65	11.20	11.27
95th-Percentile Queue Length [ft/ln]	9.20	103.48	4.26	232.54	3.93	16.16	279.95	281.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.28	37.28	37.28	41.72	41.72	41.72	12.93	6.20	1.88	10.51	7.58	7.63
Movement LOS	D	D	D	D	D	D	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	37.28			41.72			6.10			7.62		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	8.29											
Intersection LOS	A											
Intersection V/C	0.719											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
I_p,int, Pedestrian LOS Score for Intersection	1.801	1.789	2.943	2.969
Crosswalk LOS	A	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	469	469	1319	1319
d_b, Bicycle Delay [s]	26.35	26.36	5.23	5.24
I_b,int, Bicycle LOS Score for Intersection	1.576	1.730	3.271	3.394
Bicycle LOS	A	A	C	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	59.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.050

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	433	72	145	83	141	73	23	500	505	175	1678	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	433	72	145	83	141	73	23	500	505	175	1678	88
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	19	38	22	37	19	6	132	133	46	442	23
Total Analysis Volume [veh/h]	456	76	153	87	148	77	24	526	532	184	1766	93
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			17			18			10		
v_di, Inbound Pedestrian Volume crossing m	10			18			17			10		
v_co, Outbound Pedestrian Volume crossing	20			9			19			8		
v_ci, Inbound Pedestrian Volume crossing mi	19			8			20			9		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			4			1			5		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	24.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	23	23	23	23	27	27	27	27	27	27
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.45	0.45	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.40	0.14	0.08	0.13	0.10	0.28	0.36	0.35	0.50	0.51
s, saturation flow rate [veh/h]	1136	1615	1133	1735	247	1870	1489	532	1870	1828
c, Capacity [veh/h]	398	604	386	648	120	847	675	232	847	828
d1, Uniform Delay [s]	24.88	13.71	19.02	13.52	30.01	12.50	13.50	26.16	16.42	16.42
k, delay calibration	0.44	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	88.74	0.39	0.29	0.32	3.72	3.41	9.09	23.71	61.04	70.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.15	0.38	0.23	0.35	0.20	0.62	0.79	0.79	1.10	1.12
d, Delay for Lane Group [s/veh]	113.62	14.11	19.32	13.84	33.73	15.91	22.59	49.87	77.46	87.09
Lane Group LOS	F	B	B	B	C	B	C	D	F	F
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	15.30	2.08	0.96	2.00	0.45	5.38	6.71	4.06	24.05	25.73
50th-Percentile Queue Length [ft/ln]	382.50	51.88	23.98	50.11	11.37	134.62	167.71	101.62	601.30	643.27
95th-Percentile Queue Length [veh/ln]	23.60	3.74	1.73	3.61	0.82	9.19	10.96	7.32	34.31	36.96
95th-Percentile Queue Length [ft/ln]	590.10	93.39	43.16	90.19	20.46	229.76	273.90	182.91	857.70	923.90

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	113.62	14.11	14.11	19.32	13.84	13.84	33.73	15.91	22.59	49.87	82.02	87.09
Movement LOS	F	B	B	B	B	B	C	B	C	D	F	F
d_A, Approach Delay [s/veh]	80.35			15.37			19.59			79.36		
Approach LOS	F			B			B			E		
d_I, Intersection Delay [s/veh]	58.99											
Intersection LOS	E											
Intersection V/C	1.050											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.683	2.116	3.585	2.914
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.69	9.08	9.10
I_b,int, Bicycle LOS Score for Intersection	2.690	2.074	3.345	3.245
Bicycle LOS	B	B	C	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	2.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.480

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	7	3	938	14	6	1396
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	3	938	14	6	1396
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	258	4	2	384
Total Analysis Volume [veh/h]	8	3	1031	15	7	1534
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		20		0	
v_di, Inbound Pedestrian Volume crossing m	0		19		0	
v_co, Outbound Pedestrian Volume crossing	20		20		19	
v_ci, Inbound Pedestrian Volume crossing mi	20		20		20	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	1		0		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	2	2	77	77	77	77
g / C, Green / Cycle	0.02	0.02	0.85	0.85	0.85	0.85
(v / s)_i Volume / Saturation Flow Rate	0.01	0.00	0.29	0.01	0.01	0.43
s, saturation flow rate [veh/h]	1188	1556	3560	1552	538	3560
c, Capacity [veh/h]	30	39	3035	1323	489	3035
d1, Uniform Delay [s]	43.03	42.82	1.38	0.99	2.63	1.72
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.67	0.82	0.30	0.02	0.05	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.08	0.34	0.01	0.01	0.51
d, Delay for Lane Group [s/veh]	47.70	43.64	1.68	1.00	2.68	2.32
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.21	0.07	0.70	0.02	0.03	1.31
50th-Percentile Queue Length [ft/ln]	5.30	1.84	17.48	0.44	0.73	32.87
95th-Percentile Queue Length [veh/ln]	0.38	0.13	1.26	0.03	0.05	2.37
95th-Percentile Queue Length [ft/ln]	9.54	3.31	31.47	0.79	1.32	59.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.70	43.64	1.68	1.00	2.68	2.32
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	46.59		1.67		2.32	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	2.25					
Intersection LOS	A					
Intersection V/C	0.480					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	295.73	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.960	2.804	0.000
Crosswalk LOS	A	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.39	13.40
I_b,int, Bicycle LOS Score for Intersection	1.560	2.423	2.831
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.533

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	78	49	896	56	29	1340
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	49	896	56	29	1340
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	13	241	15	8	360
Total Analysis Volume [veh/h]	84	53	963	60	31	1441
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6		1		7	
v_di, Inbound Pedestrian Volume crossing m	7		1		6	
v_co, Outbound Pedestrian Volume crossing	18		17		1	
v_ci, Inbound Pedestrian Volume crossing mi	17		18		1	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	12	67	67	67	67
g / C, Green / Cycle	0.14	0.75	0.75	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.28	0.06	0.40
s, saturation flow rate [veh/h]	1702	1870	1826	551	3560
c, Capacity [veh/h]	235	1396	1363	419	2657
d1, Uniform Delay [s]	36.34	3.98	4.02	7.07	4.86
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.62	0.74	0.79	0.34	0.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.37	0.38	0.07	0.54
d, Delay for Lane Group [s/veh]	40.96	4.73	4.81	7.42	5.66
Lane Group LOS	D	A	A	A	A
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.08	2.71	2.75	0.26	4.46
50th-Percentile Queue Length [ft/ln]	77.07	67.82	68.65	6.53	111.57
95th-Percentile Queue Length [veh/ln]	5.55	4.88	4.94	0.47	7.93
95th-Percentile Queue Length [ft/ln]	138.73	122.08	123.57	11.75	198.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.96	40.96	4.76	4.81	7.42	5.66
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	40.96		4.77		5.70	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.17					
Intersection LOS	A					
Intersection V/C	0.533					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.65	34.65	34.65
I_p,int, Pedestrian LOS Score for Intersection	1.870	2.752	2.857
Crosswalk LOS	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.16	11.14	11.14
I_b,int, Bicycle LOS Score for Intersection	1.786	2.404	2.774
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	269.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.002

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	156	441	337	486	263	63	63	952	13	83	1003	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	100
Total Hourly Volume [veh/h]	156	441	337	486	263	63	63	952	13	83	1003	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	116	89	128	69	17	17	251	3	22	264	4
Total Analysis Volume [veh/h]	164	464	355	512	277	66	66	1002	14	87	1056	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			22			23			7		
v_di, Inbound Pedestrian Volume crossing m	7			23			22			7		
v_co, Outbound Pedestrian Volume crossing	14			15			13			14		
v_ci, Inbound Pedestrian Volume crossing mi	13			14			14			15		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.58	1.53	0.13	0.27	0.27	0.16	0.30	0.01
s, saturation flow rate [veh/h]	1685	560	526	1870	1858	555	3560	1509
c, Capacity [veh/h]	690	278	221	937	931	242	1784	756
d1, Uniform Delay [s]	28.84	31.73	27.48	15.34	15.35	26.75	15.87	11.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	199.07	943.43	3.42	2.26	2.29	4.13	1.45	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.42	3.08	0.30	0.54	0.54	0.36	0.59	0.02
d, Delay for Lane Group [s/veh]	227.92	975.15	30.91	17.61	17.64	30.89	17.33	11.33
Lane Group LOS	F	F	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	52.84	78.99	1.37	7.28	7.26	1.81	7.54	0.17
50th-Percentile Queue Length [ft/ln]	1320.97	1974.85	34.27	182.11	181.47	45.13	188.55	4.14
95th-Percentile Queue Length [veh/ln]	79.61	131.81	2.47	11.71	11.68	3.25	12.05	0.30
95th-Percentile Queue Length [ft/ln]	1990.31	3295.25	61.68	292.77	291.93	81.23	301.15	7.45

Movement, Approach, & Intersection Results

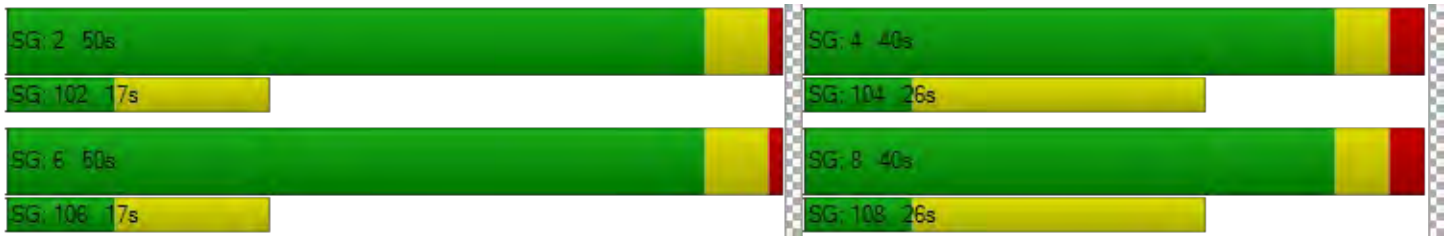
d_M, Delay for Movement [s/veh]	227.92	227.92	227.92	975.15	975.15	975.15	30.91	17.62	17.64	30.89	17.33	11.33
Movement LOS	F	F	F	F	F	F	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	227.92			975.15			18.43			18.26		
Approach LOS	F			F			B			B		
d_I, Intersection Delay [s/veh]	269.41											
Intersection LOS	F											
Intersection V/C	2.002											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.502	2.540	2.994	3.831
Crosswalk LOS	B	B	C	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.14	17.15	11.15	11.16
I_b,int, Bicycle LOS Score for Intersection	3.182	2.970	2.452	2.598
Bicycle LOS	C	C	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Scenario 6 Opening Year Weekday Midday
Report File: H:\...\OpeningYear_Midday.pdf
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	NB Left	0.683	8.5	A
2	Curson Ave/6th St	Signalized	HCM 6th Edition	SB Left	0.643	16.3	B
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.405	3.3	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.435	5.5	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	1.237	183.9	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	52	1	51	9	0	17	10	911	68	45	1169	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	1	51	9	0	17	10	911	68	45	1169	10
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	0	14	2	0	5	3	242	18	12	311	3
Total Analysis Volume [veh/h]	55	1	54	10	0	18	11	969	72	48	1244	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			4			4			13		
v_di, Inbound Pedestrian Volume crossing m	13			4			4			12		
v_co, Outbound Pedestrian Volume crossing	32			15			32			14		
v_ci, Inbound Pedestrian Volume crossing mi	32			14			32			15		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	2.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	9	9	42	42	42	42	42	42
g / C, Green / Cycle	0.15	0.15	0.69	0.69	0.69	0.69	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.07	0.02	0.02	0.52	0.05	0.09	0.34	0.34
s, saturation flow rate [veh/h]	1484	1597	442	1870	1485	542	1870	1863
c, Capacity [veh/h]	311	320	333	1292	1026	282	1292	1287
d1, Uniform Delay [s]	23.29	22.09	8.24	5.95	3.00	16.18	4.32	4.32
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.68	0.12	0.18	4.04	0.13	1.31	1.31	1.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.09	0.03	0.75	0.07	0.17	0.49	0.49
d, Delay for Lane Group [s/veh]	23.97	22.21	8.43	9.99	3.14	17.49	5.63	5.64
Lane Group LOS	C	C	A	A	A	B	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.39	0.33	0.08	5.96	0.21	0.56	2.59	2.59
50th-Percentile Queue Length [ft/ln]	34.87	8.32	2.04	149.05	5.17	14.11	64.86	64.78
95th-Percentile Queue Length [veh/ln]	2.51	0.60	0.15	9.97	0.37	1.02	4.67	4.66
95th-Percentile Queue Length [ft/ln]	62.77	14.98	3.67	249.16	9.31	25.40	116.75	116.60

Movement, Approach, & Intersection Results

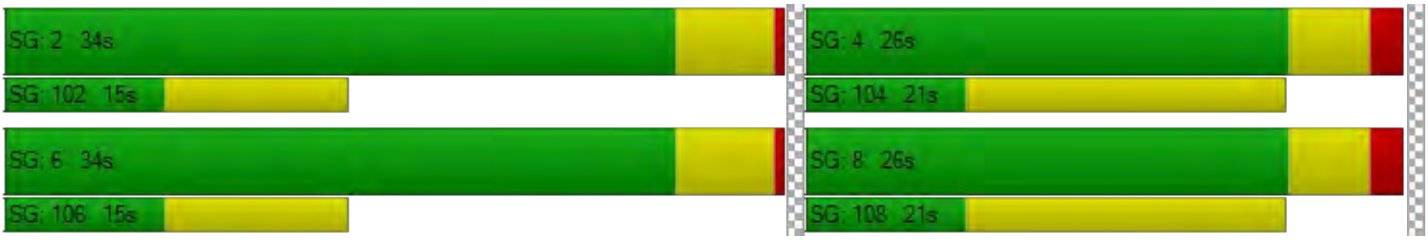
d_M, Delay for Movement [s/veh]	23.97	23.97	23.97	22.21	22.21	22.21	8.43	9.99	3.14	17.49	5.64	5.64
Movement LOS	C	C	C	C	C	C	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	23.97			22.21			9.50			6.07		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	8.49											
Intersection LOS	A											
Intersection V/C	0.683											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
I_p,int, Pedestrian LOS Score for Intersection	1.873	1.733	2.817	2.692
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	703	703	977	977
d_b, Bicycle Delay [s]	12.61	12.62	7.86	7.86
I_b,int, Bicycle LOS Score for Intersection	1.741	1.606	3.295	2.635
Bicycle LOS	A	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	322	56	310	42	39	54	38	519	176	81	582	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	322	56	310	42	39	54	38	519	176	81	582	49
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	15	82	11	10	14	10	137	46	21	153	13
Total Analysis Volume [veh/h]	339	59	326	44	41	57	40	546	185	85	613	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			10			11			12		
v_di, Inbound Pedestrian Volume crossing m	12			11			10			12		
v_co, Outbound Pedestrian Volume crossing	21			14			20			14		
v_ci, Inbound Pedestrian Volume crossing mi	20			14			21			14		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			3			2			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	22	22	22	22	27	27	27	27	27	27
g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.46	0.46	0.46	0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.26	0.25	0.04	0.06	0.05	0.29	0.12	0.12	0.18	0.18
s, saturation flow rate [veh/h]	1280	1549	986	1663	765	1870	1485	721	1870	1809
c, Capacity [veh/h]	494	572	240	614	357	856	680	270	856	828
d1, Uniform Delay [s]	20.43	15.89	24.20	12.69	15.08	12.47	9.99	21.36	10.77	10.79
k, delay calibration	0.20	0.17	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.04	2.12	0.36	0.12	0.64	3.63	0.99	3.04	1.36	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.67	0.18	0.16	0.11	0.64	0.27	0.32	0.39	0.40
d, Delay for Lane Group [s/veh]	23.48	18.01	24.56	12.81	15.72	16.10	10.98	24.40	12.13	12.21
Lane Group LOS	C	B	C	B	B	B	B	C	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	4.52	4.23	0.56	0.81	0.43	5.63	1.48	1.22	2.86	2.80
50th-Percentile Queue Length [ft/ln]	112.91	105.87	14.10	20.32	10.69	140.72	37.01	30.62	71.56	70.11
95th-Percentile Queue Length [veh/ln]	8.00	7.61	1.02	1.46	0.77	9.52	2.66	2.20	5.15	5.05
95th-Percentile Queue Length [ft/ln]	200.04	190.24	25.39	36.58	19.25	238.00	66.62	55.11	128.81	126.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.48	18.01	18.01	24.56	12.81	12.81	15.72	16.10	10.98	24.40	12.17	12.21
Movement LOS	C	B	B	C	B	B	B	B	B	C	B	B
d_A, Approach Delay [s/veh]	20.57			16.45			14.85			13.56		
Approach LOS	C			B			B			B		
d_I, Intersection Delay [s/veh]	16.27											
Intersection LOS	B											
Intersection V/C	0.643											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.375	2.070	3.107	2.574
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.68	11.68	9.09	9.08
I_b,int, Bicycle LOS Score for Intersection	2.754	1.794	2.832	2.178
Bicycle LOS	C	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	3.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.405

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	11	23	1169	13	6	1003
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	23	1169	13	6	1003
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	6	314	3	2	270
Total Analysis Volume [veh/h]	12	25	1257	14	6	1078
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		46		0	
v_di, Inbound Pedestrian Volume crossing m	0		45		0	
v_co, Outbound Pedestrian Volume crossing	59		58		45	
v_ci, Inbound Pedestrian Volume crossing mi	58		59		46	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		3		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	5	5	74	74	74	74
g / C, Green / Cycle	0.06	0.06	0.82	0.82	0.82	0.82
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.35	0.01	0.01	0.30
s, saturation flow rate [veh/h]	1195	1559	3560	1444	434	3560
c, Capacity [veh/h]	73	96	2907	1179	377	2907
d1, Uniform Delay [s]	40.04	40.27	2.34	1.53	4.57	2.17
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.04	1.43	0.47	0.02	0.08	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.26	0.43	0.01	0.02	0.37
d, Delay for Lane Group [s/veh]	41.07	41.70	2.81	1.55	4.65	2.54
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.27	0.56	1.83	0.03	0.04	1.46
50th-Percentile Queue Length [ft/ln]	6.77	14.03	45.84	0.75	0.97	36.38
95th-Percentile Queue Length [veh/ln]	0.49	1.01	3.30	0.05	0.07	2.62
95th-Percentile Queue Length [ft/ln]	12.18	25.25	82.52	1.35	1.74	65.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.07	41.70	2.81	1.55	4.65	2.54
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	41.50		2.80		2.55	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	3.29					
Intersection LOS	A					
Intersection V/C	0.405					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	125.68	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.967	2.760	0.000
Crosswalk LOS	A	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.97	13.41	13.39
I_b,int, Bicycle LOS Score for Intersection	1.560	2.608	2.454
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	5.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	38	34	1133	54	29	971
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	34	1133	54	29	971
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	9	305	15	8	261
Total Analysis Volume [veh/h]	41	37	1218	58	31	1044
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	5		12		5	
v_di, Inbound Pedestrian Volume crossing m	5		11		5	
v_co, Outbound Pedestrian Volume crossing	48		47		11	
v_ci, Inbound Pedestrian Volume crossing mi	47		48		12	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		2		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	10	69	69	69	69
g / C, Green / Cycle	0.11	0.77	0.77	0.77	0.77
(v / s)_i Volume / Saturation Flow Rate	0.05	0.34	0.35	0.07	0.29
s, saturation flow rate [veh/h]	1685	1870	1823	433	3560
c, Capacity [veh/h]	193	1439	1403	347	2740
d1, Uniform Delay [s]	36.95	3.63	3.67	7.18	3.38
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.75	0.99	1.06	0.51	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.44	0.45	0.09	0.38
d, Delay for Lane Group [s/veh]	39.70	4.62	4.74	7.69	3.78
Lane Group LOS	D	A	A	A	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.72	3.17	3.23	0.27	2.27
50th-Percentile Queue Length [ft/ln]	43.05	79.28	80.67	6.84	56.74
95th-Percentile Queue Length [veh/ln]	3.10	5.71	5.81	0.49	4.09
95th-Percentile Queue Length [ft/ln]	77.49	142.71	145.21	12.32	102.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.70	39.70	4.68	4.74	7.69	3.78
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	39.70		4.68		3.90	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	5.46					
Intersection LOS	A					
Intersection V/C	0.435					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	1.840	2.706	2.831
Crosswalk LOS	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.18	11.15	11.15
I_b,int, Bicycle LOS Score for Intersection	1.688	2.612	2.446
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	183.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.237

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	277	597	255	167	112	104	94	1007	24	40	613	91
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	76
Total Hourly Volume [veh/h]	277	597	255	167	112	104	94	1007	24	40	613	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	73	157	67	44	29	27	25	265	6	11	161	4
Total Analysis Volume [veh/h]	292	628	268	176	118	109	99	1060	25	42	645	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	24			46			47			24		
v_di, Inbound Pedestrian Volume crossing m	24			47			46			24		
v_co, Outbound Pedestrian Volume crossing	42			56			42			55		
v_ci, Inbound Pedestrian Volume crossing mi	42			55			42			56		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			4			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.83	0.45	0.13	0.29	0.29	0.08	0.18	0.01
s, saturation flow rate [veh/h]	1424	899	765	1870	1843	520	3560	1413
c, Capacity [veh/h]	594	401	361	937	924	221	1784	708
d1, Uniform Delay [s]	29.18	29.44	20.65	15.75	15.80	25.91	13.64	11.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	456.11	46.20	1.88	2.63	2.71	1.90	0.57	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.00	1.01	0.27	0.58	0.59	0.19	0.36	0.02
d, Delay for Lane Group [s/veh]	485.29	75.65	22.53	18.38	18.51	27.81	14.21	11.34
Lane Group LOS	F	F	C	B	B	C	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	88.03	14.00	1.66	8.04	8.01	0.82	3.91	0.17
50th-Percentile Queue Length [ft/ln]	2200.79	349.95	41.41	200.92	200.26	20.38	97.74	4.16
95th-Percentile Queue Length [veh/ln]	140.86	20.20	2.98	12.69	12.65	1.47	7.04	0.30
95th-Percentile Queue Length [ft/ln]	3521.49	505.07	74.53	317.15	316.30	36.69	175.94	7.48

Movement, Approach, & Intersection Results

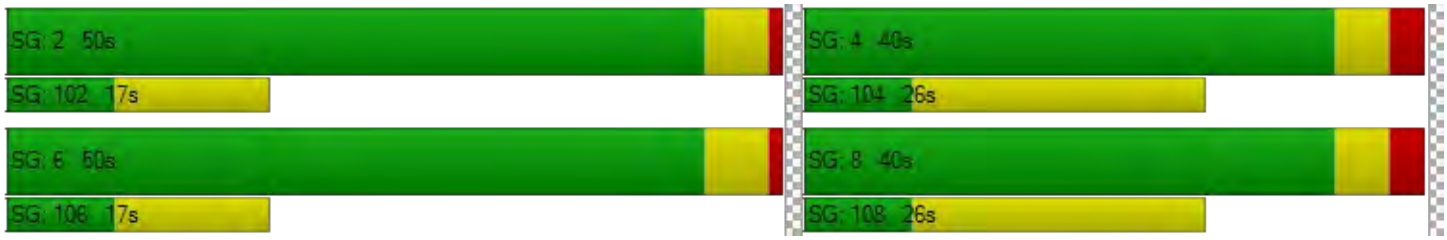
d_M, Delay for Movement [s/veh]	485.29	485.29	485.29	75.65	75.65	75.65	22.53	18.44	18.51	27.81	14.21	11.34
Movement LOS	F	F	F	E	E	E	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	485.29			75.65			18.79			14.95		
Approach LOS	F			E			B			B		
d_I, Intersection Delay [s/veh]	183.95											
Intersection LOS	F											
Intersection V/C	1.237											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.443	2.451	3.149	3.182
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.11	17.15	11.16	11.14
I_b,int, Bicycle LOS Score for Intersection	3.520	2.225	2.536	2.202
Bicycle LOS	D	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Scenario 7 Opening Year Weekday PM
Report File: H:\...\OpeningYear_PM.pdf
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	NB Left	0.799	11.3	B
2	Curson Ave/6th St	Signalized	HCM 6th Edition	NB Right	1.071	54.7	D
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.650	5.8	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.664	8.3	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	1.674	249.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	80	0	78	14	0	27	38	1072	29	16	1013	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	0	78	14	0	27	38	1072	29	16	1013	12
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	0	21	4	0	7	10	288	8	4	272	3
Total Analysis Volume [veh/h]	86	0	84	15	0	29	41	1153	31	17	1089	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6			9			10			6		
v_di, Inbound Pedestrian Volume crossing m	6			10			9			6		
v_co, Outbound Pedestrian Volume crossing	16			18			16			18		
v_ci, Inbound Pedestrian Volume crossing mi	16			18			16			18		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	13	13	67	67	67	67	67	67
g / C, Green / Cycle	0.14	0.14	0.75	0.75	0.75	0.75	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.11	0.03	0.08	0.62	0.02	0.04	0.30	0.30
s, saturation flow rate [veh/h]	1529	1567	511	1870	1524	473	1870	1860
c, Capacity [veh/h]	279	278	396	1403	1143	232	1403	1395
d1, Uniform Delay [s]	36.79	33.92	7.13	7.31	2.86	21.55	3.98	3.98
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.15	0.26	0.52	5.54	0.04	0.62	0.83	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.61	0.16	0.10	0.82	0.03	0.07	0.39	0.39
d, Delay for Lane Group [s/veh]	38.94	34.19	7.65	12.85	2.90	22.17	4.81	4.82
Lane Group LOS	D	C	A	B	A	C	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	3.69	0.86	0.35	12.24	0.12	0.29	2.95	2.94
50th-Percentile Queue Length [ft/ln]	92.31	21.46	8.85	305.96	3.00	7.20	73.74	73.53
95th-Percentile Queue Length [veh/ln]	6.65	1.54	0.64	17.98	0.22	0.52	5.31	5.29
95th-Percentile Queue Length [ft/ln]	166.16	38.62	15.93	449.39	5.40	12.96	132.73	132.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.94	38.94	38.94	34.19	34.19	34.19	7.65	12.85	2.90	22.17	4.81	4.82
Movement LOS	D	D	D	C	C	C	A	B	A	C	A	A
d_A, Approach Delay [s/veh]	38.94			34.19			12.43			5.08		
Approach LOS	D			C			B			A		
d_I, Intersection Delay [s/veh]	11.35											
Intersection LOS	B											
Intersection V/C	0.799											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
I_p,int, Pedestrian LOS Score for Intersection	1.845	1.820	2.895	2.730
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	469	469	1319	1319
d_b, Bicycle Delay [s]	26.35	26.35	5.22	5.23
I_b,int, Bicycle LOS Score for Intersection	1.840	1.632	3.581	2.483
Bicycle LOS	A	A	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	54.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.071

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	363	85	546	75	73	41	52	923	195	96	628	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	363	85	546	75	73	41	52	923	195	96	628	98
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	94	22	141	19	19	11	13	238	50	25	162	25
Total Analysis Volume [veh/h]	374	88	563	77	75	42	54	952	201	99	647	101
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			16			16			10		
v_di, Inbound Pedestrian Volume crossing m	10			16			16			10		
v_co, Outbound Pedestrian Volume crossing	30			10			30			9		
v_ci, Inbound Pedestrian Volume crossing mi	30			9			30			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			1			2			5		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	17.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	23	23	23	23	27	27	27	27	27	27
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.45	0.45	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.30	0.42	0.10	0.07	0.08	0.51	0.14	0.20	0.20	0.21
s, saturation flow rate [veh/h]	1250	1553	776	1732	711	1870	1452	487	1870	1758
c, Capacity [veh/h]	486	581	122	647	320	847	658	120	847	796
d1, Uniform Delay [s]	21.43	18.79	30.01	12.62	16.77	16.42	10.28	30.01	11.29	11.34
k, delay calibration	0.26	0.47	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.04	74.55	5.30	0.13	1.14	70.95	1.20	45.07	1.74	1.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	1.12	0.63	0.18	0.17	1.12	0.31	0.83	0.45	0.46
d, Delay for Lane Group [s/veh]	27.47	93.35	35.31	12.75	17.90	87.37	11.48	75.08	13.03	13.24
Lane Group LOS	C	F	D	B	B	F	B	E	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	5.56	19.00	1.24	0.97	0.63	26.38	1.66	2.87	3.42	3.31
50th-Percentile Queue Length [ft/ln]	138.91	475.09	31.02	24.22	15.85	659.59	41.49	71.66	85.55	82.67
95th-Percentile Queue Length [veh/ln]	9.42	28.16	2.23	1.74	1.14	37.82	2.99	5.16	6.16	5.95
95th-Percentile Queue Length [ft/ln]	235.56	703.89	55.84	43.59	28.53	945.47	74.68	128.99	153.99	148.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.47	93.35	93.35	35.31	12.75	12.75	17.90	87.37	11.48	75.08	13.12	13.24
Movement LOS	C	F	F	D	B	B	B	F	B	E	B	B
d_A, Approach Delay [s/veh]	69.31			21.71			71.62			20.38		
Approach LOS	E			C			E			C		
d_I, Intersection Delay [s/veh]	54.68											
Intersection LOS	D											
Intersection V/C	1.071											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.513	2.137	3.252	2.809
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.67	9.09	9.10
I_b,int, Bicycle LOS Score for Intersection	3.251	1.880	3.551	2.258
Bicycle LOS	C	A	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	5.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.650

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	32	37	1885	38	18	1047
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	37	1885	38	18	1047
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	10	501	10	5	278
Total Analysis Volume [veh/h]	34	39	2005	40	19	1114
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		70		0	
v_di, Inbound Pedestrian Volume crossing m	0		70		0	
v_co, Outbound Pedestrian Volume crossing	65		64		70	
v_ci, Inbound Pedestrian Volume crossing mi	64		65		70	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		6		3	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	8	8	71	71	71	71
g / C, Green / Cycle	0.08	0.08	0.79	0.79	0.79	0.79
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.56	0.03	0.09	0.31
s, saturation flow rate [veh/h]	1177	1589	3560	1427	206	3560
c, Capacity [veh/h]	100	135	2823	1131	181	2823
d1, Uniform Delay [s]	38.80	38.62	4.42	1.98	12.90	2.81
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.00	1.17	1.54	0.06	1.16	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.29	0.71	0.04	0.11	0.39
d, Delay for Lane Group [s/veh]	40.80	39.79	5.96	2.04	14.07	3.22
Lane Group LOS	D	D	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.76	0.84	5.84	0.11	0.26	2.01
50th-Percentile Queue Length [ft/ln]	18.89	21.09	145.90	2.80	6.62	50.26
95th-Percentile Queue Length [veh/ln]	1.36	1.52	9.80	0.20	0.48	3.62
95th-Percentile Queue Length [ft/ln]	34.01	37.96	244.95	5.03	11.92	90.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.80	39.79	5.96	2.04	14.07	3.22
Movement LOS	D	D	A	A	B	A
d_A, Approach Delay [s/veh]	40.26		5.88		3.40	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	5.79					
Intersection LOS	A					
Intersection V/C	0.650					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	81.06	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.010	2.922	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.43	13.41
I_b,int, Bicycle LOS Score for Intersection	1.560	3.247	2.494
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	35	51	1885	45	24	1017
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	51	1885	45	24	1017
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	13	496	12	6	268
Total Analysis Volume [veh/h]	37	54	1984	47	25	1071
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6		14		7	
v_di, Inbound Pedestrian Volume crossing m	7		14		6	
v_co, Outbound Pedestrian Volume crossing	42		41		14	
v_ci, Inbound Pedestrian Volume crossing mi	41		42		14	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		7		5	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	11	68	68	68	68
g / C, Green / Cycle	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.05	0.54	0.55	0.12	0.30
s, saturation flow rate [veh/h]	1662	1870	1847	209	3560
c, Capacity [veh/h]	209	1418	1401	170	2700
d1, Uniform Delay [s]	36.35	5.74	5.83	16.64	3.75
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.88	3.12	3.30	1.82	0.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.72	0.73	0.15	0.40
d, Delay for Lane Group [s/veh]	39.24	8.87	9.13	18.46	4.19
Lane Group LOS	D	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.99	8.22	8.38	0.41	2.57
50th-Percentile Queue Length [ft/ln]	49.85	205.41	209.44	10.22	64.29
95th-Percentile Queue Length [veh/ln]	3.59	12.92	13.12	0.74	4.63
95th-Percentile Queue Length [ft/ln]	89.74	322.94	328.11	18.40	115.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.24	39.24	9.00	9.13	18.46	4.19
Movement LOS	D	D	A	A	B	A
d_A, Approach Delay [s/veh]	39.24		9.00		4.52	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	8.33					
Intersection LOS	A					
Intersection V/C	0.664					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	1.829	2.896	2.962
Crosswalk LOS	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.17	11.18	11.17
I_b,int, Bicycle LOS Score for Intersection	1.710	3.235	2.464
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	249.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.674

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	332	751	309	179	167	62	155	1709	56	49	654	91
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	86
Total Hourly Volume [veh/h]	332	751	309	179	167	62	155	1709	56	49	654	5
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	198	81	47	44	16	41	450	15	13	172	1
Total Analysis Volume [veh/h]	349	791	325	188	176	65	163	1799	59	52	688	5
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			36			36			20		
v_di, Inbound Pedestrian Volume crossing m	20			36			36			20		
v_co, Outbound Pedestrian Volume crossing	20			31			19			31		
v_ci, Inbound Pedestrian Volume crossing mi	19			31			20			31		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			3			5			4		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	1.02	0.49	0.22	0.50	0.50	0.21	0.19	0.00
s, saturation flow rate [veh/h]	1437	876	747	1870	1840	247	3560	1457
c, Capacity [veh/h]	598	392	348	937	922	80	1784	730
d1, Uniform Delay [s]	29.16	29.55	23.66	22.19	22.38	44.85	13.84	11.20
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	656.83	73.19	4.49	27.44	31.50	33.89	0.63	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.45	1.09	0.47	0.99	1.01	0.65	0.39	0.01
d, Delay for Lane Group [s/veh]	685.99	102.74	28.15	49.64	53.88	78.74	14.47	11.22
Lane Group LOS	F	F	C	D	F	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	122.04	16.63	3.17	24.81	25.75	1.90	4.24	0.05
50th-Percentile Queue Length [ft/ln]	3050.92	415.70	79.31	620.19	643.72	47.60	105.91	1.29
95th-Percentile Queue Length [veh/ln]	196.86	24.72	5.71	32.98	34.28	3.43	7.61	0.09
95th-Percentile Queue Length [ft/ln]	4921.59	617.94	142.76	824.40	856.96	85.69	190.30	2.31

Movement, Approach, & Intersection Results

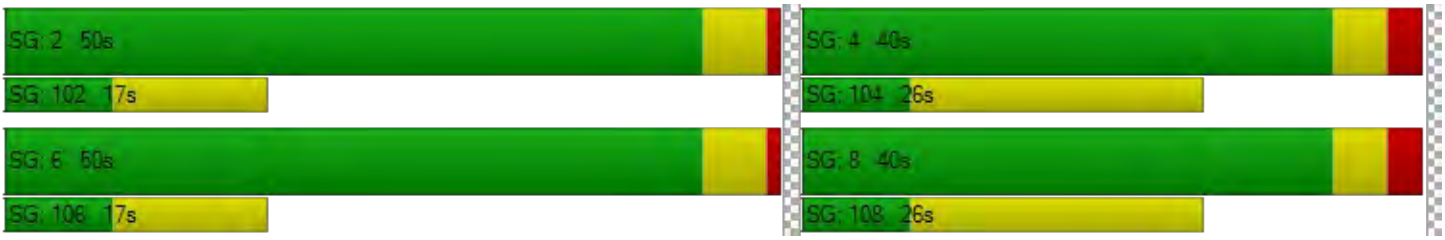
d_M, Delay for Movement [s/veh]	685.99	685.99	685.99	102.74	102.74	102.74	28.15	51.69	53.88	78.74	14.47	11.22
Movement LOS	F	F	F	F	F	F	C	D	D	E	B	B
d_A, Approach Delay [s/veh]	685.99			102.74			49.85			18.94		
Approach LOS	F			F			D			B		
d_I, Intersection Delay [s/veh]	249.77											
Intersection LOS	F											
Intersection V/C	1.674											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.642	2.665	3.405	3.353
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.15	17.14	11.17	11.17
I_b,int, Bicycle LOS Score for Intersection	3.977	2.267	3.227	2.245
Bicycle LOS	D	B	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

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Report File: H:\...\OpeningYear_Saturday.pdf

Scenario 8 Opening Year Weekend Midday
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	WB Left	0.774	11.3	B
2	Curson Ave/6th St	Signalized	HCM 6th Edition	SB Left	0.534	14.3	B
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.371	3.9	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.426	8.6	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	1.267	211.5	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.774

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	100	0	86	17	0	40	28	978	149	90	1246	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	100	0	86	17	0	40	28	978	149	90	1246	6
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	0	22	4	0	10	7	255	39	23	324	2
Total Analysis Volume [veh/h]	104	0	90	18	0	42	29	1019	155	94	1298	6
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	8			1			2			8		
v_di, Inbound Pedestrian Volume crossing m	8			2			1			8		
v_co, Outbound Pedestrian Volume crossing	20			16			19			15		
v_ci, Inbound Pedestrian Volume crossing mi	19			15			20			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	2.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	10	10	40	40	40	40	40	40
g / C, Green / Cycle	0.17	0.17	0.67	0.67	0.67	0.67	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.13	0.04	0.07	0.54	0.10	0.20	0.35	0.35
s, saturation flow rate [veh/h]	1546	1663	422	1870	1511	478	1870	1866
c, Capacity [veh/h]	363	370	306	1243	1004	223	1243	1240
d1, Uniform Delay [s]	23.03	21.17	10.05	7.42	3.74	22.96	5.18	5.19
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.22	0.20	0.61	6.13	0.33	5.74	1.59	1.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.16	0.09	0.82	0.15	0.42	0.52	0.53
d, Delay for Lane Group [s/veh]	24.25	21.38	10.66	13.55	4.07	28.70	6.77	6.78
Lane Group LOS	C	C	B	B	A	C	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.51	0.70	0.25	8.13	0.55	1.55	3.24	3.24
50th-Percentile Queue Length [ft/ln]	62.78	17.46	6.29	203.18	13.80	38.63	80.96	80.92
95th-Percentile Queue Length [veh/ln]	4.52	1.26	0.45	12.80	0.99	2.78	5.83	5.83
95th-Percentile Queue Length [ft/ln]	113.01	31.43	11.32	320.06	24.85	69.54	145.72	145.65

Movement, Approach, & Intersection Results

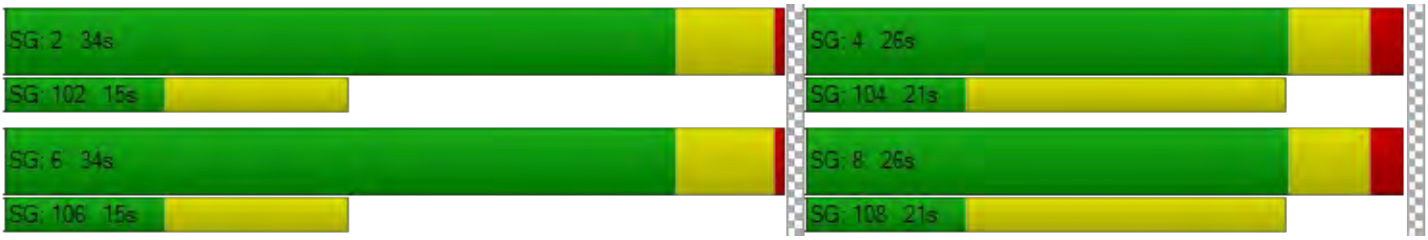
d_M, Delay for Movement [s/veh]	24.25	24.25	24.25	21.38	21.38	21.38	10.66	13.55	4.07	28.70	6.78	6.78
Movement LOS	C	C	C	C	C	C	B	B	A	C	A	A
d_A, Approach Delay [s/veh]	24.25			21.38			12.26			8.25		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	11.30											
Intersection LOS	B											
Intersection V/C	0.774											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
I_p,int, Pedestrian LOS Score for Intersection	2.042	1.780	2.941	2.750
Crosswalk LOS	B	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	703	703	977	977
d_b, Bicycle Delay [s]	12.61	12.62	7.86	7.87
I_b,int, Bicycle LOS Score for Intersection	1.880	1.659	3.545	2.713
Bicycle LOS	A	A	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.534

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	263	49	262	53	60	35	43	462	168	92	563	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	263	49	262	53	60	35	43	462	168	92	563	61
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	13	67	14	15	9	11	118	43	23	144	16
Total Analysis Volume [veh/h]	268	50	267	54	61	36	44	471	171	94	574	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			14			15			13		
v_di, Inbound Pedestrian Volume crossing m	13			15			14			12		
v_co, Outbound Pedestrian Volume crossing	29			17			28			17		
v_ci, Inbound Pedestrian Volume crossing mi	28			17			29			17		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			1			1			4		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	20	20	20	20	30	30	30	30	30	30
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.21	0.21	0.05	0.06	0.06	0.25	0.12	0.12	0.17	0.18
s, saturation flow rate [veh/h]	1272	1543	1045	1727	785	1870	1467	779	1870	1783
c, Capacity [veh/h]	448	515	250	576	399	922	723	349	922	879
d1, Uniform Delay [s]	20.94	16.77	24.26	14.12	13.20	10.31	8.64	17.03	9.32	9.35
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.28	1.20	0.43	0.14	0.56	2.02	0.77	1.89	1.05	1.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.62	0.22	0.17	0.11	0.51	0.24	0.27	0.35	0.36
d, Delay for Lane Group [s/veh]	22.22	17.97	24.69	14.25	13.75	12.33	9.41	18.93	10.37	10.48
Lane Group LOS	C	B	C	B	B	B	A	B	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	3.38	3.45	0.70	0.87	0.43	4.02	1.22	1.13	2.45	2.39
50th-Percentile Queue Length [ft/ln]	84.46	86.25	17.41	21.66	10.71	100.62	30.55	28.37	61.13	59.73
95th-Percentile Queue Length [veh/ln]	6.08	6.21	1.25	1.56	0.77	7.24	2.20	2.04	4.40	4.30
95th-Percentile Queue Length [ft/ln]	152.03	155.25	31.34	38.98	19.27	181.12	54.99	51.06	110.03	107.52

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.22	17.97	17.97	24.69	14.25	14.25	13.75	12.33	9.41	18.93	10.42	10.48
Movement LOS	C	B	B	C	B	B	B	B	A	B	B	B
d_A, Approach Delay [s/veh]	19.92			17.99			11.69			11.52		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.31											
Intersection LOS	B											
Intersection V/C	0.534											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.347	2.080	2.964	2.553
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.66	9.08	9.09
I_b,int, Bicycle LOS Score for Intersection	2.525	1.809	2.692	2.162
Bicycle LOS	B	A	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	3.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.371

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	8	43	998	27	2	916
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	43	998	27	2	916
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	12	274	7	1	252
Total Analysis Volume [veh/h]	9	47	1097	30	2	1007
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		46		0	
v_di, Inbound Pedestrian Volume crossing m	0		45		0	
v_co, Outbound Pedestrian Volume crossing	52		51		45	
v_ci, Inbound Pedestrian Volume crossing mi	51		52		46	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		1		4	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	7	7	72	72	72	72
g / C, Green / Cycle	0.08	0.08	0.80	0.80	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.31	0.02	0.00	0.28
s, saturation flow rate [veh/h]	1226	1589	3560	1457	497	3560
c, Capacity [veh/h]	94	121	2854	1168	419	2854
d1, Uniform Delay [s]	38.67	39.55	2.56	1.81	4.58	2.47
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	2.02	0.39	0.04	0.02	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.39	0.38	0.03	0.00	0.35
d, Delay for Lane Group [s/veh]	39.11	41.57	2.96	1.85	4.60	2.82
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.19	1.05	1.79	0.08	0.01	1.59
50th-Percentile Queue Length [ft/ln]	4.87	26.17	44.85	1.91	0.31	39.67
95th-Percentile Queue Length [veh/ln]	0.35	1.88	3.23	0.14	0.02	2.86
95th-Percentile Queue Length [ft/ln]	8.77	47.11	80.72	3.44	0.57	71.40

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.11	41.57	2.96	1.85	4.60	2.82
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	41.17		2.93		2.82	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	3.85					
Intersection LOS	A					
Intersection V/C	0.371					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	125.68	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.971	2.717	0.000
Crosswalk LOS	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.39	13.41
I_b,int, Bicycle LOS Score for Intersection	1.560	2.489	2.392
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.426

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	45	64	939	95	49	860
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	64	939	95	49	860
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	17	255	26	13	234
Total Analysis Volume [veh/h]	49	70	1021	103	53	935
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	23		22		24	
v_di, Inbound Pedestrian Volume crossing m	24		22		23	
v_co, Outbound Pedestrian Volume crossing	48		48		22	
v_ci, Inbound Pedestrian Volume crossing mi	48		48		22	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		1		5	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	18	62	62	62	62
g / C, Green / Cycle	0.20	0.69	0.69	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.07	0.30	0.32	0.11	0.26
s, saturation flow rate [veh/h]	1663	1870	1775	501	3560
c, Capacity [veh/h]	330	1283	1218	335	2443
d1, Uniform Delay [s]	31.14	6.33	6.48	12.11	6.01
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	1.09	1.26	1.01	0.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.44	0.46	0.16	0.38
d, Delay for Lane Group [s/veh]	32.49	7.42	7.74	13.11	6.46
Lane Group LOS	C	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.32	4.36	4.49	0.65	3.29
50th-Percentile Queue Length [ft/ln]	58.10	109.05	112.34	16.22	82.26
95th-Percentile Queue Length [veh/ln]	4.18	7.79	7.97	1.17	5.92
95th-Percentile Queue Length [ft/ln]	104.58	194.68	199.25	29.19	148.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.49	32.49	7.56	7.74	13.11	6.46
Movement LOS	C	C	A	A	B	A
d_A, Approach Delay [s/veh]	32.49		7.58		6.82	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	8.57					
Intersection LOS	A					
Intersection V/C	0.426					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.65	34.65	34.65
I_p,int, Pedestrian LOS Score for Intersection	1.924	2.644	2.790
Crosswalk LOS	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.18	11.14	11.16
I_b,int, Bicycle LOS Score for Intersection	1.756	2.487	2.375
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	211.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.267

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	238	614	217	151	197	131	114	859	27	35	525	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	9
Total Hourly Volume [veh/h]	238	614	217	151	197	131	114	859	27	35	525	62
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	165	58	41	53	35	31	231	7	9	141	17
Total Analysis Volume [veh/h]	256	660	233	162	212	141	123	924	29	38	565	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			53			53			21		
v_di, Inbound Pedestrian Volume crossing m	21			53			53			20		
v_co, Outbound Pedestrian Volume crossing	36			51			36			50		
v_ci, Inbound Pedestrian Volume crossing mi	36			50			36			51		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			3			3			6		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.90	0.51	0.16	0.26	0.26	0.06	0.16	0.05
s, saturation flow rate [veh/h]	1282	1013	783	1870	1837	589	3560	1394
c, Capacity [veh/h]	539	440	380	937	920	259	1784	699
d1, Uniform Delay [s]	29.29	29.06	20.26	15.01	15.05	23.20	13.27	11.66
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	516.14	98.93	2.25	1.99	2.06	1.19	0.47	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.13	1.17	0.32	0.51	0.52	0.15	0.32	0.10
d, Delay for Lane Group [s/veh]	545.43	127.98	22.50	17.00	17.11	24.39	13.74	11.93
Lane Group LOS	F	F	C	B	B	C	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	88.89	21.79	2.06	6.68	6.64	0.67	3.33	0.72
50th-Percentile Queue Length [ft/ln]	2222.29	544.68	51.57	167.01	165.96	16.83	83.21	18.06
95th-Percentile Queue Length [veh/ln]	143.54	32.55	3.71	10.92	10.86	1.21	5.99	1.30
95th-Percentile Queue Length [ft/ln]	3588.51	813.78	92.82	272.98	271.60	30.30	149.79	32.50

Movement, Approach, & Intersection Results

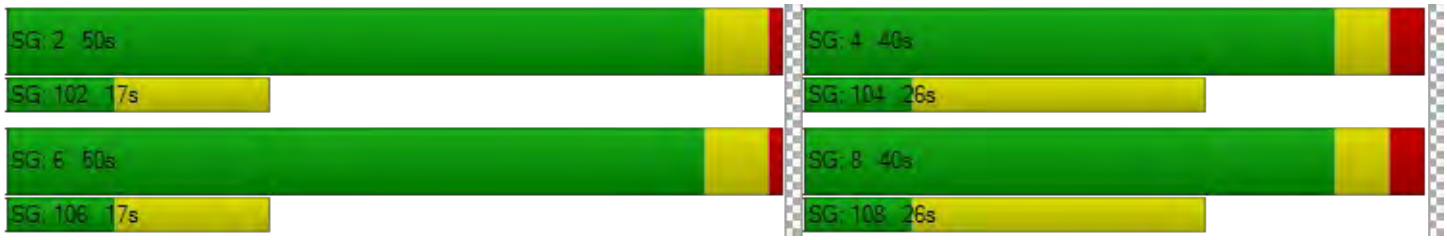
d_M, Delay for Movement [s/veh]	545.43	545.43	545.43	127.98	127.98	127.98	22.50	17.05	17.11	24.39	13.74	11.93
Movement LOS	F	F	F	F	F	F	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	545.43			127.98			17.68			14.16		
Approach LOS	F			F			B			B		
d_I, Intersection Delay [s/veh]	211.47											
Intersection LOS	F											
Intersection V/C	1.267											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.464	2.559	3.061	3.020
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.14	17.14	11.16	11.18
I_b,int, Bicycle LOS Score for Intersection	3.455	2.409	2.447	2.120
Bicycle LOS	C	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Appendix 8 — Opening Year (2032) With Project Intersection LOS and Queuing Worksheets

La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Scenario 9 Opening Year + Project Weekday AM
Report File: H:\...\OpeningYearwithProject_AM.pdf
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	SB Right	0.719	8.3	A
2	Curson Ave/6th St	Signalized	HCM 6th Edition	NB Left	1.050	59.0	E
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.480	2.2	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.533	7.2	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	SB Left	2.002	269.2	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	3	0	7	30	0	70	7	969	36	33	2102	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	0	7	30	0	70	7	969	36	33	2102	22
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	8	0	18	2	250	9	9	542	6
Total Analysis Volume [veh/h]	3	0	7	31	0	72	7	999	37	34	2167	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	2			3			3			2		
v_di, Inbound Pedestrian Volume crossing m	2			3			3			2		
v_co, Outbound Pedestrian Volume crossing	7			6			7			6		
v_ci, Inbound Pedestrian Volume crossing mi	7			6			7			6		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			3			7		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	69.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	8	8	72	72	72	72	72	72
g / C, Green / Cycle	0.09	0.09	0.80	0.80	0.80	0.80	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.04	0.53	0.02	0.06	0.59	0.59
s, saturation flow rate [veh/h]	1708	1537	179	1870	1542	544	1870	1862
c, Capacity [veh/h]	211	195	167	1496	1234	375	1496	1489
d1, Uniform Delay [s]	37.19	39.51	12.46	3.86	1.84	10.11	4.33	4.36
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.09	2.20	0.47	2.38	0.05	0.48	3.20	3.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.53	0.04	0.67	0.03	0.09	0.73	0.74
d, Delay for Lane Group [s/veh]	37.28	41.72	12.93	6.23	1.88	10.59	7.53	7.63
Lane Group LOS	D	D	B	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.20	2.30	0.09	5.50	0.10	0.36	6.89	6.95
50th-Percentile Queue Length [ft/ln]	5.11	57.49	2.37	137.62	2.38	9.02	172.31	173.73
95th-Percentile Queue Length [veh/ln]	0.37	4.14	0.17	9.35	0.17	0.65	11.20	11.27
95th-Percentile Queue Length [ft/ln]	9.20	103.48	4.26	233.82	4.28	16.24	279.95	281.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.28	37.28	37.28	41.72	41.72	41.72	12.93	6.23	1.88	10.59	7.58	7.63
Movement LOS	D	D	D	D	D	D	B	A	A	B	A	A
d_A, Approach Delay [s/veh]	37.28			41.72			6.13			7.62		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	8.29											
Intersection LOS	A											
Intersection V/C	0.719											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
I_p,int, Pedestrian LOS Score for Intersection	1.802	1.789	2.944	2.970
Crosswalk LOS	A	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	469	469	1319	1319
d_b, Bicycle Delay [s]	26.35	26.36	5.23	5.24
I_b,int, Bicycle LOS Score for Intersection	1.576	1.730	3.281	3.394
Bicycle LOS	A	A	C	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	59.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.050

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	433	72	145	83	141	73	23	500	505	176	1678	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	433	72	145	83	141	73	23	500	505	176	1678	88
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	114	19	38	22	37	19	6	132	133	46	442	23
Total Analysis Volume [veh/h]	456	76	153	87	148	77	24	526	532	185	1766	93
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			17			18			10		
v_di, Inbound Pedestrian Volume crossing m	10			18			17			10		
v_co, Outbound Pedestrian Volume crossing	20			9			19			8		
v_ci, Inbound Pedestrian Volume crossing mi	19			8			20			9		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			4			1			5		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	24.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	23	23	23	23	27	27	27	27	27	27
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.45	0.45	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.40	0.14	0.08	0.13	0.10	0.28	0.36	0.35	0.50	0.51
s, saturation flow rate [veh/h]	1136	1615	1133	1735	247	1870	1489	532	1870	1828
c, Capacity [veh/h]	398	604	386	648	120	847	675	232	847	828
d1, Uniform Delay [s]	24.88	13.71	19.02	13.52	30.01	12.50	13.50	26.18	16.42	16.42
k, delay calibration	0.44	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	88.74	0.39	0.29	0.32	3.72	3.41	9.09	24.15	61.04	70.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.15	0.38	0.23	0.35	0.20	0.62	0.79	0.80	1.10	1.12
d, Delay for Lane Group [s/veh]	113.62	14.11	19.32	13.84	33.73	15.91	22.59	50.33	77.46	87.09
Lane Group LOS	F	B	B	B	C	B	C	D	F	F
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	15.30	2.08	0.96	2.00	0.45	5.38	6.71	4.11	24.05	25.73
50th-Percentile Queue Length [ft/ln]	382.50	51.88	23.98	50.11	11.37	134.62	167.71	102.67	601.30	643.27
95th-Percentile Queue Length [veh/ln]	23.60	3.74	1.73	3.61	0.82	9.19	10.96	7.39	34.31	36.96
95th-Percentile Queue Length [ft/ln]	590.10	93.39	43.16	90.19	20.46	229.76	273.90	184.80	857.70	923.90

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	113.62	14.11	14.11	19.32	13.84	13.84	33.73	15.91	22.59	50.33	82.02	87.09
Movement LOS	F	B	B	B	B	B	C	B	C	D	F	F
d_A, Approach Delay [s/veh]	80.35			15.37			19.59			79.38		
Approach LOS	F			B			B			E		
d_I, Intersection Delay [s/veh]	59.01											
Intersection LOS	E											
Intersection V/C	1.050											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.685	2.116	3.585	2.914
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.69	9.08	9.10
I_b,int, Bicycle LOS Score for Intersection	2.690	2.074	3.345	3.246
Bicycle LOS	B	B	C	C

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	2.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.480

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	7	3	941	14	6	1396
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	3	941	14	6	1396
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	1	259	4	2	384
Total Analysis Volume [veh/h]	8	3	1034	15	7	1534
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		20		0	
v_di, Inbound Pedestrian Volume crossing m	0		19		0	
v_co, Outbound Pedestrian Volume crossing	20		20		19	
v_ci, Inbound Pedestrian Volume crossing mi	20		20		20	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	1		0		2	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	2	2	77	77	77	77
g / C, Green / Cycle	0.02	0.02	0.85	0.85	0.85	0.85
(v / s)_i Volume / Saturation Flow Rate	0.01	0.00	0.29	0.01	0.01	0.43
s, saturation flow rate [veh/h]	1188	1556	3560	1552	536	3560
c, Capacity [veh/h]	30	39	3035	1323	487	3035
d1, Uniform Delay [s]	43.03	42.82	1.38	0.99	2.64	1.72
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.67	0.82	0.31	0.02	0.05	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.08	0.34	0.01	0.01	0.51
d, Delay for Lane Group [s/veh]	47.70	43.64	1.68	1.00	2.69	2.32
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.21	0.07	0.70	0.02	0.03	1.31
50th-Percentile Queue Length [ft/ln]	5.30	1.84	17.56	0.44	0.73	32.87
95th-Percentile Queue Length [veh/ln]	0.38	0.13	1.26	0.03	0.05	2.37
95th-Percentile Queue Length [ft/ln]	9.54	3.31	31.60	0.79	1.32	59.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.70	43.64	1.68	1.00	2.69	2.32
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	46.59		1.68		2.32	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	2.25					
Intersection LOS	A					
Intersection V/C	0.480					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	295.73	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.960	2.805	0.000
Crosswalk LOS	A	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.39	13.40
I_b,int, Bicycle LOS Score for Intersection	1.560	2.425	2.831
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.533

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	78	49	899	56	29	1340
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	49	899	56	29	1340
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	13	242	15	8	360
Total Analysis Volume [veh/h]	84	53	967	60	31	1441
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6		1		7	
v_di, Inbound Pedestrian Volume crossing m	7		1		6	
v_co, Outbound Pedestrian Volume crossing	18		17		1	
v_ci, Inbound Pedestrian Volume crossing mi	17		18		1	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	12	67	67	67	67
g / C, Green / Cycle	0.14	0.75	0.75	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.28	0.06	0.40
s, saturation flow rate [veh/h]	1702	1870	1826	549	3560
c, Capacity [veh/h]	235	1396	1363	417	2657
d1, Uniform Delay [s]	36.34	3.99	4.02	7.09	4.86
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.62	0.75	0.80	0.35	0.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.37	0.38	0.07	0.54
d, Delay for Lane Group [s/veh]	40.96	4.74	4.82	7.44	5.66
Lane Group LOS	D	A	A	A	A
Critical Lane Group	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.08	2.73	2.76	0.26	4.46
50th-Percentile Queue Length [ft/ln]	77.07	68.19	69.03	6.54	111.57
95th-Percentile Queue Length [veh/ln]	5.55	4.91	4.97	0.47	7.93
95th-Percentile Queue Length [ft/ln]	138.73	122.75	124.25	11.78	198.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.96	40.96	4.78	4.82	7.44	5.66
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	40.96		4.78		5.70	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	7.17					
Intersection LOS	A					
Intersection V/C	0.533					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.65	34.65	34.65
I_p,int, Pedestrian LOS Score for Intersection	1.870	2.753	2.857
Crosswalk LOS	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.16	11.14	11.14
I_b,int, Bicycle LOS Score for Intersection	1.786	2.407	2.774
Bicycle LOS	A	B	C

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	269.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.002

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	156	441	337	486	263	63	66	952	13	83	1003	116
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	101
Total Hourly Volume [veh/h]	156	441	337	486	263	63	66	952	13	83	1003	15
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	116	89	128	69	17	17	251	3	22	264	4
Total Analysis Volume [veh/h]	164	464	355	512	277	66	69	1002	14	87	1056	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	7			22			23			7		
v_di, Inbound Pedestrian Volume crossing m	7			23			22			7		
v_co, Outbound Pedestrian Volume crossing	14			15			13			14		
v_ci, Inbound Pedestrian Volume crossing mi	13			14			14			15		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			4			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.58	1.53	0.13	0.27	0.27	0.16	0.30	0.01
s, saturation flow rate [veh/h]	1685	560	526	1870	1858	555	3560	1509
c, Capacity [veh/h]	690	278	221	937	931	242	1784	756
d1, Uniform Delay [s]	28.84	31.73	27.66	15.34	15.35	26.75	15.87	11.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	199.07	943.43	3.64	2.26	2.29	4.13	1.45	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.42	3.08	0.31	0.54	0.54	0.36	0.59	0.02
d, Delay for Lane Group [s/veh]	227.92	975.15	31.31	17.61	17.64	30.89	17.33	11.33
Lane Group LOS	F	F	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	52.84	78.99	1.45	7.28	7.26	1.81	7.54	0.17
50th-Percentile Queue Length [ft/ln]	1320.97	1974.85	36.13	182.11	181.47	45.13	188.55	4.14
95th-Percentile Queue Length [veh/ln]	79.61	131.81	2.60	11.71	11.68	3.25	12.05	0.30
95th-Percentile Queue Length [ft/ln]	1990.31	3295.25	65.03	292.77	291.93	81.23	301.15	7.45

Movement, Approach, & Intersection Results

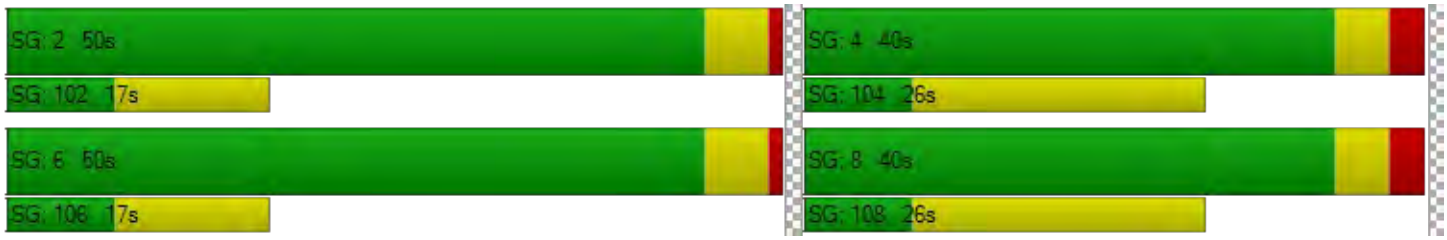
d_M, Delay for Movement [s/veh]	227.92	227.92	227.92	975.15	975.15	975.15	31.31	17.62	17.64	30.89	17.33	11.33
Movement LOS	F	F	F	F	F	F	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	227.92			975.15			18.49			18.26		
Approach LOS	F			F			B			B		
d_I, Intersection Delay [s/veh]	269.24											
Intersection LOS	F											
Intersection V/C	2.002											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.502	2.546	2.995	3.833
Crosswalk LOS	B	B	C	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.14	17.15	11.15	11.16
I_b,int, Bicycle LOS Score for Intersection	3.182	2.970	2.455	2.599
Bicycle LOS	C	C	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Scenario 10 Opening Year + Project Weekday Midday
Report File: H:\...\OpeningYearwithProject_Midday.pdf
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	NB Left	0.744	10.2	B
2	Curson Ave/6th St	Signalized	HCM 6th Edition	WB Left	0.651	16.4	B
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.413	3.3	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.442	5.5	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	1.286	206.1	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.744

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	102	1	51	9	0	17	10	941	95	45	1201	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	102	1	51	9	0	17	10	941	95	45	1201	10
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	0	14	2	0	5	3	250	25	12	319	3
Total Analysis Volume [veh/h]	109	1	54	10	0	18	11	1001	101	48	1278	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			4			4			13		
v_di, Inbound Pedestrian Volume crossing m	13			4			4			12		
v_co, Outbound Pedestrian Volume crossing	32			15			32			14		
v_ci, Inbound Pedestrian Volume crossing mi	32			14			32			15		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			1			1		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	2.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	10	10	40	40	40	40	40	40
g / C, Green / Cycle	0.17	0.17	0.67	0.67	0.67	0.67	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.11	0.02	0.03	0.54	0.07	0.09	0.35	0.35
s, saturation flow rate [veh/h]	1499	1648	428	1870	1482	511	1870	1863
c, Capacity [veh/h]	358	365	313	1249	990	242	1249	1244
d1, Uniform Delay [s]	22.83	20.93	9.32	7.11	3.53	19.19	5.05	5.05
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.92	0.09	0.21	5.47	0.21	1.83	1.53	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.46	0.08	0.04	0.80	0.10	0.20	0.52	0.52
d, Delay for Lane Group [s/veh]	23.74	21.01	9.53	12.59	3.74	21.02	6.58	6.59
Lane Group LOS	C	C	A	B	A	C	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.09	0.32	0.09	7.56	0.34	0.64	3.12	3.12
50th-Percentile Queue Length [ft/ln]	52.18	8.01	2.22	189.05	8.51	16.03	78.02	77.93
95th-Percentile Queue Length [veh/ln]	3.76	0.58	0.16	12.07	0.61	1.15	5.62	5.61
95th-Percentile Queue Length [ft/ln]	93.92	14.42	4.00	301.79	15.31	28.86	140.43	140.28

Movement, Approach, & Intersection Results

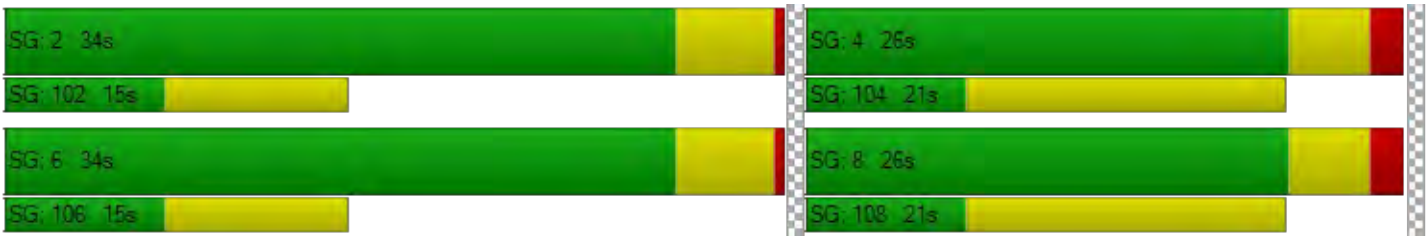
d_M, Delay for Movement [s/veh]	23.74	23.74	23.74	21.01	21.01	21.01	9.53	12.59	3.74	21.02	6.58	6.59
Movement LOS	C	C	C	C	C	C	A	B	A	C	A	A
d_A, Approach Delay [s/veh]	23.74			21.01			11.75			7.10		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	10.24											
Intersection LOS	B											
Intersection V/C	0.744											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
I_p,int, Pedestrian LOS Score for Intersection	1.913	1.733	2.923	2.708
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	703	703	977	977
d_b, Bicycle Delay [s]	12.61	12.62	7.86	7.86
I_b,int, Bicycle LOS Score for Intersection	1.830	1.606	3.396	2.663
Bicycle LOS	A	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	322	56	310	42	39	54	38	531	176	87	582	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	322	56	310	42	39	54	38	531	176	87	582	49
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	85	15	82	11	10	14	10	140	46	23	153	13
Total Analysis Volume [veh/h]	339	59	326	44	41	57	40	559	185	92	613	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			10			11			12		
v_di, Inbound Pedestrian Volume crossing m	12			11			10			12		
v_co, Outbound Pedestrian Volume crossing	21			14			20			14		
v_ci, Inbound Pedestrian Volume crossing mi	20			14			21			14		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			3			2			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	22	22	22	22	27	27	27	27	27	27
g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.46	0.46	0.46	0.46	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.26	0.25	0.04	0.06	0.05	0.30	0.12	0.13	0.18	0.18
s, saturation flow rate [veh/h]	1280	1549	986	1663	765	1870	1485	713	1870	1809
c, Capacity [veh/h]	494	572	240	614	357	856	680	263	856	828
d1, Uniform Delay [s]	20.43	15.89	24.20	12.69	15.08	12.60	9.99	22.04	10.77	10.79
k, delay calibration	0.20	0.17	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.04	2.12	0.36	0.12	0.64	3.87	0.99	3.65	1.36	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.67	0.18	0.16	0.11	0.65	0.27	0.35	0.39	0.40
d, Delay for Lane Group [s/veh]	23.48	18.01	24.56	12.81	15.71	16.47	10.98	25.69	12.13	12.21
Lane Group LOS	C	B	C	B	B	B	B	C	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	4.52	4.23	0.56	0.81	0.43	5.85	1.48	1.37	2.86	2.80
50th-Percentile Queue Length [ft/ln]	112.91	105.87	14.10	20.32	10.69	146.20	37.01	34.31	71.56	70.11
95th-Percentile Queue Length [veh/ln]	8.00	7.61	1.02	1.46	0.77	9.81	2.66	2.47	5.15	5.05
95th-Percentile Queue Length [ft/ln]	200.04	190.24	25.39	36.58	19.25	245.34	66.62	61.75	128.81	126.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.48	18.01	18.01	24.56	12.81	12.81	15.71	16.47	10.98	25.69	12.17	12.21
Movement LOS	C	B	B	C	B	B	B	B	B	C	B	B
d_A, Approach Delay [s/veh]	20.57			16.45			15.13			13.81		
Approach LOS	C			B			B			B		
d_I, Intersection Delay [s/veh]	16.43											
Intersection LOS	B											
Intersection V/C	0.651											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.387	2.070	3.109	2.579
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.68	11.68	9.09	9.08
I_b,int, Bicycle LOS Score for Intersection	2.754	1.794	2.853	2.184
Bicycle LOS	C	A	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	3.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.413

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	11	23	1193	13	6	1070
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	23	1193	13	6	1070
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	6	321	3	2	288
Total Analysis Volume [veh/h]	12	25	1283	14	6	1151
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		46		0	
v_di, Inbound Pedestrian Volume crossing m	0		45		0	
v_co, Outbound Pedestrian Volume crossing	59		58		45	
v_ci, Inbound Pedestrian Volume crossing mi	58		59		46	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		3		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	5	5	74	74	74	74
g / C, Green / Cycle	0.06	0.06	0.82	0.82	0.82	0.82
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.36	0.01	0.01	0.32
s, saturation flow rate [veh/h]	1195	1559	3560	1444	424	3560
c, Capacity [veh/h]	73	96	2907	1179	368	2907
d1, Uniform Delay [s]	40.04	40.27	2.37	1.53	4.67	2.24
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.04	1.43	0.49	0.02	0.08	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.26	0.44	0.01	0.02	0.40
d, Delay for Lane Group [s/veh]	41.07	41.70	2.86	1.55	4.75	2.65
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.27	0.56	1.89	0.03	0.04	1.60
50th-Percentile Queue Length [ft/ln]	6.77	14.03	47.35	0.75	0.98	40.06
95th-Percentile Queue Length [veh/ln]	0.49	1.01	3.41	0.05	0.07	2.88
95th-Percentile Queue Length [ft/ln]	12.18	25.25	85.23	1.35	1.77	72.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.07	41.70	2.86	1.55	4.75	2.65
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	41.50		2.84		2.66	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	3.33					
Intersection LOS	A					
Intersection V/C	0.413					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	125.68	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.967	2.779	0.000
Crosswalk LOS	A	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.97	13.41	13.39
I_b,int, Bicycle LOS Score for Intersection	1.560	2.630	2.514
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	5.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	38	34	1157	54	29	1038
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	34	1157	54	29	1038
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	9	311	15	8	279
Total Analysis Volume [veh/h]	41	37	1244	58	31	1116
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	5		12		5	
v_di, Inbound Pedestrian Volume crossing m	5		11		5	
v_co, Outbound Pedestrian Volume crossing	48		47		11	
v_ci, Inbound Pedestrian Volume crossing mi	47		48		12	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		2		1	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	10	69	69	69	69
g / C, Green / Cycle	0.11	0.77	0.77	0.77	0.77
(v / s)_i Volume / Saturation Flow Rate	0.05	0.35	0.36	0.07	0.31
s, saturation flow rate [veh/h]	1685	1870	1824	423	3560
c, Capacity [veh/h]	193	1439	1404	338	2740
d1, Uniform Delay [s]	36.95	3.66	3.71	7.35	3.48
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.75	1.03	1.10	0.54	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.45	0.46	0.09	0.41
d, Delay for Lane Group [s/veh]	39.70	4.69	4.82	7.88	3.93
Lane Group LOS	D	A	A	A	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.72	3.27	3.33	0.28	2.50
50th-Percentile Queue Length [ft/ln]	43.05	81.82	83.26	6.97	62.51
95th-Percentile Queue Length [veh/ln]	3.10	5.89	5.99	0.50	4.50
95th-Percentile Queue Length [ft/ln]	77.49	147.27	149.87	12.55	112.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.70	39.70	4.75	4.82	7.88	3.93
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	39.70		4.76		4.04	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	5.51					
Intersection LOS	A					
Intersection V/C	0.442					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	1.840	2.730	2.847
Crosswalk LOS	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.18	11.15	11.15
I_b,int, Bicycle LOS Score for Intersection	1.688	2.634	2.506
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	206.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.286

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	277	597	271	185	112	171	118	1007	24	40	613	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	85
Total Hourly Volume [veh/h]	277	597	271	185	112	171	118	1007	24	40	613	16
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	73	157	71	49	29	45	31	265	6	11	161	4
Total Analysis Volume [veh/h]	292	628	285	195	118	180	124	1060	25	42	645	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	24			46			47			24		
v_di, Inbound Pedestrian Volume crossing m	24			47			46			24		
v_co, Outbound Pedestrian Volume crossing	42			56			42			55		
v_ci, Inbound Pedestrian Volume crossing mi	42			55			42			56		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			4			3			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.88	0.54	0.16	0.29	0.29	0.08	0.18	0.01
s, saturation flow rate [veh/h]	1372	919	764	1870	1843	520	3560	1413
c, Capacity [veh/h]	574	407	361	937	924	221	1784	708
d1, Uniform Delay [s]	29.23	29.59	21.46	15.75	15.80	25.91	13.64	11.29
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	501.01	115.73	2.59	2.63	2.71	1.90	0.57	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.10	1.21	0.34	0.58	0.59	0.19	0.36	0.02
d, Delay for Lane Group [s/veh]	530.24	145.32	24.06	18.38	18.51	27.81	14.21	11.35
Lane Group LOS	F	F	C	B	B	C	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	92.23	22.08	2.17	8.04	8.01	0.82	3.91	0.18
50th-Percentile Queue Length [ft/ln]	2305.67	551.89	54.28	200.90	200.28	20.38	97.74	4.42
95th-Percentile Queue Length [veh/ln]	148.31	33.52	3.91	12.69	12.65	1.47	7.04	0.32
95th-Percentile Queue Length [ft/ln]	3707.83	837.94	97.70	317.13	316.32	36.69	175.94	7.95

Movement, Approach, & Intersection Results

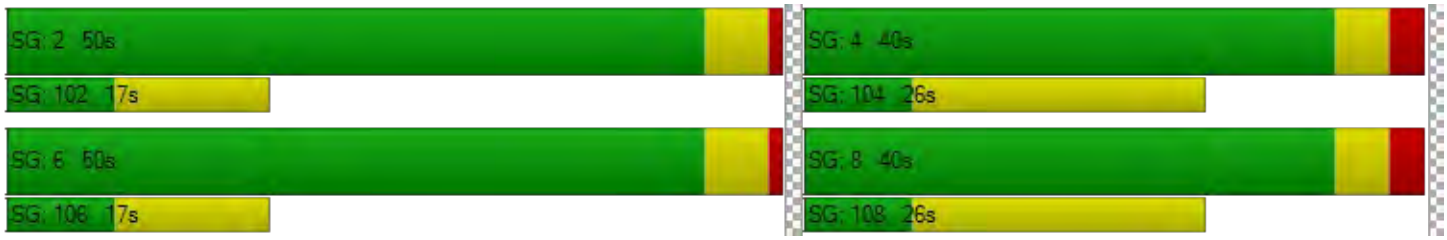
d_M, Delay for Movement [s/veh]	530.24	530.24	530.24	145.32	145.32	145.32	24.06	18.44	18.51	27.81	14.21	11.35
Movement LOS	F	F	F	F	F	F	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	530.24			145.32			19.02			14.95		
Approach LOS	F			F			B			B		
d_I, Intersection Delay [s/veh]	206.07											
Intersection LOS	F											
Intersection V/C	1.286											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.452	2.547	3.168	3.229
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.11	17.15	11.16	11.14
I_b,int, Bicycle LOS Score for Intersection	3.548	2.373	2.557	2.211
Bicycle LOS	D	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Scenario 11 Opening Year + Project Weekday PM
Report File: H:\...\OpeningYearwithProject_PM.pdf
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	NB Left	0.815	12.3	B
2	Curson Ave/6th St	Signalized	HCM 6th Edition	NB Right	1.074	55.3	E
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Left	0.651	5.8	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.665	8.3	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	1.692	257.1	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.815

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	97	0	78	14	0	27	38	1076	33	16	1025	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	0	78	14	0	27	38	1076	33	16	1025	12
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	0	21	4	0	7	10	289	9	4	276	3
Total Analysis Volume [veh/h]	104	0	84	15	0	29	41	1157	35	17	1102	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6			9			10			6		
v_di, Inbound Pedestrian Volume crossing m	6			10			9			6		
v_co, Outbound Pedestrian Volume crossing	16			18			16			18		
v_ci, Inbound Pedestrian Volume crossing mi	16			18			16			18		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	64	0	0	64	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	14	14	66	66	66	66	66	66
g / C, Green / Cycle	0.15	0.15	0.74	0.74	0.74	0.74	0.74	0.74
(v / s)_i Volume / Saturation Flow Rate	0.12	0.03	0.08	0.62	0.02	0.04	0.30	0.30
s, saturation flow rate [veh/h]	1520	1566	505	1870	1523	470	1870	1860
c, Capacity [veh/h]	296	295	384	1382	1126	216	1382	1375
d1, Uniform Delay [s]	36.33	33.05	7.79	8.02	3.13	23.61	4.36	4.36
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.25	0.23	0.56	6.17	0.05	0.71	0.88	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.15	0.11	0.84	0.03	0.08	0.40	0.40
d, Delay for Lane Group [s/veh]	38.57	33.28	8.35	14.19	3.18	24.33	5.24	5.25
Lane Group LOS	D	C	A	B	A	C	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	4.08	0.84	0.38	13.39	0.15	0.31	3.23	3.22
50th-Percentile Queue Length [ft/ln]	102.01	21.11	9.39	334.65	3.65	7.63	80.75	80.52
95th-Percentile Queue Length [veh/ln]	7.34	1.52	0.68	19.39	0.26	0.55	5.81	5.80
95th-Percentile Queue Length [ft/ln]	183.62	37.99	16.90	484.65	6.57	13.74	145.34	144.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.57	38.57	38.57	33.28	33.28	33.28	8.35	14.19	3.18	24.33	5.25	5.25
Movement LOS	D	D	D	C	C	C	A	B	A	C	A	A
d_A, Approach Delay [s/veh]	38.57			33.28			13.69			5.53		
Approach LOS	D			C			B			A		
d_I, Intersection Delay [s/veh]	12.27											
Intersection LOS	B											
Intersection V/C	0.815											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
I_p,int, Pedestrian LOS Score for Intersection	1.856	1.820	2.929	2.734
Crosswalk LOS	A	A	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	469	469	1319	1319
d_b, Bicycle Delay [s]	26.35	26.35	5.22	5.23
I_b,int, Bicycle LOS Score for Intersection	1.870	1.632	3.594	2.494
Bicycle LOS	A	A	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	55.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.074

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	363	85	546	75	73	41	52	927	195	97	628	98
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	363	85	546	75	73	41	52	927	195	97	628	98
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	94	22	141	19	19	11	13	239	50	25	162	25
Total Analysis Volume [veh/h]	374	88	563	77	75	42	54	956	201	100	647	101
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	10			16			16			10		
v_di, Inbound Pedestrian Volume crossing m	10			16			16			10		
v_co, Outbound Pedestrian Volume crossing	30			10			30			9		
v_ci, Inbound Pedestrian Volume crossing mi	30			9			30			10		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	2			1			2			5		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	17.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	23	23	23	23	27	27	27	27	27	27
g / C, Green / Cycle	0.38	0.38	0.38	0.38	0.45	0.45	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.30	0.42	0.10	0.07	0.08	0.51	0.14	0.21	0.20	0.21
s, saturation flow rate [veh/h]	1250	1553	776	1732	711	1870	1452	486	1870	1758
c, Capacity [veh/h]	486	581	122	647	320	847	658	120	847	796
d1, Uniform Delay [s]	21.43	18.79	30.01	12.62	16.77	16.42	10.28	30.01	11.29	11.34
k, delay calibration	0.26	0.47	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.04	74.55	5.30	0.13	1.14	72.76	1.20	46.42	1.74	1.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.77	1.12	0.63	0.18	0.17	1.13	0.31	0.83	0.45	0.46
d, Delay for Lane Group [s/veh]	27.47	93.35	35.31	12.75	17.90	89.18	11.48	76.44	13.03	13.24
Lane Group LOS	C	F	D	B	B	F	B	E	B	B
Critical Lane Group	No	Yes	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	5.56	19.00	1.24	0.97	0.63	26.81	1.66	2.93	3.42	3.31
50th-Percentile Queue Length [ft/ln]	138.91	475.09	31.02	24.22	15.85	670.24	41.49	73.14	85.55	82.67
95th-Percentile Queue Length [veh/ln]	9.42	28.16	2.23	1.74	1.14	38.46	2.99	5.27	6.16	5.95
95th-Percentile Queue Length [ft/ln]	235.56	703.89	55.84	43.59	28.53	961.58	74.68	131.64	154.00	148.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.47	93.35	93.35	35.31	12.75	12.75	17.90	89.18	11.48	76.44	13.12	13.24
Movement LOS	C	F	F	D	B	B	B	F	B	E	B	B
d_A, Approach Delay [s/veh]	69.31			21.71			73.10			20.60		
Approach LOS	E			C			E			C		
d_I, Intersection Delay [s/veh]	55.29											
Intersection LOS	E											
Intersection V/C	1.074											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.515	2.137	3.253	2.810
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.67	9.09	9.10
I_b,int, Bicycle LOS Score for Intersection	3.251	1.880	3.558	2.259
Bicycle LOS	C	A	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	5.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	32	37	1889	38	18	1070
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	37	1889	38	18	1070
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	10	502	10	5	285
Total Analysis Volume [veh/h]	34	39	2010	40	19	1138
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		70		0	
v_di, Inbound Pedestrian Volume crossing m	0		70		0	
v_co, Outbound Pedestrian Volume crossing	65		64		70	
v_ci, Inbound Pedestrian Volume crossing mi	64		65		70	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		6		3	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	8	8	71	71	71	71
g / C, Green / Cycle	0.08	0.08	0.79	0.79	0.79	0.79
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.56	0.03	0.09	0.32
s, saturation flow rate [veh/h]	1177	1589	3560	1427	205	3560
c, Capacity [veh/h]	100	135	2823	1131	180	2823
d1, Uniform Delay [s]	38.80	38.62	4.43	1.98	12.99	2.83
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.00	1.17	1.56	0.06	1.18	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.29	0.71	0.04	0.11	0.40
d, Delay for Lane Group [s/veh]	40.80	39.79	5.99	2.04	14.16	3.26
Lane Group LOS	D	D	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.76	0.84	5.87	0.11	0.27	2.07
50th-Percentile Queue Length [ft/ln]	18.89	21.09	146.78	2.80	6.65	51.87
95th-Percentile Queue Length [veh/ln]	1.36	1.52	9.84	0.20	0.48	3.73
95th-Percentile Queue Length [ft/ln]	34.01	37.96	246.12	5.03	11.97	93.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.80	39.79	5.99	2.04	14.16	3.26
Movement LOS	D	D	A	A	B	A
d_A, Approach Delay [s/veh]	40.26		5.91		3.44	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	5.80					
Intersection LOS	A					
Intersection V/C	0.651					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	81.06	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	2.010	2.928	0.000
Crosswalk LOS	B	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.43	13.41
I_b,int, Bicycle LOS Score for Intersection	1.560	3.251	2.514
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	8.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	35	51	1889	45	24	1040
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	51	1889	45	24	1040
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	13	497	12	6	274
Total Analysis Volume [veh/h]	37	54	1988	47	25	1095
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	6		14		7	
v_di, Inbound Pedestrian Volume crossing m	7		14		6	
v_co, Outbound Pedestrian Volume crossing	42		41		14	
v_ci, Inbound Pedestrian Volume crossing mi	41		42		14	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		7		5	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	11	68	68	68	68
g / C, Green / Cycle	0.13	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.05	0.54	0.55	0.12	0.31
s, saturation flow rate [veh/h]	1662	1870	1847	208	3560
c, Capacity [veh/h]	209	1418	1401	169	2700
d1, Uniform Delay [s]	36.35	5.76	5.85	16.72	3.79
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.88	3.14	3.32	1.84	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.72	0.73	0.15	0.41
d, Delay for Lane Group [s/veh]	39.24	8.90	9.17	18.56	4.24
Lane Group LOS	D	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.99	8.25	8.42	0.41	2.66
50th-Percentile Queue Length [ft/ln]	49.85	206.37	210.43	10.26	66.39
95th-Percentile Queue Length [veh/ln]	3.59	12.97	13.18	0.74	4.78
95th-Percentile Queue Length [ft/ln]	89.74	324.17	329.38	18.46	119.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.24	39.24	9.03	9.17	18.56	4.24
Movement LOS	D	D	A	A	B	A
d_A, Approach Delay [s/veh]	39.24		9.04		4.56	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	8.34					
Intersection LOS	A					
Intersection V/C	0.665					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	34.66
I_p,int, Pedestrian LOS Score for Intersection	1.829	2.903	2.966
Crosswalk LOS	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.17	11.18	11.17
I_b,int, Bicycle LOS Score for Intersection	1.710	3.238	2.484
Bicycle LOS	A	C	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	257.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.692

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	332	751	314	185	167	85	159	1709	56	49	654	92
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	86
Total Hourly Volume [veh/h]	332	751	314	185	167	85	159	1709	56	49	654	6
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	198	83	49	44	22	42	450	15	13	172	2
Total Analysis Volume [veh/h]	349	791	331	195	176	89	167	1799	59	52	688	6
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			36			36			20		
v_di, Inbound Pedestrian Volume crossing m	20			36			36			20		
v_co, Outbound Pedestrian Volume crossing	20			31			19			31		
v_ci, Inbound Pedestrian Volume crossing mi	19			31			20			31		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	5			3			5			4		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	1.04	0.52	0.22	0.50	0.50	0.21	0.19	0.00
s, saturation flow rate [veh/h]	1419	882	746	1870	1840	247	3560	1457
c, Capacity [veh/h]	592	394	347	937	922	80	1784	730
d1, Uniform Delay [s]	29.18	29.62	23.83	22.19	22.38	44.85	13.84	11.21
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	674.04	99.54	4.71	27.44	31.50	33.89	0.63	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.49	1.17	0.48	0.99	1.01	0.65	0.39	0.01
d, Delay for Lane Group [s/veh]	703.22	129.16	28.54	49.64	53.88	78.74	14.47	11.23
Lane Group LOS	F	F	C	D	F	E	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	123.49	19.59	3.28	24.81	25.75	1.90	4.24	0.06
50th-Percentile Queue Length [ft/ln]	3087.26	489.75	82.01	620.19	643.72	47.60	105.91	1.54
95th-Percentile Queue Length [veh/ln]	199.35	29.59	5.90	32.98	34.28	3.43	7.61	0.11
95th-Percentile Queue Length [ft/ln]	4983.67	739.82	147.61	824.40	856.96	85.69	190.31	2.78

Movement, Approach, & Intersection Results

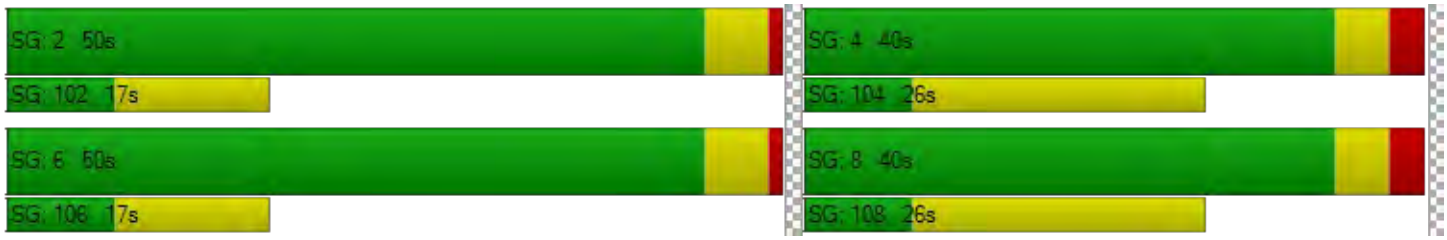
d_M, Delay for Movement [s/veh]	703.22	703.22	703.22	129.16	129.16	129.16	28.54	51.69	53.88	78.74	14.47	11.23
Movement LOS	F	F	F	F	F	F	C	D	D	E	B	B
d_A, Approach Delay [s/veh]	703.22			129.16			49.84			18.93		
Approach LOS	F			F			D			B		
d_I, Intersection Delay [s/veh]	257.10											
Intersection LOS	F											
Intersection V/C	1.692											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.645	2.688	3.410	3.365
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.15	17.14	11.17	11.17
I_b,int, Bicycle LOS Score for Intersection	3.987	2.319	3.230	2.246
Bicycle LOS	D	B	C	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



La Brea Tar Pits Museum Master Plan EIR

Vistro File: H:\...\26066_Vistro_20220404.vistro
Scenario 12 Opening Year + Project Weekend Midday
Report File: H:\...\OpeningYearwithProject_Saturday.pdf
6/30/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Ogden Dr/LACMA Parking Garage/6th St	Signalized	HCM 6th Edition	WB Left	0.829	14.0	B
2	Curson Ave/6th St	Signalized	HCM 6th Edition	SB Left	0.539	14.4	B
3	Ogden Dr/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.381	3.9	A
4	Spaulding Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Right	0.436	8.7	A
5	Curson Ave/Wilshire Blvd	Signalized	HCM 6th Edition	NB Thru	1.292	226.7	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Ogden Dr/LACMA Parking Garage/6th St

Control Type:	Signalized	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.829

Intersection Setup

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	60.00	140.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	LACMA Parking Garage			S Ogden Drive			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	135	0	86	17	0	40	28	1019	185	90	1269	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	135	0	86	17	0	40	28	1019	185	90	1269	6
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	0	22	4	0	10	7	265	48	23	330	2
Total Analysis Volume [veh/h]	141	0	90	18	0	42	29	1061	193	94	1322	6
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	8			1			2			8		
v_di, Inbound Pedestrian Volume crossing m	8			2			1			8		
v_co, Outbound Pedestrian Volume crossing	20			16			19			15		
v_ci, Inbound Pedestrian Volume crossing mi	19			15			20			16		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			1			1			3		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	2.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	0.0	1.3	0.0	0.0	1.3	0.0	0.0	0.4	0.0	0.0	0.4	0.0
Split [s]	0	26	0	0	26	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.9	0.0	0.0	4.9	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	14	0	0	8	0	0	8	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.9	0.0	0.0	2.9	0.0	0.0	2.7	0.0	0.0	2.7	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.90	4.90	4.70	4.70	4.70	4.70	4.70	4.70
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.90	2.90	2.70	2.70	2.70	2.70	2.70	2.70
g_i, Effective Green Time [s]	12	12	39	39	39	39	39	39
g / C, Green / Cycle	0.20	0.20	0.64	0.64	0.64	0.64	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.15	0.04	0.07	0.57	0.13	0.21	0.36	0.36
s, saturation flow rate [veh/h]	1531	1646	413	1870	1509	443	1870	1866
c, Capacity [veh/h]	401	406	285	1199	967	175	1199	1196
d1, Uniform Delay [s]	22.32	19.97	11.58	8.94	4.40	27.79	6.00	6.00
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.31	0.17	0.71	9.75	0.46	11.25	1.85	1.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.58	0.15	0.10	0.89	0.20	0.54	0.55	0.55
d, Delay for Lane Group [s/veh]	23.63	20.14	12.30	18.69	4.87	39.04	7.85	7.86
Lane Group LOS	C	C	B	B	A	D	A	A
Critical Lane Group	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	2.97	0.67	0.28	10.80	0.80	1.84	3.79	3.79
50th-Percentile Queue Length [ft/ln]	74.15	16.79	6.94	270.11	20.04	46.09	94.82	94.79
95th-Percentile Queue Length [veh/ln]	5.34	1.21	0.50	16.20	1.44	3.32	6.83	6.82
95th-Percentile Queue Length [ft/ln]	133.47	30.22	12.48	404.88	36.07	82.96	170.67	170.61

Movement, Approach, & Intersection Results

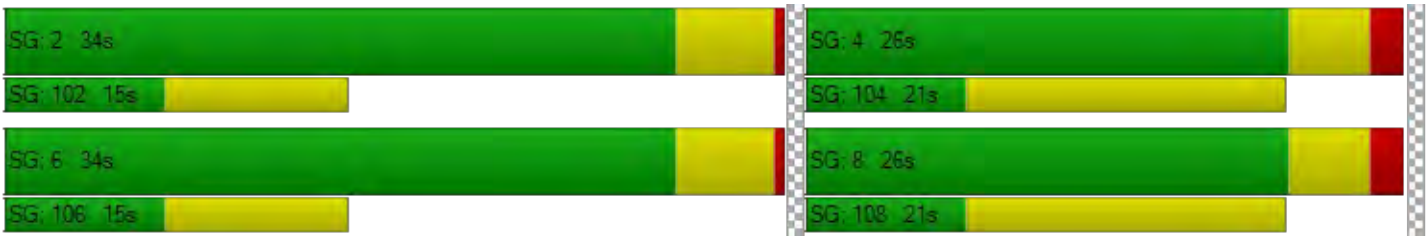
d_M, Delay for Movement [s/veh]	23.63	23.63	23.63	20.14	20.14	20.14	12.30	18.69	4.87	39.04	7.86	7.86
Movement LOS	C	C	C	C	C	C	B	B	A	D	A	A
d_A, Approach Delay [s/veh]	23.63			20.14			16.46			9.92		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	13.98											
Intersection LOS	B											
Intersection V/C	0.829											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
I_p,int, Pedestrian LOS Score for Intersection	2.079	1.780	3.022	2.766
Crosswalk LOS	B	A	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	703	703	977	977
d_b, Bicycle Delay [s]	12.61	12.62	7.86	7.87
I_b,int, Bicycle LOS Score for Intersection	1.941	1.659	3.677	2.733
Bicycle LOS	A	A	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Curson Ave/6th St

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.539

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	40.00	100.00	100.00	100.00	100.00	40.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			W 6th Street			W 6th Street		
Base Volume Input [veh/h]	263	49	262	53	60	35	43	470	168	100	563	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	263	49	262	53	60	35	43	470	168	100	563	61
Peak Hour Factor	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800	0.9800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	13	67	14	15	9	11	120	43	26	144	16
Total Analysis Volume [veh/h]	268	50	267	54	61	36	44	480	171	102	574	62
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	12			14			15			13		
v_di, Inbound Pedestrian Volume crossing m	13			15			14			12		
v_co, Outbound Pedestrian Volume crossing	29			17			28			17		
v_ci, Inbound Pedestrian Volume crossing mi	28			17			29			17		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			1			1			4		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	31.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	0	7	0	0	10	0	0	10	0
Maximum Green [s]	0	20	0	0	20	0	0	30	0	0	30	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.9	0.0	0.0	0.9	0.0
Split [s]	0	28	0	0	28	0	0	32	0	0	32	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	5.1	0.0	0.0	5.6	0.0
Walk [s]	0	9	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	14	0	0	16	0	0	12	0	0	12	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.4	0.0	0.0	3.4	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.40	5.40	5.40	5.40	5.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.40	3.40	3.40	3.40	3.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	20	20	20	20	30	30	30	30	30	30
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.21	0.21	0.05	0.06	0.06	0.26	0.12	0.13	0.17	0.18
s, saturation flow rate [veh/h]	1272	1543	1045	1727	785	1870	1467	773	1870	1783
c, Capacity [veh/h]	448	515	250	576	399	922	723	344	922	879
d1, Uniform Delay [s]	20.94	16.77	24.26	14.12	13.20	10.37	8.64	17.47	9.32	9.35
k, delay calibration	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.28	1.20	0.43	0.14	0.56	2.10	0.77	2.20	1.05	1.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.62	0.22	0.17	0.11	0.52	0.24	0.30	0.35	0.36
d, Delay for Lane Group [s/veh]	22.22	17.97	24.69	14.25	13.75	12.47	9.41	19.66	10.37	10.48
Lane Group LOS	C	B	C	B	B	B	A	B	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	3.38	3.45	0.70	0.87	0.43	4.14	1.22	1.26	2.45	2.39
50th-Percentile Queue Length [ft/ln]	84.46	86.25	17.41	21.66	10.71	103.38	30.55	31.59	61.13	59.73
95th-Percentile Queue Length [veh/ln]	6.08	6.21	1.25	1.56	0.77	7.44	2.20	2.27	4.40	4.30
95th-Percentile Queue Length [ft/ln]	152.03	155.25	31.34	38.98	19.27	186.09	54.99	56.87	110.04	107.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.22	17.97	17.97	24.69	14.25	14.25	13.75	12.47	9.41	19.66	10.42	10.48
Movement LOS	C	B	B	C	B	B	B	B	A	B	B	B
d_A, Approach Delay [s/veh]	19.92			17.99			11.80			11.70		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.39											
Intersection LOS	B											
Intersection V/C	0.539											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	13.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	18.41
I_p,int, Pedestrian LOS Score for Intersection	2.361	2.080	2.965	2.557
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	900	900
d_b, Bicycle Delay [s]	11.67	11.66	9.08	9.09
I_b,int, Bicycle LOS Score for Intersection	2.525	1.809	2.706	2.168
Bicycle LOS	B	A	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: Ogden Dr/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	3.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.381

Intersection Setup

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	1	1	0
Entry Pocket Length [ft]	100.00	70.00	100.00	90.00	120.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		No	

Volumes

Name	S Ogden Drive		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	8	43	1030	27	2	963
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	43	1030	27	2	963
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	12	283	7	1	265
Total Analysis Volume [veh/h]	9	47	1132	30	2	1058
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		46		0	
v_di, Inbound Pedestrian Volume crossing m	0		45		0	
v_co, Outbound Pedestrian Volume crossing	52		51		45	
v_ci, Inbound Pedestrian Volume crossing mi	51		52		46	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		1		4	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	10.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.3	0.0	1.0	0.0	0.0	1.0
Split [s]	44	0	46	0	0	46
Vehicle Extension [s]	3.0	0.0	4.1	0.0	0.0	5.2
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	24	0	13	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.9	0.0	3.1	0.0	0.0	3.1
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	R	L	C
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.90	5.90	5.10	5.10	5.10	5.10
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.90	3.90	3.10	3.10	3.10	3.10
g_i, Effective Green Time [s]	7	7	72	72	72	72
g / C, Green / Cycle	0.08	0.08	0.80	0.80	0.80	0.80
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.32	0.02	0.00	0.30
s, saturation flow rate [veh/h]	1226	1589	3560	1457	481	3560
c, Capacity [veh/h]	94	121	2854	1168	406	2854
d1, Uniform Delay [s]	38.67	39.55	2.60	1.81	4.71	2.52
k, delay calibration	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	2.02	0.41	0.04	0.02	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.39	0.40	0.03	0.00	0.37
d, Delay for Lane Group [s/veh]	39.11	41.57	3.01	1.85	4.73	2.89
Lane Group LOS	D	D	A	A	A	A
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.19	1.05	1.88	0.08	0.01	1.70
50th-Percentile Queue Length [ft/ln]	4.87	26.17	46.97	1.91	0.32	42.55
95th-Percentile Queue Length [veh/ln]	0.35	1.88	3.38	0.14	0.02	3.06
95th-Percentile Queue Length [ft/ln]	8.77	47.11	84.54	3.44	0.58	76.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.11	41.57	3.01	1.85	4.73	2.89
Movement LOS	D	D	A	A	A	A
d_A, Approach Delay [s/veh]	41.17		2.98		2.90	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	3.88					
Intersection LOS	A					
Intersection V/C	0.381					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	125.68	0.00
d_p, Pedestrian Delay [s]	34.66	34.66	0.00
I_p,int, Pedestrian LOS Score for Intersection	1.971	2.734	0.000
Crosswalk LOS	A	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	847	909	909
d_b, Bicycle Delay [s]	14.96	13.39	13.41
I_b,int, Bicycle LOS Score for Intersection	1.560	2.518	2.434
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 4: Spaulding Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.436

Intersection Setup

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	70.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	S Spaulding Avenue		Wilshire Boulevard		Wilshire Boulevard	
Base Volume Input [veh/h]	45	64	971	95	49	907
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	64	971	95	49	907
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	17	264	26	13	246
Total Analysis Volume [veh/h]	49	70	1055	103	53	986
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	23		22		24	
v_di, Inbound Pedestrian Volume crossing m	24		22		23	
v_co, Outbound Pedestrian Volume crossing	48		48		22	
v_ci, Inbound Pedestrian Volume crossing mi	48		48		22	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	2		1		5	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	12.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	8	0	6	0	0	2
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	9	0	10	0	0	10
Maximum Green [s]	30	0	40	0	0	40
Amber [s]	3.6	0.0	4.1	0.0	0.0	4.1
All red [s]	2.0	0.0	0.7	0.0	0.0	0.7
Split [s]	40	0	50	0	0	50
Vehicle Extension [s]	4.9	0.0	4.4	0.0	0.0	3.0
Walk [s]	7	0	7	0	0	0
Pedestrian Clearance [s]	22	0	8	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	3.6	0.0	2.8	0.0	0.0	2.8
Minimum Recall	No		Yes			Yes
Maximum Recall	No		No			No
Pedestrian Recall	No		Yes			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	20.0	0.0	20.0	0.0	0.0	20.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C	L	C
C, Cycle Length [s]	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	4.80	4.80	4.80	4.80
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	3.60	2.80	2.80	2.80	2.80
g_i, Effective Green Time [s]	18	62	62	62	62
g / C, Green / Cycle	0.20	0.69	0.69	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.07	0.31	0.33	0.11	0.28
s, saturation flow rate [veh/h]	1663	1870	1778	485	3560
c, Capacity [veh/h]	330	1283	1220	324	2443
d1, Uniform Delay [s]	31.14	6.41	6.57	12.47	6.12
k, delay calibration	0.22	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.36	1.15	1.33	1.08	0.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.45	0.47	0.16	0.40
d, Delay for Lane Group [s/veh]	32.49	7.56	7.89	13.55	6.62
Lane Group LOS	C	A	A	B	A
Critical Lane Group	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.32	4.56	4.70	0.66	3.54
50th-Percentile Queue Length [ft/ln]	58.10	113.94	117.40	16.60	88.53
95th-Percentile Queue Length [veh/ln]	4.18	8.06	8.25	1.20	6.37
95th-Percentile Queue Length [ft/ln]	104.58	201.46	206.25	29.88	159.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.49	32.49	7.71	7.89	13.55	6.62
Movement LOS	C	C	A	A	B	A
d_A, Approach Delay [s/veh]	32.49		7.73		6.98	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	8.66					
Intersection LOS	A					
Intersection V/C	0.436					

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.65	34.65	34.65
I_p,int, Pedestrian LOS Score for Intersection	1.924	2.665	2.804
Crosswalk LOS	A	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	765	1005	1005
d_b, Bicycle Delay [s]	17.18	11.14	11.16
I_b,int, Bicycle LOS Score for Intersection	1.756	2.515	2.417
Bicycle LOS	A	B	B

Sequence

Ring 1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 5: Curson Ave/Wilshire Blvd

Control Type:	Signalized	Delay (sec / veh):	226.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.292

Intersection Setup

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	80.00	100.00	100.00	110.00	100.00	50.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	S Curson Avenue			S Curson Avenue			Wilshire Boulevard			Wilshire Boulevard		
Base Volume Input [veh/h]	238	614	232	163	197	178	146	859	27	35	525	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	11
Total Hourly Volume [veh/h]	238	614	232	163	197	178	146	859	27	35	525	73
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	64	165	62	44	53	48	39	231	7	9	141	20
Total Analysis Volume [veh/h]	256	660	249	175	212	191	157	924	29	38	565	78
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	20			53			53			21		
v_di, Inbound Pedestrian Volume crossing m	21			53			53			20		
v_co, Outbound Pedestrian Volume crossing	36			51			36			50		
v_ci, Inbound Pedestrian Volume crossing mi	36			50			36			51		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	3			3			3			6		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	51.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	8	0	0	4	0	0	6	0	0	2	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	8	0	0	8	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	40	0	0	40	0
Amber [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	4.1	0.0	0.0	4.1	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0
Split [s]	0	40	0	0	40	0	0	50	0	0	50	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	4.1	0.0	0.0	4.7	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	19	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.6	0.0	0.0	3.6	0.0	0.0	2.9	0.0	0.0	2.9	0.0
Minimum Recall		No			No			Yes			Yes	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			Yes			Yes	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.60	5.60	4.90	4.90	4.90	4.90	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.60	3.60	2.90	2.90	2.90	2.90	2.90	2.90
g_i, Effective Green Time [s]	34	34	45	45	45	45	45	45
g / C, Green / Cycle	0.38	0.38	0.50	0.50	0.50	0.50	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.92	0.57	0.20	0.26	0.26	0.06	0.16	0.06
s, saturation flow rate [veh/h]	1268	1011	776	1870	1837	589	3560	1394
c, Capacity [veh/h]	533	438	377	937	920	259	1784	699
d1, Uniform Delay [s]	29.30	29.19	21.41	15.01	15.05	23.20	13.27	11.74
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	539.55	158.54	3.36	1.99	2.06	1.19	0.47	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	2.19	1.32	0.42	0.51	0.52	0.15	0.32	0.11
d, Delay for Lane Group [s/veh]	568.84	187.73	24.77	17.00	17.11	24.39	13.74	12.07
Lane Group LOS	F	F	C	B	B	C	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	91.45	28.99	2.81	6.68	6.64	0.67	3.33	0.85
50th-Percentile Queue Length [ft/ln]	2286.27	724.74	70.36	167.00	165.97	16.83	83.22	21.19
95th-Percentile Queue Length [veh/ln]	147.91	44.53	5.07	10.92	10.86	1.21	5.99	1.53
95th-Percentile Queue Length [ft/ln]	3697.77	1113.30	126.65	272.97	271.62	30.30	149.79	38.14

Movement, Approach, & Intersection Results

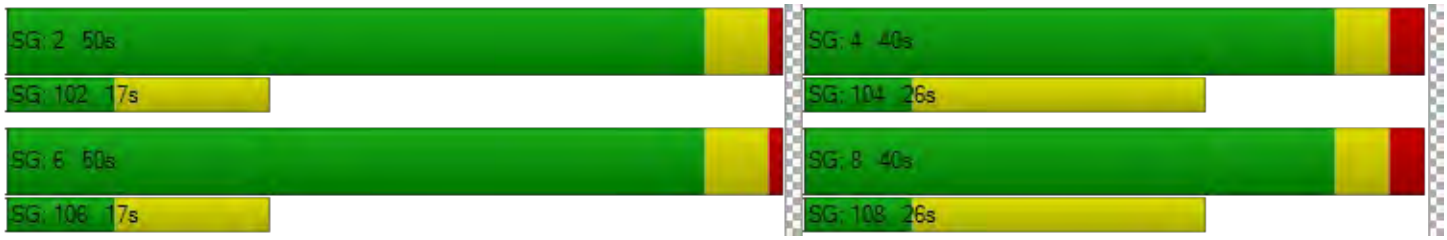
d_M, Delay for Movement [s/veh]	568.84	568.84	568.84	187.73	187.73	187.73	24.77	17.05	17.11	24.39	13.74	12.07
Movement LOS	F	F	F	F	F	F	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	568.84			187.73			18.15			14.14		
Approach LOS	F			F			B			B		
d_I, Intersection Delay [s/veh]	226.65											
Intersection LOS	F											
Intersection V/C	1.292											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.60	34.60	34.60	34.60
I_p,int, Pedestrian LOS Score for Intersection	2.472	2.661	3.077	3.048
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	766	766	1004	1004
d_b, Bicycle Delay [s]	17.14	17.14	11.16	11.18
I_b,int, Bicycle LOS Score for Intersection	3.482	2.513	2.475	2.131
Bicycle LOS	C	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX K

Service Request Correspondence Letters

Los Angeles Department of Water & Power

BUILDING A STRONGER L.A.

Eric Garcetti, Mayor

Board of Commissioners
Cynthia McClain-Hill, President
Cynthia M. Ruiz, Vice President
Mia Lehrer
Nicole Neeman Brady
Chante L. Mitchell, Secretary

Martin L. Adams, General Manager and Chief Engineer

October 28, 2022

Mr. Jesse Rocha
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

Dear Mr. Rocha:

Subject: Los Angeles Department of Water and Power
Water and Electricity Connection Services Request
La Brea Tar Pits Master Plan Project

The Los Angeles Department of Water and Power (LADWP) is in receipt of your letter dated September 30, 2022, requesting LADWP's ability to provide water and electric services for the La Brea Tar Pits Master Plan Project (Project). Below your request has been broken out into separate questions for Water and Power to ensure a thorough response. LADWP's response to each question is in bold.

Project Description:

The La Brea Tar Pits property is located at 5801 Wilshire Boulevard within the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902)
(Thomas Brothers Map: 633-C2).

The Project site includes 13 acres of the eastern and northwestern portions of Hancock Park, as shown on Figure 1 (enclosed). The Project would result in a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex and portions of Hancock Park, including renovations to the George C. Page Museum (Page Museum).

Construct a new two-story 40,000 gross-square-foot (gsf) museum building northwest of the Page Museum including two new theaters. Renovate existing building in same footprint (approximately 63,200 sf). Demolish existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. Construct new 2,000 gsf satellite maintenance and support building.

As shown on Figure 2 (enclosed) the Project would require installing a new three-inch water line and a new three-inch fire line at the northeast comer of the site beneath the parking lot, which would connect to the existing water meter in the sidewalk on South Curson Avenue. New above grade backflow preventer devices would be located just inside the property line adjacent to the meter. Due to the high corrosivity of the on-site soils, the piping infrastructure has deteriorated and appears to be near the end of its service life. All existing site water piping would be replaced. To prevent future corrosion of the pipe material, new pipes would be polyvinyl chloride (PVC) C-900 material and metal fittings would be wrapped and protected from contact with soil material according to geotechnical recommendations. Lastly, water service to both the Observation Pit, as well as, Project 23 currently is provided by the Los Angeles County Museum of Arts (LACMA). Due to the relatively remote location of these service points compared to their proximity to LACMA it is practical to assume that those demands would continue to be served by and coordinated with LACMA.

We are providing information for consideration and incorporation into the planning, design, and development efforts for the proposed Project. Regarding water needs for the proposed Project, this letter does not constitute a response to a Water Supply Assessment (WSA) pursuant to California State Water Code Sections 10910-10915 for development projects to determine the availability of long-term water supply. Depending on the Project scope, a WSA by the water supply agency may need to be requested by the California Environmental Quality Act Lead Agency and completed prior to issuing a draft Negative Declaration or draft Environmental Impact Report.

If a Lead Agency determines that the proposed Project parameters (e.g., development details such as type, square footage, anticipated water demand, population increase, etc.) are such that they are subject to state law requiring a WSA, a separate request must be made in writing and sent to:

Mr. Anselmo G. Collins
Senior Assistant General Manager – Water System
Los Angeles Department of Water and Power
111 North Hope Street, Room 1455
Los Angeles, CA 90012

If you have any further questions regarding the water supply assessment process, please contact Mr. Delon Kwan, at (213) 367-2166 or via email at Delon.Kwan@ladwp.com.

Water Needs

As the Project proceeds further in the design phase, we recommend the Project applicant or designated Project Management Engineer contact Mr. Hugo Torres, at (213) 367-2130 or via email at Hugo.Torres@ladwp.com to make arrangements for water supply service needs.

The following responses are provided regarding impacts to water service.

1) Please describe sizes and capacities of existing water mains that would serve the Project Site.

a) The project site is served by eight-inch AC pipe Wilshire Blvd, eight-inch AC pipe Curson Avenue and eight-inch CI pipe on 6th Street as shown on the enclosed water service maps 134-177, 134-180, 136-177, 136-180.

2) Are there any existing water service problems/deficiencies in the Project area?

a) There are no known water service problems/deficiencies.

3) Would LADWP be able to accommodate the Project's demand for water service with the existing infrastructure in the Project area? If not, what new infrastructure or upgrades to infrastructure would be needed?

a) LADWP should be able to provide the domestic needs of the project from the existing water system. LADWP cannot determine the impact on the existing water system until the fire demands of the project are known. Once a determination of the fire demands has been made, LADWP will assess the need for additional facilities, if needed.

4) Does LADWP have sufficient capacity to support the Project's water demand?

a) LADWP works closely with the City of Los Angeles, Department of City Planning to develop and update our Urban Water Management Plan (UWMP) every five years. The UWMP is the planning document for future water demands for the City. The UWMP identifies short-term and long-term water resources management measures to meet growing water demands during normal, single-dry, and multiple-dry years over a 25-year horizon. The City's water demand projection in the UWMP was developed based on the Regional Transportation Plan (RTP) demographic projection by the Southern California Association of Governments (SCAG).

b) See the following link to the 2020 UWMP: http://www.ladwp.com/uwmp

c) In general, projects that conform to the demographic projection from the RTP by SCAG and are currently located in the City's service area are considered to have been included in LADWP's water supply planning efforts; therefore, the projected water supplies would meet projected demands.

Power Needs

It should be noted that the Project Applicant may be financially responsible for some of infrastructure improvements (e.g., installation of electric power facilities or service connections) necessary to serve the proposed Project.

As the Project proceeds further, please contact one of our Engineering Offices, as listed on Pages 1-4 of the Electric Service Requirements (available on-line at www.ladwp.com) for dealing with power services and infrastructure needs.

1) Please describe the sizes and voltages of existing electrical distribution lines and facilities that would serve the project site and the surrounding area.

a) There are three underground 4.8KV circuits in proximity of project site which one runs along West Wilshire Boulevard, second one runs along South Spaulding Avenue and third one runs along West Wilshire Boulevard and South Ogden Drive.

b) There are three underground 34.5KV circuits adjacent to project site which run along West Wilshire Boulevard.

LADWP does not release/provide electrical distribution maps.

2) Would LADWP be able to accommodate the proposed Project's demand for electricity service with the existing infrastructure in the Project area? If not, what new infrastructure would be needed to meet the proposed Project's demand for electricity?

a) This cannot be answered without review of the Project developer's electrical drawings and load schedules. However, the cumulative effects of this and other Projects in the area will require the LADWP to construct additional distribution facilities in the future. This Project will require on-site transformation and may require underground line extension on public streets.

3) Would LADWP be able to accommodate the proposed Project's demand for electricity with existing electricity supplies?

a) Electric Service is available and will be provided in accordance with the LADWP's Rules Governing Water and Electric Service (available on-line at https://www.ladwp.com under Commercial/Customer Service/Electric Services/Codes and Specifications). The availability of electricity is dependent upon adequate generating capacity and adequate fuel supplies. The estimated power requirement for this proposed Project is part of the total load growth forecast for the City of Los Angeles and has been taken-into account in the planned growth of the City's power system.

b) LADWP's load growth forecast incorporates construction activity and is built into the commercial floor space model; the McGraw Hill Construction report identifies all large projects. In planning sufficient future resources, LADWP's Power Integrated Resource Plan incorporates the estimated power requirement for the proposed Project through the load forecast input and has planned sufficient resources to supply the electricity needs.

Water Conservation

LADWP is always looking for means to assist its customers to use water resources more efficiently and welcomes the opportunity to work with new developments to identify water conservation opportunities. Some water conservation measures are enclosed. The LADWP website contains a current list of the available rebates and incentive programs, including the performance based Custom Water Conservation Technical Assistance Program (WCTAP, https://www.ladwp.com/ladwp/faces/wcnav_externalId/a-w-cstm-wtr-prjct-tap?_adf.ctrl-state=h8fsat92s_4&_afrLoop=3392823718109) for commercial, industrial, institutional and multi-family residential customers up to $250,000 for the installation of pre-approved equipment which demonstrates water savings. Mr. Mark Gentili is the Water Conservation Program Manager and can be reached, at (213) 367-8556 or via email, at Mark.Gentili@ladwp.com. See the following link for LADWP water conservation rebate information on our website: https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-water/a-w-conservation

Energy Efficiency

LADWP suggests consideration and incorporation of energy- efficient design measures (enclosed) for building new commercial and/or remodeling existing facilities. Implementation of applicable measures would exceed Title 24 energy efficiency requirements. LADWP continues to offer a number of energy efficiency programs to reduce peak electrical demand and energy costs. For further information please contact Ms. Lucia Alvelais, Utility Services Manager, at (213) 367-4939 or via email at Lucia.Alvelais@ladwp.com. See the following link for LADWP energy efficiency rebate information on our website: https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-energyefficiencyandrebates

Solar Energy

Solar power is a renewable, nonpolluting energy source that can help reduce our dependence on fossil fuels. Mr. Arash Saidi is the Solar Energy Program Manager and can be reached, at (213) 367-4886 or via email at Arash.Saidi@ladwp.com.

For more information about the Solar Programs, please visit the LADWP website: www.ladwp.com/solar or www.ladwp.com/fit regarding the Feed-In Tariff Program. To begin the process of integrating a net-metered solar system, please visit this website: www.ladwp.com/NEM.

For more information on other rebates and programs, please visit the LADWP website:https://www.ladwp.com/ladwp/faces/ladwp/commercial/c-savemoney/c-sm-rebatesandprograms

Electric Vehicle Transportation

LADWP is encouraging the installation of convenient electric vehicle (EV) charging stations for the home, workplace, and public charging to support the adoption of EVs in the City. Mr. Yamen Nanne is the Electric Vehicle Program Manager and can be reached, at (213) 367-2585 or via email at Yamen.Nanne@ladwp.com.

For more information on LADWP EV discount rates and charging incentives for residential and business customers, please visit the website: www.ladwp.com/ev. If you would like a Customer Service Representative to answer your questions or review your account and help you decide on the best option, please call us at 1 (866) 484-0433 or email us at PluginLA@ladwp.com.

Please include LADWP in your mailing list and address it to the attention of Mr. Charles C. Holloway for review of the environmental document for the proposed Project.

Mr. Charles C. Holloway
Manager of Environmental Planning and Assessment
Los Angeles Department of Water and Power
111 North Hope Street, Room 1044
Los Angeles, CA 90012

If there are any additional questions on this utility services request, please contact Mr. Marshall Styers, of the Environmental Assessment Group, at (213) 367-3541.

Sincerely,

Charles C. Holloway
Manager of Environmental Planning and Assessment

MS:gn
Enclosures
c/enc: Mr. Anselmo G. Collins
Mr. Delon Kwan
Mr. Hugo Torres
Mr. Mark Gentili
Ms. Lucia Alvelais
Mr. Arash Saidi
Mr. Yamen Nanne
Mr. Peter Liang
Ms. Selamawit Azage
Mr. Nathanial Hermosura Bautista
Mr. Marshall Styers

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TIMEYIN DAFETA
HYPERION EXECUTIVE PLANT MANAGER

WASTEWATER ENGINEERING
SERVICES DIVISION
2714 MEDIA CENTER DRIVE
LOS ANGELES, CA 90065
FAX: (323) 342-6210
WWW.LACITYSAN.ORG

November 22, 2022

Mr. Richard Hayden, Assistant Deputy Director
Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

Dear Mr. Hayden,

LA BREA TAR PITS MASTER PLAN PROJECT - REQUEST FOR WASTEWATER SERVICE INFORMATION

This is in response to your September 30, 2022 letter requesting a review of your proposed museum building project located at 5801 Wilshire Boulevard, Los Angeles, CA 90036. The project will consist of a new two story museum with two new theaters. LA Sanitation has conducted a preliminary evaluation of the potential impacts to the wastewater and stormwater systems for the proposed project.

WASTEWATER REQUIREMENT

LA Sanitation, Wastewater Engineering Services Division (WESD) is charged with the task of evaluating the local sewer conditions and to determine if available wastewater capacity exists for future developments. The evaluation will determine cumulative sewer impacts and guide the planning process for any future sewer improvement projects needed to provide future capacity as the City grows and develops.

Projected Wastewater Discharges for the Proposed Project:

Type Description	Average Daily Flow per Type Description (GPD/UNIT)	Proposed No. of Units	Average Daily Flow (GPD)
Proposed			
Museum Building	30 GPD/1000 SQ.FT	42,000 SQ.FT	1,260
Lobby	50 GPD/1000 SQ.FT	4,000 SQ.FT	200
Exhibit Spaces	50 GPD/1000 SQ.FT	24,000 SQ.FT	1,200
Theater #1	3 GPD/ 1 Seat	70 Seats	210
Theater #2	3 GPD/ 1 Seat	190 Seats	570
Research Room	50 GPD/1000 SQ.FT	21,030 SQ.FT	1,052
Administration Space	120 GPD/1000 SQ.F	11,090 SQ.FT	1,331
Total			**5,823 GPD**

SEWER AVAILABILITY

The sewer infrastructure in the vicinity of the proposed project includes an existing 12-inch line on Curson Ave. The sewage from the existing 12-inch line feeds into an 18-inch line on Wilshire Blvd then into a 39-inch line on Crescent Heights Blvd before discharging into a 48-inch sewer line on Crescent Heights Blvd. Figure 1 shows the details of the sewer system within the vicinity of the project. The current flow level (d/D) in the 12-inch line cannot be determined at this time without additional gauging.

The current approximate flow level (d/D) and the design capacities at d/D of 50% in the sewer system are as follows:

Pipe Diameter (in)	Pipe Location	Current Gauging d/D (%)	50% Design Capacity
12	Curson Ave.	*	478,089 GPD
18	Wilshire Blvd.	16	4.13 MGD
18	Wilshire Blvd.	18	4.18 MGD
21	Alley E/O Hayworth Ave.	46	3.01 MGD
21	Crescent Heights Blvd.	36	2.85 MGD
21	Crescent Heights Blvd.	48	2.85 MGD
39	Crescent Heights Blvd.	30	16.43 MGD
39	Crescent Heights Blvd.	51	16.43 MGD
39	Crescent Heights Blvd.	35	16.43 MGD
39	Crescent Heights Blvd.	51	16.43 MGD
48	Crescent Heights Blvd.	31	28.91 MGD

* No gauging available

Based on estimated flows, it appears the sewer system might be able to accommodate the total flow for your proposed project. Further detailed gauging and evaluation will be needed as part of the permit process to identify a specific sewer connection point. If the public sewer lacks sufficient capacity, then the developer will be required to build sewer lines to a point in the sewer system with sufficient capacity. A final approval for sewer capacity and connection permit will be made at the time. Ultimately, this sewage flow will be conveyed to the Hyperion Water Reclamation Plant, which has sufficient capacity for the project.

All sanitary wastewater ejectors and fire tank overflow ejectors shall be designed, operated, and maintained as separate systems. All sanitary wastewater ejectors with ejection rates greater than 30

GPM shall be reviewed and must be approved by LASAN WESD staff prior to other City plan check approvals. Lateral connection of development shall adhere to Bureau of Engineering Sewer Design Manual Section F 480.

If you have any questions, please call Christopher DeMonbrun at (323) 342-1567 or email at chris.demonbrun@lacity.org.

STORMWATER REQUIREMENTS

LA Sanitation, Stormwater Program is charged with the task of ensuring the implementation of the Municipal Stormwater Permit requirements within the City of Los Angeles. We anticipate the following requirements would apply for this project.

POST-CONSTRUCTION MITIGATION REQUIREMENTS

In accordance with the Municipal Separate Storm Sewer (MS4) National Pollutant Discharge Elimination System (NPDES) Permit (Order No. R4-2012-0175, NPDES No. CAS004001) and the City of Los Angeles Stormwater and Urban Runoff Pollution Control requirements (Chapter VI, Article 4.4, of the Los Angeles Municipal Code), the Project shall comply with all mandatory provisions to the Stormwater Pollution Control Measures for Development Planning (also known as Low Impact Development [LID] Ordinance). Prior to issuance of grading or building permits, the applicant shall submit a LID Plan to the City of Los Angeles, Public Works, LA Sanitation, Stormwater Program for review and approval. The LID Plan shall be prepared consistent with the requirements of the Planning and Land Development Handbook for Low Impact Development.

Current regulations prioritize infiltration, capture/use, and then biofiltration as the preferred stormwater control measures. The relevant documents can be found at: www.lacitysan.org. It is advised that input regarding LID requirements be received in the preliminary design phases of the project from plan-checking staff. Additional information regarding LID requirements can be found at: www.lacitysan.org or by visiting the stormwater public counter at 201 N. Figueroa, 2nd Fl, Suite 280.

GREEN STREETS

The City is developing a Green Street Initiative that will require projects to implement Green Street elements in the parkway areas between the roadway and sidewalk of the public right-of-way to capture and retain stormwater and urban runoff to mitigate the impact of stormwater runoff and other environmental concerns. The goals of the Green Street elements are to improve the water quality of stormwater runoff, recharge local groundwater basins, improve air quality, reduce the heat island effect of street pavement, enhance pedestrian use of sidewalks, and encourage alternate means of transportation. The Green Street elements may include infiltration systems, biofiltration swales, and permeable pavements where stormwater can be easily directed from the streets into the parkways and can be implemented in conjunction with the LID requirements. Green Street standard plans can be found at: https://eng2.lacity.org/techdocs/stdplans/index.htm

CONSTRUCTION REQUIREMENTS

All construction sites are required to implement a minimum set of BMPs for erosion control, sediment control, non-stormwater management, and waste management. In addition, construction sites with active grading permits are required to prepare and implement a Wet Weather Erosion Control Plan during the rainy season between October 1 and April 15. Construction sites that disturb

more than one-acre of land are subject to the NPDES Construction General Permit issued by the State of California, and are required to prepare, submit, and implement the Storm Water Pollution Prevention Plan (SWPPP).

If there are questions regarding the stormwater requirements, please call WPP's plan-checking counter at (213) 482-7066. WPD's plan-checking counter can also be visited at 201 N. Figueroa, 2nd Fl, Suite 280.

GROUNDWATER DEWATERING REUSE OPTIONS

The Los Angeles Department of Water and Power (LADWP) is charged with the task of supplying water and power to the residents and businesses in the City of Los Angeles. One of the sources of water includes groundwater. The majority of groundwater in the City of Los Angeles is adjudicated, and the rights of which are owned and managed by various parties. Extraction of groundwater within the City from any depth by law requires metering and regular reporting to the appropriate Court-appointed Watermaster. LADWP facilitates this reporting process, and may assess and collect associated fees for the usage of the City's water rights. The party performing the dewatering should inform the property owners about the reporting requirement and associated usage fees.

On April 22, 2016 the City of Los Angeles Council passed Ordinance 184248 amending the City of Los Angeles Building Code, requiring developers to consider beneficial reuse of groundwater as a conservation measure and alternative to the common practice of discharging groundwater to the storm drain (SEC. 99.04.305.4). It reads as follows: "Where groundwater is being extracted and discharged, a system for onsite reuse of the groundwater, shall be developed and constructed. Alternatively, the groundwater may be discharged to the sewer."

Groundwater may be beneficially used as landscape irrigation, cooling tower make-up, and construction (dust control, concrete mixing, soil compaction, etc.). Different applications may require various levels of treatment ranging from chemical additives to filtration systems. When onsite reuse is not available the groundwater may be discharged to the sewer system. This allows the water to be potentially reused as recycled water once it has been treated at a water reclamation plant. If groundwater is discharged into the storm drain it offers no potential for reuse. The onsite beneficial reuse of groundwater can reduce or eliminate costs associated with sewer and storm drain permitting and monitoring. Opting for onsite reuse or discharge to the sewer system are the preferred methods for disposing of groundwater.

To help offset costs of water conservation and reuse systems, LADWP offers a Technical Assistance Program (TAP), which provides engineering and technical assistance for qualified projects. Financial incentives are also available. Currently, LADWP provides an incentive of $1.75 for every 1,000 gallons of water saved during the first two years of a five-year conservation project. Conservation projects that last 10 years are eligible to receive the incentive during the first four years. Other water conservation assistance programs may be available from the Metropolitan Water District of Southern California. To learn more about available water conservation assistance programs, please contact LADWP Rebate Programs 1-888-376-3314 and LADWP TAP 1-800-544-4498, selection "3".

For more information related to beneficial reuse of groundwater, please contact Greg Reed, Manager of Water Rights and Groundwater Management, at (213)367-2117 or greg.reed@ladwp.com.

SOLID RESOURCE REQUIREMENTS

The City has a standard requirement that applies to all proposed residential developments of four or more units or where the addition of floor areas is 25 percent or more, and all other development projects where the addition of floor area is 30 percent or more. Such developments must set aside a recycling area or room for onsite recycling activities. For more details of this requirement, please contact LA Sanitation Solid Resources Recycling hotline 213-922-8300.

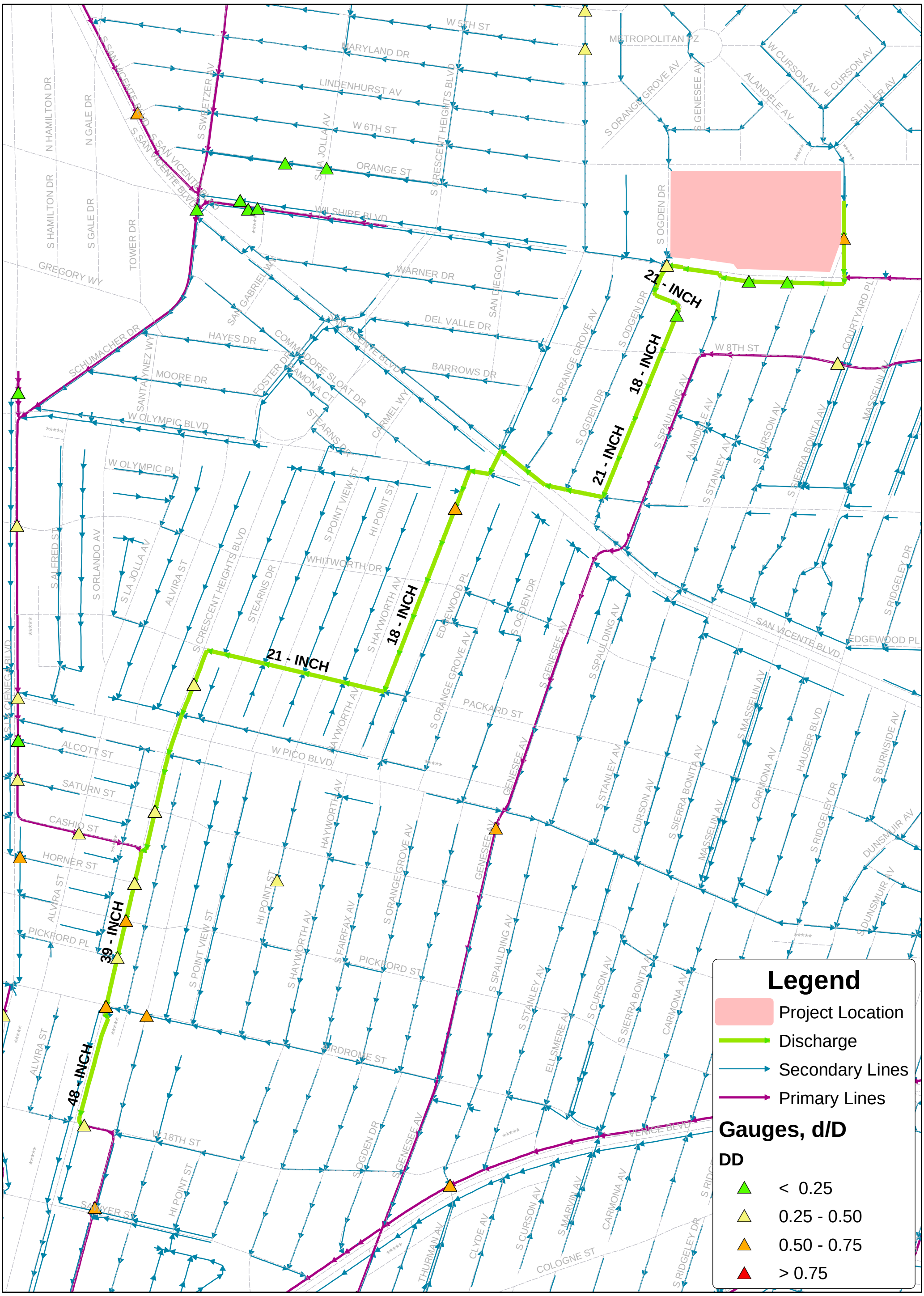
Sincerely,

Rowena Lau, Division Manager
Wastewater Engineering Services Division
LA Sanitation and Environment

RL/CD: sa

Attachment: Figure 1 - Sewer Map

c: Julie Allen, LASAN
Michael Scaduto, LASAN
Christine Sotelo, LASAN
Christopher DeMonbrun, LASAN



Wastewater Engineering Services Division
Bureau of Sanitation
City of Los Angeles

Figure 1
La Brea Tar Pits Master Plan
Sewer Map

N
W E
S

0 250 500 1,000 1,500 2,000
Feet

Thomas Brother Data reproduced with permission granted by THOMAS BROS MAP

APPENDIX L

Energy Analysis Report

Energy Analysis Report
La Brea Tar Pits Master Plan
Los Angeles, California

OCTOBER 2022

PREPARED FOR

Los Angeles County Museum of Natural History Foundation

LEAD AGENCY

County of Los Angeles

PREPARED BY

SWCA Environmental Consultants

SWCA

ENERGY ANALYSIS REPORT
LA BREA TAR PITS MASTER PLAN
LOS ANGELES, CALIFORNIA

Prepared for

Natural History Museums of Los Angeles County
900 Exposition Boulevard
Los Angeles, California 90007
Attn: Dawn McDivitt, Chief Deputy Director

Prepared by

Brad Sohm, Principal Air Quality Team Lead
Erin Wielenga, Air Quality Specialist

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

SWCA Project No. 63953

October 2022

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Appendix

Appendix A. Fuel Usage and Energy Calculations

1 INTRODUCTION

The 13-acre La Brea Tar Pits site is located within the eastern and northeastern portions of Hancock Park in Los Angeles, California. The La Brea Tar Pits, the George C. Page Museum (Page Museum), and associated facilities, are owned by the County of Los Angeles (County) but are managed by the non-profit Los Angeles County Museum of Natural History Foundation (Foundation). The Foundation's role is to carry out all County services including public access and programming, administration, and operation of the Natural History Museums of Los Angeles County (NHMLAC), including the La Brea Tar Pits and Page Museum. The Foundation and NHMLAC propose a redevelopment, or "reimagining," of the La Brea Tar Pits site, including renovation of the Page Museum, constructing a new museum building, and developing new amenities in surrounding portions of Hancock Park.

The County is the Lead Agency under the California Environmental Quality Act (CEQA); NHMLAC is a County departmental unit. The NHMLAC retained SWCA Environmental Consultants (SWCA) to prepare an Energy Analysis Report in support of the proposed La Brea Tar Pits Master Plan (project).

This energy analysis has been prepared in accordance with CEQA and Public Resources Code (PRC) 21100(b)(3). This assessment examines the amount of energy expected to be consumed during the construction and operation of the project. This impact analysis evaluates the potential for the project to result in the wasteful use of energy or wasteful use of energy resources during project construction and operation, consistent with PRC 21100(b)(3) and Section 15126.2(b) and Appendices F and G of the State CEQA Guidelines. The analysis provides construction and operational energy use estimates for the project. This information is then used to evaluate whether this energy use would be considered wasteful, inefficient, or unnecessary, taking into account available energy supplies and existing use patterns, the project's energy efficiency features, and compliance with applicable standards and policies aimed to reduce energy consumption, including California's Title 24 Energy Efficiency Standards.

2 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The La Brea Tar Pits property (project site) is located at 5801 Wilshire Boulevard within the 23-acre Hancock Park (Assessor's Parcel Number 550-801-6902) (Figures 1 and 2). The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and is directly adjacent to the Los Angeles County Museum of Art (LACMA). The project site is located approximately 5.5 miles west from downtown Los Angeles and approximately 8.6 miles east of the Pacific Ocean. It is bounded by West 6th Street to the north (an approximately 1,200-foot-long frontage), South Curson Avenue to the east (an approximately 830-foot-long frontage), Wilshire Boulevard to the south (an approximately 500-foot-long frontage), and the LACMA to the west (an approximately 250-foot-long frontage). The area is known as the Miracle Mile neighborhood of the city of Los Angeles. The project site can be found on the U.S. Geological Survey (USGS) Hollywood, California 7.5-minute quadrangle in Section 20, Township 1 South, Range 14 West.

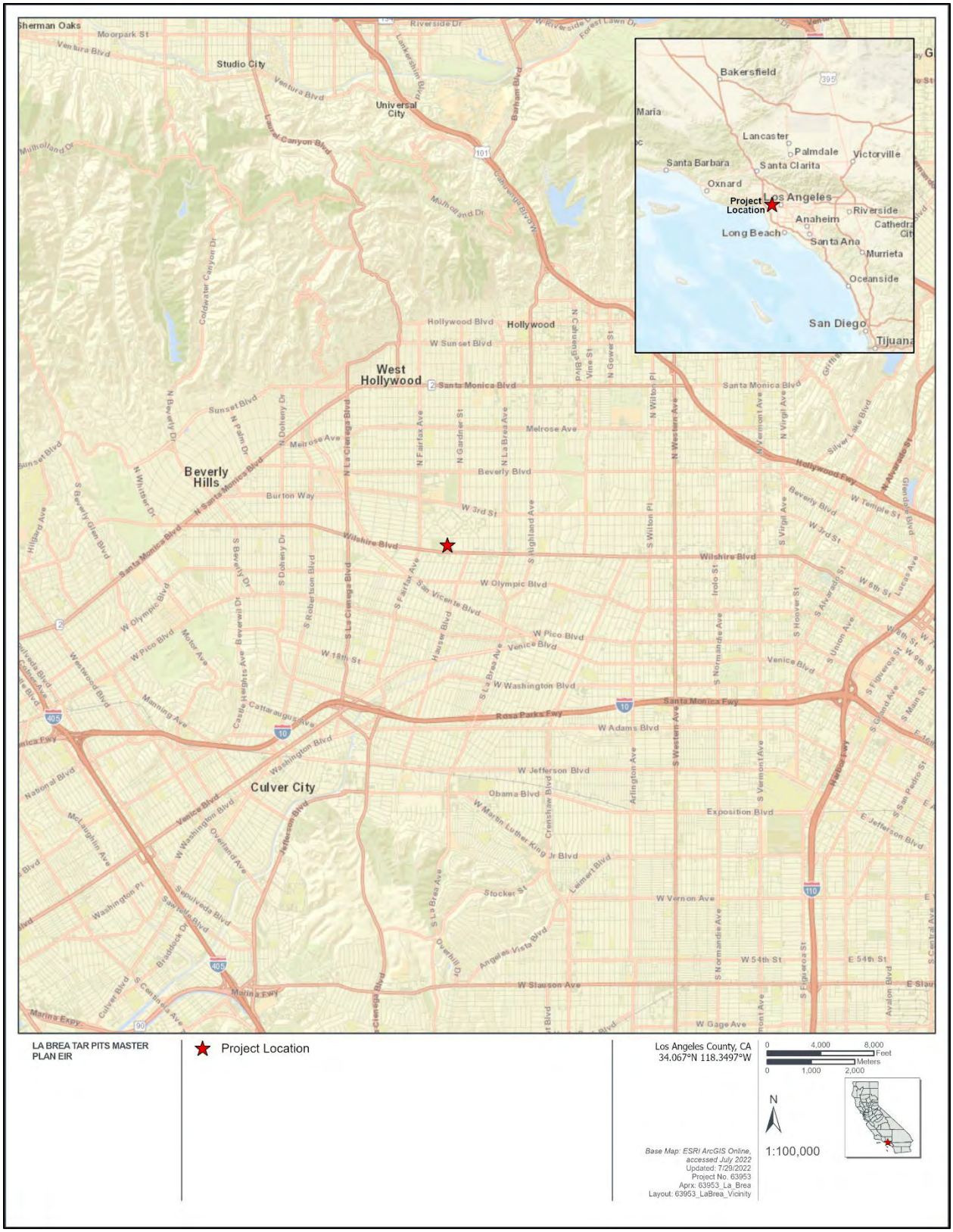

Figure 1. Project vicinity map.

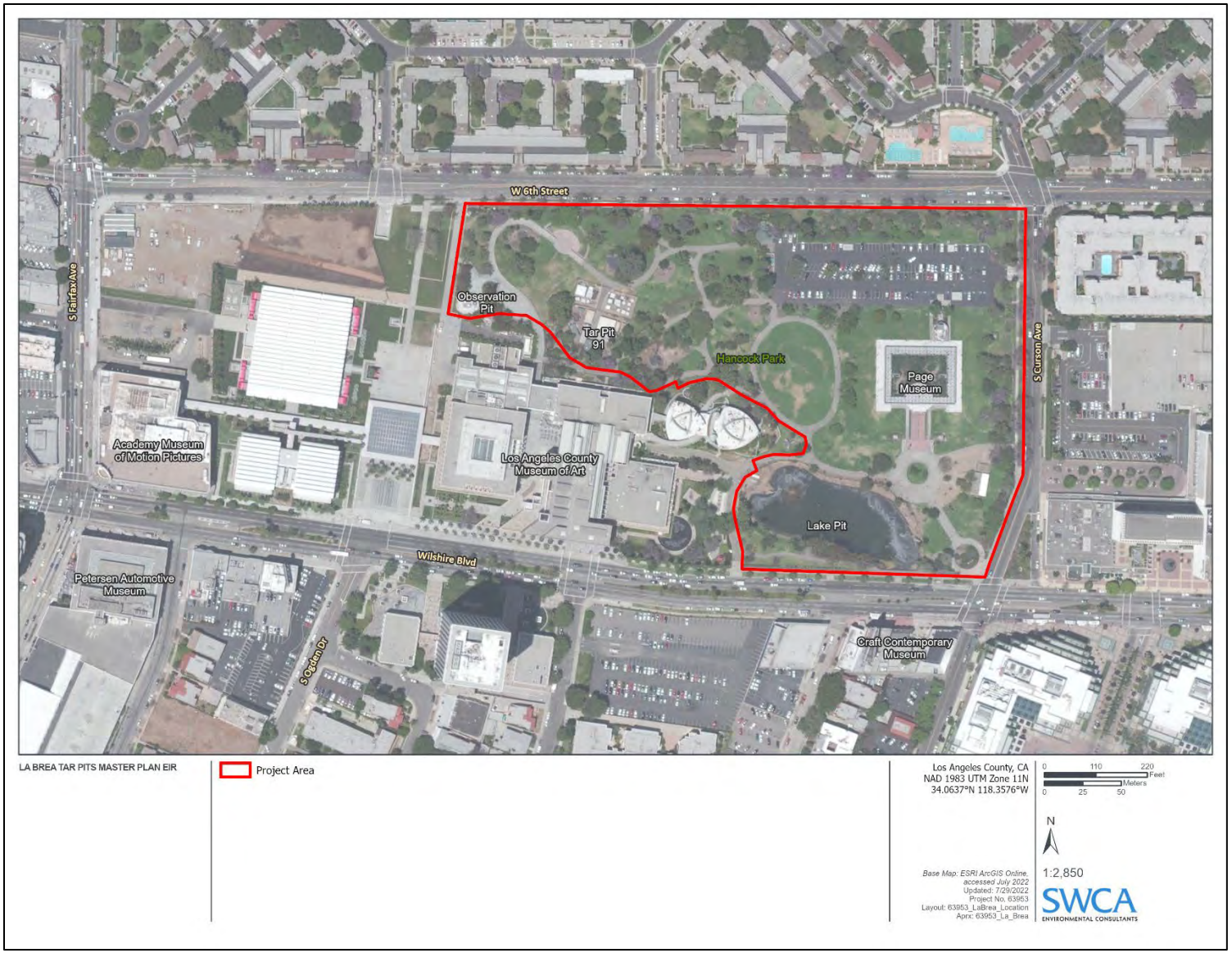

Figure 2. Project location map.

1.1 Existing Conditions and Surrounding Land Uses

The project site includes 13 acres of the eastern and northwestern portions of Hancock Park and broadly encompasses what is known as the La Brea Tar Pits, which includes the Page Museum (see Figure 2). The entirety of Hancock Park is enclosed within an 8- to 10-foot-high metal fence, which serves to secure the site by providing full closure of Hancock Park when the La Brea Tar Pits, Page Museum, and LACMA are closed in the evenings.

The George C. Page Museum is approximately 63,200 square feet and is located on the eastern portion of the project site. The project site contains multiple active fossil quarries, commonly called "tar pits." The active tar pits (Pits 3, 4, 9, 13, 61, 67, and 91) are located within the northwestern portion of the project site, along with the Observation Pit on the western boundary of the project site. Project 23[1] and Pit 91 are active fossil recovery and excavation sites also located in the northwestern portion of the project site. The Lake Pit is the largest paleontological excavation pit on the grounds of Hancock Park, located in the southeastern portion of the project site.

The project site includes an approximately 28,000-square-foot multipurpose grass lawn, known as the Central Green, located to the west of the Page Museum. Parking for the La Brea Tar Pits is located in the northeast corner of the project site, at the corner of South Curson Avenue and West 6th Street (see Figure 2). Vehicles enter and depart the lot from both directions on South Curson Avenue.

The project site is surrounded by a variety of commercial uses, museums, residential buildings, and schools. The project site is bounded by the Park La Brea Pool and multi-family residential uses to the north across West 6th Street, commercial and residential uses to the east across South Curson Avenue, the Craft Contemporary Museum and other museum and commercial uses south across Wilshire Boulevard, and museum and commercial uses to the west (see Figure 2).

2.2 Project Description

The project would result in a reimagined site design, expansion, and upgrades for the La Brea Tar Pits complex and portions of Hancock Park, including renovations to the Page Museum (Figure 3). Table 1 provides a summary of the project components; more detail on the project components is provided following the table.

2.2.1 Page Museum Renovations

The project would renovate the existing Page Museum within the same footprint as the existing building (currently approximately 63,200 square feet) to allow for enlarged exhibition space, additional storage, a ground floor café, and retail space. The central atrium would be renovated to provide additional exhibitions and provide additional classroom and laboratory space. The second floor of the Page Museum would contain two classrooms and a multipurpose space. An outdoor café and bar would be located next to these spaces on the center terrace on the west side of the Page Museum. A sloped green roof would be installed to the north of the Page Museum and would curve to the west. The project would add several sustainability features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and rooftop solar photovoltaic panels.

[1] During construction on the LACMA parking garage in 2006, 16 new paleontological deposits were discovered, including an almost-complete skeleton of an adult mammoth. Given the size of the discoveries, 23 large wooden boxes were built around the various deposits, allowing many of the discoveries to remain intact. "Project 23" has now become the short-hand descriptor for the location and activities related to the excavation of deposits within the 23 large wooden boxes that is now occurring in a portion of the La Brea site.

Table 1. Project Components Summary

Project Component	Description
Page Museum Renovations	Renovate existing building in same footprint (approximately 63,200 square feet). Demolish existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. Construct new 2,000-gross-square-foot (gsf) satellite maintenance and support building.
New Museum Building	Construct a new two-story 40,000-gsf museum building northwest of the Page Museum, including two new theaters.
Wilshire Gateway	Renovate the existing entrance to the La Brea Tar Pits at Wilshire Boulevard and South Curson Avenue with shaded canopy and new welcome pavilion.
The Lake Pit	Construct a pedestrian bridge and walking path over the Lake Pit. Install a new garden bioswale.
6th Street Gateway	Renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA service drive with shaded canopy and new welcome pavilion.
Tar Pits (Pits 3, 4, 9, 13, 61, 67, and 91; Project 23)	Renovate the existing facilities at all the tar pits in the northwestern portion of the project site.
Pedestrian Path and Recreation Areas	Reconfigure the existing pedestrian pathways on-site into a continuous 1-kilometer-long paved pedestrian path linking existing features on the project site. Improvements to the Central Green (establish a drivable path for food truck access). Establish a children's play area, picnic areas, and a small dog park west of the 6th Street Gateway.
Circulation and Parking	Expand existing parking lot from 63,000 square feet to 65,000 square feet and relocate approximately 50 to 70 feet to the north. This would require removal and relocation of existing trees on-site. Increase vehicle parking spaces approximately 5 to 15 spaces for a total of 160 to 170 vehicle parking spaces. Addition of new landscaping and vehicle access lanes to the parking lot. Establish new school drop-off/loading area approximately 215 to 230 feet long on South Curson Avenue adjacent to the Wilshire Gateway picnic area.
Landscaping Concept Plan	Establish three distinct landscaping zones encircled by looping pedestrian path. Creation of biofiltration areas for stormwater management. Introduction or relocation of approximately 84 trees from existing locations on-site to new locations on-site.

In addition, the project would demolish the existing maintenance building and service facilities along the northern boundary, directly west of the parking lot. A new 2,000-gross-square-foot (gsf) satellite maintenance and support building would be constructed for additional storage, administration, and research space directly west of the parking lot.

Figure 3. Proposed site plan.

2.2.2 New Museum Building

A new two-story museum building would be located to the northwest of the Page Museum (see Figure 3). The building would be approximately 40,000 gsf and would increase the total museum square footage to 104,000 gsf. The new museum building would include an extended central lobby, exhibit spaces, two theaters, a mechanical equipment room, research and collections rooms, administration spaces, and a loading dock.

The Page Museum and new museum building would be continuously connected on the first floor. The first-floor central lobby would face southwest toward the Central Green and branch off into the Page Museum to the east and the new museum building to the west. An updated retail and café space would be located off the lobby and look out over the Central Green. The Page Museum and the new museum buildings would be disconnected on the second floor, which would rise above the earthen berm. The separated facilities would be accessible through sloped outdoor walkways from the Central Green or interior staircases in the museum. There would be pedestrian entrances leading into the central lobby from the Central Green and from the parking lot. The existing Page Museum entrance would be converted to an educational group and tour entrance, which would be connected to a new school drop-off area on South Curson Avenue.

2.2.3 Entrance Renovation and Other Internal Circulation Improvements

The project would renovate the existing entrance to the La Brea Tar Pits located at Wilshire Boulevard and South Curson Avenue. A large, shaded canopy would stretch down Wilshire Boulevard and curve around to South Curson Avenue to create a new welcome pavilion and shaded entry plaza; this would provide orientation, spaces for gathering and queuing, and restrooms (see Figure 3). A picnic area would also be located under the shaded canopy.

A pedestrian bridge and walking path would be constructed over the Lake Pit. Directly to the east of the Lake Pit, a new garden bioswale would be installed to manage stormwater and would include vegetation related to the relocated mammoths and mastodon sculptures.

A school drop-off area on South Curson Avenue would lead directly to the education museum entrance, enabling the choreography of student tour itineraries that are distinct from general museum visitors and other tour groups.

The project would renovate the existing entrance at the northwest corner of West 6th Street and the entrance to the LACMA parking garage. Similar to the Wilshire Gateway, a shaded canopy and welcome pavilion would provide orientation, legibility, and amenities. As a visible point of arrival from the residential communities to the north, this new entry would welcome visitors to a shaded park space where community park and recreational needs are balanced with the research activities of La Brea. Under the canopy of shade trees, visitors would find diverse destinations, including play areas, picnic areas, seating and interpretation zones at the protected tar seeps, the gentle topography and bioswales along Oil Creek, and the revitalized destinations of the Dorothy Brown Amphitheater, Observation Pit, and Pit 91. Along the south edge of the loop path, connections would allow access to other Hancock Park programs and transportation connections.

2.3 Construction Time Frame and Phasing

Construction of the project, from mobilization to the site to final completion, is expected to occur between 2024 and 2028, and would last for approximately 4 years. The project would be constructed in five

phases: 1) demolition and site preparation of the project site; 2) installation of infrastructure improvements; 3) development of the proposed new museum building and parking lot; 4) landscaping and hydroseeding; and 5) roadway improvements.

The energy analysis is based on default values in the latest versions of the California Emission Estimator Model (CalEEMod) Version 2022.1 (California Air Pollution Officers Association 2022) and Emission Factors Model (California Air Resources Board [CARB] 2021). Accordingly, this energy analysis has been conducted with the most recent available tools prepared and accepted by the regulatory agencies. The project phases have been grouped into six CalEEMod phases based on the types of equipment and workload: 1) demolition; 2) site preparation; 3) grading; 4) building construction; 5) paving; and 6) architectural coating.

The 13-acre project site has been divided into the following land uses for purposes of CalEEMod: 1) parking; 2) other non-asphalt surfaces; 3) educational library; and 4) recreational city park. This energy analysis includes quantification of electricity, natural gas, gasoline, and diesel fuel that would be required to construct and operate the project. Construction energy use includes off-road equipment and on-road mobile sources. Sources of operational energy use include building energy use, parking area energy use, on-road mobile sources, and water distribution and treatment.

3 ENVIRONMENTAL SETTING

3.1 Energy Profile

Total energy usage in California was 6,923 trillion British Thermal Units (Btu) in 2020 (the most recent year for which these specific data are available), which equates to an average of 175 million Btu per capita. These figures place California second among the nation's 50 states in total energy use and 48th in per-capita consumption. Of California's total energy usage, the breakdown by sector is roughly 34% transportation, 25% industrial, 20% commercial, and 22% residential. Electricity and natural gas in California are primarily consumed by stationary users such as residential dwellings and commercial and industrial facilities, whereas petroleum-based fuel is primarily consumed by transportation-related energy use (U.S. Energy Information Administration [EIA] 2020a).

California relies on a regional power system composed of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Approximately 70% of the electrical power needed to meet California's demand is produced in the state, while approximately 30% is imported from power-generating facilities outside of California, including imports from Mexico. In 2021, California's in-state electricity use was derived from natural gas (50%), coal (0.2%), large hydroelectric resources (6%), nuclear sources (8%), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (35%) (California Energy Commission [CEC] 2021a).

3.2 Electricity

In 2021, total system electric generation for California was 277,764 gigawatt-hours (GWh), increased 2% from 2020's total generation. Electricity from non–carbon dioxide-emitting electric generation categories (i.e., nuclear, large hydroelectric, and renewable generation) accounted for 49% of total in-state generation for 2021, compared to 51% in 2020 (CEC 2021a). The change is attributable to the continued impacts from California drought. In-state hydroelectric generation was significantly reduced, some 32% lower than 2020 generation levels. The net imports increased by about 2.4% in 2021, partially offsetting the decreased output from California's hydroelectric power plants. The overall decline observed in

California's total system electric generation for 2020 is consistent with the recently published *California Energy Demand 2018–2030 Revised Forecast* (CEC 2018).

Total system electric generation for California was slightly increased in 2021. Factors contributing to the increase in total system electric generation include growth in the number of light-duty electric vehicles registered in the state, increased manufacturing electricity consumption, and decreases in savings from energy efficiency programs, as population increases.

Increasingly, electricity is used in multiple transportation modes, including light-duty vehicles, transit buses, and light and heavy rail. In California, electricity use is forecast to emerge in battery-electric medium-duty trucks, battery-electric buses, and high-speed rail. The CEC forecasts that the statewide annual electricity demand for electricity-powered transportation modes will increase from its current level of 2,000 GWh to between 12,000 and 18,000 GWh by 2030, depending on technology development and market penetration of the various vehicle types (CEC 2021b).

The electricity services provided to the project site would be provided by the Los Angeles Department of Water and Power (LADWP), which is a proprietary department of the City of Los Angeles. The LADWP provides electrical service throughout the city of Los Angeles, serving approximately 4 million people within a service area of approximately 465 square miles. The Valley Planning District includes the LADWP service area north of Mulholland Drive, and the Metropolitan Planning District includes the LADWP service area south of Mulholland Drive. The project site is located within LADWP's Metropolitan Planning District.

LADWP generates power from a variety of energy sources, including hydropower, coal, gas, nuclear sources, and renewable resources, such as wind, solar, and geothermal sources. According to LADWP's 2017 Power Strategic Long-Term Resource Plan, LADWP has a net dependable generation capacity greater than 7,531 MW (LADWP 2017). On August 31, 2017, LADWP's power system experienced a record instantaneous peak demand of 6,502 MW (LADWP 2022). Approximately 35% of LADWP's 2021 electricity purchases were from renewable sources, which is similar to the 32% statewide percentage of electricity purchases from renewable sources (LADWP 2021). The annual electricity sale to customers for the 2018–2019 fiscal year was approximately 22,663 million kilowatt hours (kWh). LADWP customers consume approximately 10% of all the electricity consumed in California, while LADWP has a transmission capacity of approximately 25% of California's total transmission capacity. LADWP owns and/or operates approximately 20,000 miles of alternating current (AC) and direct current (DC) transmission and distribution circuits, operating at voltages ranging from 120 volts to 500 kilovolts (kV), which are used to deliver electricity from generating plants to customers. The LADWP transmission and distribution system supplies power to the project site from as many as 34 different sources. LADWP supplies electrical power to the project site from electrical service lines located in the project vicinity.

3.3 Natural Gas

One third of energy commodities consumed in California is natural gas. Although natural gas is the most common energy source for electricity generation in California, 90% of the state's natural gas is imported from the Rocky Mountain region, the Southwest, and Canadian basins. Californians consumed 13,158 million therms of natural gas in 2019, which is equal to approximately 1,315,800,000 million Btu (MMBtu) (California Public Utilities Commission [CPUC] 2021). The natural gas market continues to evolve and service options expand, but its use falls mainly into the following four sectors: residential, commercial, industrial, and electric power generation. In addition, natural gas is a viable alternative to petroleum fuels for use in cars, trucks, and buses. Nearly 45% of the natural gas burned in California is used for electricity generation, and most of the remainder is consumed in the residential (21%), industrial (25%), and commercial (9%) sectors. California depends on out-of-state imports for nearly 90% of its

natural gas supply (CPUC 2021). Natural gas has become an increasingly important source of energy since the majority of the state's power plants rely on this fuel.

The natural gas services provided to the project site would be provided by LADWP. Natural gas provides almost one third of the state's total energy requirements and is used in electricity generation space heating, cooking, watering, industrial processes, and as transportation fuel. Natural gas is provided by Southern California Gas Company (SoCalGas). SoCalGas gas serves approximately 21.4 million customers and more than 500 communities encompassing approximately 20,000 square miles throughout central and southern California. SoCalGas receives gas supplies from several sedimentary basins in the western United States and Canada, including supply basins located in New Mexico, west Texas, the Rocky Mountains, and western Canada, as well as local California supplies. The traditional, southwestern United States sources of natural gas will continue to supply most of SoCalGas's natural gas. Gas supply available to SoCalGas from California sources was approximately 2.4 billion cubic feet per day in 2021.

3.4 Transportation Fuels

The energy consumed by the transportation sector accounts for roughly 86% of California's petroleum products demand. Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the CEC, the state relies on petroleum-based fuels for 98% of its transportation needs. The transportation sector, including on-road and rail transportation (but excluding aviation), accounts for more than 95% of all motor gasoline use in the United States, at roughly 3.28 million barrels consumed in 2018. California has the second highest transportation-sector petroleum fuel consumption rate of any state and the highest motor gasoline consumption rate. In 2019, approximately 30% of California's crude oil was produced within the state, about 12% was produced in Alaska, and the remaining 58% was produced in foreign lands (CEC 2021a).

In 2019, taxable gasoline sales (including aviation gasoline) in California accounted for approximately 15.4 billion gallons of gasoline, and taxable diesel fuel sales accounted for approximately 3.1 billion gallons of diesel fuel (California Department of Tax and Fee Administration [CDTFA] 2021).

The CEC forecasts that demand for gasoline in California will range from 12.1 billion to 12.6 billion gallons in 2030, with most of the demand generated by light-duty vehicles. While the models show an increase in light-duty vehicles along population and income growth over the forecast horizon, total gasoline consumption is expected to decline, primarily due to increasing fuel economy (stemming from federal and state regulations) and gasoline displacement from the increasing market penetration of zero emission vehicles (ZEVs). For diesel, demand is forecast to increase modestly by 2030, following the growth of California's economy, but would be tempered by an increase in fleet fuel economy and market penetration of alternative fuels, most prominently by natural gas in the medium- and heavy-duty vehicle sectors (EIA 2020b).

As of 2019, California's oil fields make it the seventh largest petroleum-producing state in the United States (federal off-shore excluded), behind Texas, North Dakota, New Mexico, Oklahoma, Colorado, and Alaska. Crude oil is moved from area to area within California through a network of pipelines that carry it from both onshore and offshore oil wells to the refineries that are located in the San Francisco Bay Area, the Los Angeles area, and the Central Valley. As of January 1, 2020, 14 petroleum refineries operate in California, processing approximately 2.0 million barrels per day of crude oil. Other transportation fuel sources used in California include alternative fuels, such as methanol and denatured ethanol (alcohol mixtures that contain no less than 70% alcohol), natural gas (compressed or liquefied), liquefied petroleum gas, hydrogen, and fuels derived from biological materials (i.e., biomass) (CEC 2021c).

According to the CEC, transportation accounted for 34% of California's total energy consumption in 2020 (EIA 2020a). In 2021, California consumed 13.8 billion gallons of gasoline and 3.1 billion gallons of diesel fuel (CDTFA 2021). Petroleum-based fuels currently account for 89% of California's transportation energy sources. However, the State is now working on developing flexible strategies to reduce petroleum use. Over the last decade, California has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and greenhouse gases (GHGs) from the transportation sector, and reduce vehicle miles traveled (VMT). Accordingly, gas consumption in California has declined. The CEC predicts that the demand for gasoline will continue to decline over the next 10 years, and there will be an increase in the use of alternative fuels. According to CARB's EMFAC database, Los Angeles County on-road transportation sources consumed 3.81 billion gallons of gasoline and 0.51 billion gallons of diesel fuel in 2021 (CARB 2021).

The existing on-site land uses currently generate a demand for transportation-related fuel use as a result of vehicle trips to and from the project site. Persons traveling to and from the project site also have the option of using public transportation to reduce transportation-related fuel use. The project site is located in an area well served by public transit provided by Los Angeles County Metropolitan Transportation Authority, the Los Angeles Department of Transportation, and the Antelope Valley Transit Authority, including the future Wilshire/Fairfax Station (as part of the Metro Purple Line Extension Project).

4 REGULATORY SETTING

4.1 Federal

Federal policies and regulations set broad energy efficiency standards and incentives for consumer products, automobile and fuel efficiency, etc. Such requirements, as those listed below, tend to be applicable to the manufacturing sector and not directly applicable to the project, but are listed here for informational purposes.

4.1.1 National Energy Policy Act of 2005

The National Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products (including hybrid vehicles), constructing energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Executive Order (EO) 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government and sets more challenging goals than the Energy Policy Act of 2005. The energy reduction and environmental performance requirements of EO 13423 were expanded upon in EO 13514 (Federal Leadership in Environmental, Energy, and Economic Performance), which was signed in 2009.

The Energy Policy and Conservation Act of 1975 (EPCA) is a United States Act of Congress that responded to the 1973 oil crisis by creating a comprehensive approach to federal energy policy. The primary goals of the EPCA are to increase energy production and supply, reduce energy demand, provide energy efficiency, and give the executive branch additional powers to respond to disruptions in

energy supply. Most notably, EPCA established the Strategic Petroleum Reserve, the Energy Conservation Program for Consumer Products, and Corporate Average Fuel Economy regulations.

4.1.2 Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting mandatory Renewable Fuel Standards (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25% greater efficiency for lightbulbs by phasing out incandescent lightbulbs between 2012 and 2014; requiring approximately 200% greater efficiency for lightbulbs, or similar energy savings, by 2020; and
- While superseded by the United States Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration (NHTSA) actions described above, 1) establishing miles per gallon targets for cars and light trucks, and 2) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of the Energy Independence and Security Act address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs.” A “green job,” as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.

4.1.3 Corporate Average Fuel Economy (CAFE) Standards

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) Standards (49 Code of Federal Regulations 531 and 533) reduce energy consumption by increasing the fuel economy of cars and light trucks. The NHTSA and EPA jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for: 1) technological feasibility; 2) economic practicality; 3) effect of other standards on fuel economy; and 4) need for the nation to conserve energy. When these standards are raised, automakers respond by creating a more fuel-efficient fleet. In 2012, the NHTSA established final passenger car and light truck CAFE standards for model years 2017 through 2021, which the agency projects will require in model year 2021, on average, a combined fleet-wide fuel economy of 40.3 to 41.0 miles per gallon (mpg). Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by EPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6% to 23% over the 2010 baseline, depending on the vehicle type.

The EPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5% to 25% reduction in fuel consumption over the 2017 baseline, depending on the compliance year and vehicle type.

In March 2020, the EPA and NHTSA issued the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule that would maintain the CAFE standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE standards for model year 2020 are 43.7 mpg for passenger cars and 31.3 mpg for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. However, consistent with President Biden's executive order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, the EPA and NHTSA are now evaluating whether and how to replace the SAFE Rule.

4.2 State

4.2.1 California Building Energy Efficiency Standards (Title 24, Part 6)

The 2019 California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations [CCR], Title 24, Part 6), commonly referred to as "Title 24," became effective on January 1, 2020. In general, Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Under 2019 Title 24 standards, nonresidential buildings would use about 30% less energy, mainly due to lighting upgrades, when compared to those constructed under 2016 Title 24 standards. The 2019 Title 24 standards require installation of energy-efficient windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses. All new structures associated with the project would be required to comply with Title 24 standards for energy efficiency.

4.2.2 California Green Building Standards (CALGreen, or Title 24 Part 11)

The CALGreen Code (CCR, Title 24, Part 11), is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt, which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2019 and went into effect on January 1, 2020. CALGreen requires new buildings to reduce water consumption by 20%, divert 50% of construction waste from landfills, and install low pollutant-emitting materials.

4.2.3 Appliance Efficiency Regulations, California Code of Regulations Title 20

California's Appliance Efficiency Regulations (20 CCR Part 1601-1608) contain standards for both federally regulated appliances and non-federally regulated appliances. The regulations are updated regularly to allow consideration of new energy efficiency technologies and methods. The current regulations were adopted by the CEC on November 18, 2009. The standards outlined in the regulations apply to appliances that are sold or offered for sale in California. More than 23 different categories of appliances are regulated, including refrigerators, freezers, water heaters, washing machines, dryers, air conditioners, pool equipment, and plumbing fittings.

4.2.4 Renewables Portfolio Standard Program

First established in 2002 under Senate Bill (SB) 1078, California's Renewables Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33% by 2020 and 50% by 2030. SB 350, signed October 7, 2015, is the Clean Energy and Pollution Reduction Act of 2015. The objectives of SB 350 are: 1) to increase the procurement of electricity from renewable sources from 33% to 50%; and 2) to double the energy savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation. On September 10, 2018, former Governor Jerry Brown signed SB 100, which further increased California's RPS and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, and that the CARB should plan for 100% eligible renewable energy resources and zero-carbon resources by December 31, 2045.

The CPUC and the CEC jointly implement the RPS program. The CPUC's responsibilities include: 1) determining annual procurement targets and enforcing compliance; 2) reviewing and approving each investor-owned utility's renewable energy procurement plan; 3) reviewing contracts for RPS-eligible energy; and 4) establishing the standard terms and conditions used in contracts for eligible renewable energy. In March 2021, the CEC, CPUC, and CARB issued an SB 100 Joint Agency Report that assesses barriers and opportunities to implementing the 100% clean electricity policy. The report's initial findings suggest that the goals of SB 100 are achievable, though opportunities remain to reduce overall system costs; however, the report also notes that the findings are intended to inform state planning and are not intended as a comprehensive nor prescriptive roadmap to 2045, and future work is needed on critical topics such as system reliability and land use to further address energy equity and workforce needs. On April 12, 2011, Governor Brown signed into law SB 2X, which modified California's RPS program to require that both public and investor-owned utilities California receive at least 33% of their electricity from renewable sources by the year 2020. SB 2X also requires regulated sellers of electricity to meet an interim milestone of procuring 25% of their energy supply from certified renewable sources by 2016. These levels of reduction are consistent with the LADWP's commitment to achieve 35% renewable energy by 2020. LADWP indicated that 35.2% of its electricity came from renewable resources in year 2021 (LADWP 2021). Therefore, under SB 2X, LADWP currently meets its RPS requirement.

4.2.5 SB 375 (Sustainable Communities Strategies)

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan (since updated to 2022 Climate Change Scoping Plan [CARB 2022]) for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associate with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 18 metropolitan planning organizations. The Southern California Association of Governments (SCAG) is the metropolitan planning organization for the Southern California region, which includes Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial Counties.

4.2.6 Executive Order S-14-08 and S-21-09

In November 2008, then-Governor Schwarzenegger signed EO S-14-08, which expanded the state's RPS to 33% renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the RPS by signing EO S-21-09, which directed the CARB under its

Assembly Bill (AB) 32 authority to enact regulations to help the state meet its RPS goal of 33% renewable energy by 2020.

4.2.7 SB 350—Clean Energy and Pollution Reduction Act of 2015

SB 350, also known as the Clean Energy and Pollution Reduction Act of 2015, was enacted on October 7, 2015, and provides a new set of objectives in clean energy, clean air, and pollution reduction by 2030. The objectives include the following:

1. To increase from 33% to 50% by December 31, 2030, the procurement of California's electricity from renewable sources.

2. To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

4.2.8 Senate Bill 100

On September 10, 2018, then-Governor Brown signed SB 100, establishing that 100% of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both Investor Owned Utilities and Publicly Owned Utilities from 50% to 60% by 2030. Incrementally, these energy providers are also required to have a renewable energy supply of 33% by 2020, 44% by 2024, and 52% by 2027.
The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350. On the same day that SB 100 was signed, then-Governor Brown signed EO B-55-18, with a new statewide goal to achieve carbon neutrality (zero-net GHG emissions) by 2045 and to maintain net negative emissions thereafter.

4.2.9 Senate Bill 1389

SB 1389 (PRC Sections 25300–25323) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (PRC Section 25301[a]). The 2021 Integrated Energy Policy Report, the latest published report from CEC, provides the results of the CEC's assessments related to energy sector trends, building decarbonization and energy efficiency, zero-emission vehicles (ZEVs), energy equity, climate change adaptation, electricity reliability in Southern California, natural gas assessment, and electricity, natural gas, and transportation energy demand forecasts (CEC 2022a).

4.2.10 2017 Climate Change Scoping Plan

In response to the passage of AB 32 and the identification of the statewide 2030 GHG reduction target (i.e., 40% below statewide 1990 level GHG emissions by 2030), CARB adopted the 2017 Climate Change Scoping Plan in December 2017. In May 2022, an updated climate scoping plan was published. The 2022 Climate Change Scoping Plan identifies technologically feasible and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health. The 2022 Climate Change Scoping Plan includes policies to require direct GHG reductions at some of the state's largest stationary sources and mobile sources. These policies include the use of lower-GHG fuels,

efficiency regulations, and the Cap-and-Trade program, which constrains and reduces emissions at covered sources.

4.2.11 AB 1007 (Pavley)—Alternative Fuel Standards

AB 1007 (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80% reduction in GHG emissions associated with personal modes of transportation, even as California's population increases.

4.2.12 California Assembly Bill 1493 (AB 1493, Pavley)

In response to the transportation sector accounting for more than half of California's carbon dioxide emissions, AB 1493 (commonly referred to as CARB's Pavley regulations), enacted on July 22, 2002, requires CARB to set GHG emission standards for new passenger vehicles, light-duty trucks, and other vehicles manufactured in and after 2009 whose primary use is non-commercial personal transportation. Phase I of the legislation established standards for model years 2009–2016 and Phase II established standards for model years 2017–2025. In September 2019, the EPA published the SAFE Vehicles Rule in the Federal Register (Vol. 84, No. 188, Friday, September 27, 2019, Rules and Regulations, 51310–51363) that maintains the vehicle mpg standards applicable in model year 2020 for model years 2021 through 2026. In November 2019, California and 23 other States and environmental groups filed a petition in the U.S. District Court in Washington, D.C., for the EPA to reconsider the published rule. The Court has not yet ruled on these petitions.

In March 2020, despite the pending petitions, the U.S. Department of Transportation and the EPA issued the SAFE Vehicles Rule, which amends existing CAFE standards and tailpipe carbon dioxide emissions standards for passenger cars and light trucks.

4.2.13 Low Carbon Fuel Standard

The Low Carbon Fuel Standard (LCFS), established in 2007 through EO S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products, starting with a 0.25% reduction in 2011. and culminating in a 10% total reduction in 2020. In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20% by 2030.

Petroleum importers, refiners, and wholesalers can either develop their own low carbon fuel products or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

4.2.14 Executive Order B-16-12—2025 Goal for Zero Emission Vehicles

In March 2012, then-Governor Brown issued an executive order establishing a goal of 1.5 million ZEVs on California roads by 2025. In addition to the ZEV goal, EO B-16-12 stipulated that by 2015, all major cities in California will have adequate infrastructure and be "zero-emission vehicle ready"; that by 2020, the state will have established adequate infrastructure to support 1 million ZEVs; and that by 2050, virtually all personal transportation in the state will be based on ZEVs, and GHG emissions from the transportation sector will be reduced by 80% below 1990 levels.

4.2.15 CARB's Advanced Clean Car Program

The Advanced Clean Cars emissions-control program was approved by CARB in 2012, and is closely associated with the Pavley regulations. The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the ZEV regulations to require manufactures to produce an increasing number of pure ZEVs (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles between 2018 and 2025. Due to the federal adoption of the Final Safer Affordable Fuel Efficient (SAFE) Rule, new cars of model years 2021 through 2026 are not currently required to achieve the fuel economy targets set by the Advanced Clean Cars program.

The Mobile Source Strategy of 2016 includes an expansion of the Advanced Clean Cars program and further increases the stringency of GHG emissions for all light-duty vehicles, and 4.2 million zero emission and plug-in hybrid light-duty vehicles by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025, as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for Class 3 through Class 7 "last mile" delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45% reduction in GHG emissions and a 50% reduction in the consumption of petroleum-based fuels.

CARB's Mobile Source Strategy includes measures to reduce total light-duty VMT by 15% compared to forecasted 2050 VMT with no measures enacted. In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower, such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

4.2.16 Airborne Toxic Control Measure to Limit Diesel-Fueled Vehicle Idling

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (13 CCR Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In 2021, California consumed 13.8 billion gallons of gasoline and 3.1 billion gallons of diesel fuel (CDTFA 2021). Off-road construction equipment also consumes fuel while idling. CARB implemented the Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling limits idling to 5 minutes at any one location. This was done to save fuel because CARB estimated that heavy-duty vehicles (off-road equipment) can consume up to 1 gallon of diesel fuel per hour of idling, which can total to 1,500 gallons of diesel fuel per year for vehicles that could idle for 1,500 hours in a year. By implementing this rule, idling is greatly reduced, and the use of diesel fuel is reduced.

4.2.17 Executive Order B-48-18

On January 26, 2018, then-Governor Brown issued an executive order establishing a goal of 5 million ZEVs on California roads by 2030, and spur the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 DC fast chargers, and 200 hydrogen refueling stations by 2025.

4.2.18 Executive Order N-79-20

In September 2020, Governor Newsom signed EO N-79-20, which sets a new State goal that 100% of in-state sales of new passenger cars and trucks will be zero-emission by 2035; that 100% of medium- and heavy-duty vehicles in the state will be zero-emission by 2045 for all operations where feasible, as well as by 2035 for drayage trucks; and that 100% of off-road vehicles and equipment will be zero-emission by 2035 where feasible. This order calls upon state agencies including CARB, the CEC, the CPUC, the Department of Finance, and others to develop and propose regulations and strategies to achieve these goals.

4.3 Regional

4.3.1 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)

SB 375 requires each metropolitan planning organization to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan (RTP). In general, the SCS outlines a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light-duty trucks and thereby reduce GHG emissions from these sources. For the SCAG region, the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), adopted on September 3, 2020, is the current RTP/SCS and is an update to the 2016-2040 RTP/SCS.

The 2020-2045 RTP/SCS focuses on the continued efforts of the previous RTP/SCS plans for an integrated approach in transportation and land use strategies in development of the SCAG region through horizon year 2045. The 2020-2045 RTP/SCS projects that the SCAG region will meet the GHG per-capita reduction targets established for the SCAG region of 8% by 2020 and 19% by 2035. Additionally, its implementation is projected to reduce VMT per capita for the year 2045 by 4.1% compared to baseline conditions for the year. Rooted in the 2008 and 2012 RTP/SCS plans, the 2020-2045 RTP/SCS includes “Core Vision” that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together, and increasing investments in transit and complete streets.

4.4 County of Los Angeles

4.4.1 County of Los Angeles General Plan

The County of Los Angeles General Plan directs future growth and development and establishes goals, policies, and objectives that are established by the County to guide development in the unincorporated areas of the county and projects that are developed under County guidance. The County General Plan is also intended to serve as an advisory countywide document to coordinate land use planning, public service and facilities planning, circulation, environmental management and regional land use, and transportation initiatives with the county’s 88 incorporated cities.

The adopted County General Plan contains an Air Resources Element that addresses air quality and GHG emissions. Relevant goals encourage mixed-use development, the use of "green building" principles, energy and water efficiency, reducing vehicle miles traveled and vehicle trips, and promoting alternative modes of transportation. The Air Quality Element of the County General Plan establishes the following goals and policies applicable to the project pertaining to energy:

- Goal AQ3: Implementation of plans and programs to address the impact of climate change.
    - Policy AQ 3.2 - Reduce energy consumption of County operations by 20% by 2015.
    - Policy AQ 3.3 - Reduce water consumption of County operations.
    - Policy AQ 3.5 - Encourage energy conservation in new development and municipal operations.
    - Policy AQ 3.6 - Support rooftop solar facilities on new and existing buildings.

4.5 City of Los Angeles

While the project site is located within the city of Los Angeles, it is owned by the County and is proposed for uses that benefit the public. Accordingly, the project is subject to the regulatory controls of the County of Los Angeles and not the City of Los Angeles. Nonetheless, the policy and regulatory documents of the City of Los Angeles that are most relevant to the project are provided herein for informational purposes.

4.5.1 City of Los Angeles Green LA Action Plan

The City of Los Angeles adopted the Green LA Action Plan to provide energy conservation goals and objectives for its departments, including the LADWP, and to set a policy framework for future energy conservation programs. The plan, published in May 2007, sets forth a goal of reducing the city's GHG emissions to 35% below 1990 levels by the year 2030. Climate LA is the implementation program that provides detailed information about each action item listed in the Green LA framework. Climate LA includes focus areas addressing environmental issues including, but not limited to, energy, water, transportation, and waste. The energy focus area includes action items with measures that aim to increase the use of renewable energy to 35% by 2020, reduce the use of coal-fired power plants, and present a comprehensive set of green buildings policies to guide and support private sector development.

4.5.2 City of Los Angeles Green New Deal

In April 2019, Mayor Eric Garcetti released the Green New Deal, a program of actions designed to create sustainability-based performance targets through 2050 to advance economic, environmental, and equity objectives. The City's Green New Deal is the first 4-year update to the City's first Sustainable City pLAn that was released in 2015, and therefore replaces and supersedes the Sustainable City pLAn. It augments, expands, and elaborates in more detail the City's vision for a sustainable future and it tackles the climate emergency with accelerated targets and new aggressive goals. Within the Green New Deal, climate mitigation is one of eight explicit benefits that help define its strategies and goals. These include reducing GHG emissions through near-term outcomes:

- Reduce potable water use per capita by 22.5% by 2025; 25% by 2035; and maintain or reduce 2035 per-capita water use through 2050.
- Reduce building energy use per square foot for all building types 22% by 2025; 34% by 2035; and 44% by 2050 (from a baseline of 68 thousand British thermal units per square foot in 2015).
- All new buildings will be net zero carbon by 2030 and 100% of buildings will be net zero carbon by 2050.

- Increase cumulative new housing unit construction to 150,000 by 2025; and 275,000 units by 2035.
- Ensure 57% of new housing units are built within 1,500 feet of transit by 2025; and 75% by 2035.
- Increase the percentage of all trips made by walking, biking, micromobility/matched rides, or transit to at least 35% by 2025, 50% by 2035, and maintain at least 50% by 2050.
- Reduce VMT per capita by at least 13% by 2025; 39% by 2035; and 45% by 2050.
- Increase the percentage of electric and zero emission vehicles in the city to 25% by 2025; 80% by 2035; and 100% by 2050.
- Increase landfill diversion rate to 90% by 2025; 95% by 2035 and 100% by 2050.
- Reduce municipal solid waste generation per capita by at least 15% by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 pounds of waste generated per capita per day in 2011).
- Eliminate organic waste going to landfill by 2028.
- Reduce urban/rural temperature differential by at least 1.7 degrees by 2025; and 3 degrees by 2035.
- Ensure the proportion of Angelenos living within 0.5 mile of a park or open space is at least 65% by 2025; 75% by 2035; and 100% by 2050.

4.5.3 City of Los Angeles Green Building Code

Chapter IX of the Los Angeles Municipal Code (LAMC) is referred to as the “Los Angeles Green Building Code”. which incorporates by reference portions of the CALGreen Code. Specific mandatory requirements and elective measures are provided for three categories: 1) low-rise residential buildings; 2) nonresidential and high-rise residential buildings; and 3) additions and alterations to nonresidential and high-rise residential buildings. The Los Angeles Green Building Code includes mandatory measures for newly constructed nonresidential and high-rise residential buildings. The Los Angeles Green Building Code includes some requirements that are more stringent than State requirements such as increased requirements for electric vehicle charging spaces and water efficiency, which results in potentially greater energy demand reductions from improved transportation fuel efficiency and water efficiency.

4.5.4 City of Los Angeles Solid Waste Reduction and Diversion Programs and Ordinances

The waste produced on the project site would be removed by waste haulers subject to the City of Los Angeles solid waste diversion programs and ordinances. The recycling of solid waste materials contributes to reduced energy consumption. Specifically, when products are manufactured using recycled materials, the amount of energy that would have otherwise been consumed to extract and process virgin source material is reduced. For example, in 2015, 3.61 million tons of aluminum were produced by recycling in the United States, saving enough energy to produce electricity to 7.5 million homes.

The City of Los Angeles includes several programs and ordinances related to solid waste reduction and diversion. They include the following: 1) the RENEW LA Plan, which is a resource management blueprint with the aim to achieve a zero waste goal through reducing, reusing, recycling, or converting the resources now going to disposal so as to achieve an overall diversion level of 90% or more by 2025; 2) the Waste Hauler Permit Program, which requires all private waste haulers collecting solid waste to obtain compliance permits and to transport construction and demolition waste to City-certified construction and demolition processing facilities; and 3) the Exclusive Franchise System Ordinance, which, among other requirements, sets maximum annual disposal levels and specific diversion

requirements for franchise waste haulers and the City to promote solid waste diversion from landfills in an effort to meet the City's zero waste goals. These solid waste reduction programs and ordinances not only help to reduce the number of trips to haul solid waste, therefore reducing the amount of petroleum-based fuel, but also help to reduce the energy used to process solid waste.

5 IMPACT ANALYSIS

5.1 Methodology

This analysis addresses the project's potential energy usage, including electricity and transportation fuel. Energy consumption during both construction and operation is assessed. For purposes of this analysis, consistent with Appendix G of the State CEQA Guidelines, impacts associated with energy would be significant if the project would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The project's estimated energy consumption was calculated using CalEEMod Version 2022.1. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model uses widely accepted federal and state models for emission estimates and default data from sources such as EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as the CEC. The model quantifies direct emissions from construction and operations, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Additional details regarding CalEEMod assumptions for the project are presented in the *La Brea Tar Pits Master Plan Air Quality and Greenhouse Gas Technical Report* (SWCA 2022). Specific analysis methodologies are discussed below.

5.1.1 Construction Energy Estimates

5.1.1.1 OFF-ROAD EQUIPMENT

Off-road equipment is the most significant source of construction fuel usage. Diesel fuel consumption associated with on-site off-road construction equipment has been estimated based on the construction schedule, equipment list, and CARB-estimated diesel consumption rate for off-road equipment. Details on the construction schedule and equipment are provided in the *La Brea Tar Pits Master Plan Air Quality and Greenhouse Gas Technical Report* (SWCA 2022). For the purposes of the energy analysis, all equipment was assumed to be diesel-fueled; electricity- or gasoline-fueled equipment would not be expected to substantially affect energy resource demands. It is also important to note that engine tier does not affect fuel consumption rates. Fuel consumption rates in gallons per horsepower-hour were calculated from CARB's Off-road Diesel Emission Factors database. Further details on the fuel usage by year, construction phase, and equipment are shown in Appendix A.

5.1.1.2 ON-ROAD VEHICLES

On-road construction vehicles such as light-duty automobiles and trucks that workers would use for commuting to and from the construction site are assumed to be fueled by gasoline; and on-road trucks,

such as vendor and haul trucks for demolition debris, soil, and other material hauling, are assumed to be fueled by diesel fuel. This analysis conservatively assumes that no electric on-road vehicles would be used during construction of the project; electric vehicles would not be expected to substantially affect energy resource demands. The fuel quantities that would be required for on-road vehicles during construction have been calculated based on fuel efficiency factors estimated for each vehicle type using the EMFAC tool (CARB 2021). Fuel efficiency factors and energy use calculations are shown in Appendix A. CalEEMod defaults were used for the trip counts and for worker, vendor, and haul trip lengths. Summaries of the total estimated project construction energy use requirements for diesel fuel and gasoline are presented in Appendix A.

The project would be required to be compliant with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling limits idling to 5 minutes at any one location during the estimated 4-year construction period.

5.1.2 Operations

Project operations would require long-term consumption of energy in the form of electricity, natural gas, gasoline, and diesel fuel. The electricity, natural gas, and water usage that would be required for operation of the proposed buildings has been estimated based on project-specific building area estimates and CalEEMod default factors. Electricity would be used as the primary power source for the proposed buildings, including to operate the heating, ventilation, and air conditioning (HVAC) system.

In addition, water use for buildings would require the consumption of electricity to supply and distribute potable water to the buildings' water fixtures and to treat wastewater. Natural gas use for the buildings would primarily be associated with space and water heating. Mobile source fuel use associated with operation of the project has been estimated based on VMT and the fleet-average fuel consumption (in gallons per mile) from EMFAC (CARB 2021). CalEEMod calculates the annual VMT during operations using a fleet mix consisting of all different vehicle types accounting for the various traffic to the project site (visitors, workers, maintenance workers, etc.) at 3,905,278 VMT per year. This figure was used to calculate annual fuel usage.

In addition to the direct and indirect emissions created from project construction and operation, the project's renewable electricity generation would create an indirect emissions reduction of GHGs. The project would implement measures to further reduce energy consumption, such as enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and rooftop solar photovoltaic panels. However, the energy analysis presented in this report conservatively does not take credit for the reduction in energy usage due to implementation of these sustainability features. By including these features, the project avoids wasteful, inefficient, or unnecessary consumption of fuel or energy.

5.1.2.1 BUILDING AND FACILITY ENERGY USE

The new buildings and facilities would incorporate sustainability design features such as enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and rooftop solar photovoltaic panels. However, the energy analysis presented in this report conservatively does not take credit for the reduction in energy usage due to implementation of these sustainability features.

5.1.2.2 WATER SUPPLY, TREATMENT, AND DISTRIBUTION ENERGY USE

Additional electricity use is required to supply, treat, and distribute potable water and to treat the resulting wastewater. Site-level water usage was based on CalEEMod defaults for all land uses that make up the

project site. This is a conservative assumption as it does not take into account the installation of water-efficient appliances and drought-tolerant landscaping. Electricity usage rates for the supply and treatment of water were calculated using CalEEMod default factors.

5.1.2.3 MOBILE ENERGY USE

Mobile fuel usage for the project is detailed in Appendix A. Gasoline, diesel, natural gas, and electricity use rates were calculated based on CalEEMod default trip rates, default trip lengths, and fuel efficiency rates derived from EMFAC and the U.S. Department of Energy. Fuel efficiency for gasoline, diesel, and natural gas–fueled vehicles was calculated from EMFAC daily VMT and fuel consumption data, averaged across all vehicle categories for operations.

5.1.2.4 STATIONARY AND OFF-ROAD EQUIPMENT ENERGY USE

Three emergency generators and one forklift are included as part of the project operations.
The emergency generator and forklift diesel use for the project is calculated in Appendix A. Annual fuel usage was calculated based on fuel consumption rates (in gallons per hour) and annual operating hours.

5.2 Construction

During project construction, energy would be consumed in the form of electricity on a limited basis for powering lights, electronic equipment, and for water conveyance for dust control. Project construction would also consume energy in the form of petroleum-based fuels associated with the use of off-road construction vehicles and equipment on the project site, construction workers traveling to and from the project site, and delivery and haul truck trips (e.g., hauling of demolition material to off-site reuse and disposal facilities).

Table 2 provides a summary of the annual average electricity, gasoline fuel, and diesel fuel estimated to be consumed during project construction. As shown in Table 2, a total of 142,095 gallons of gasoline and 272,696 gallons of diesel is estimated to be consumed during project construction. Appendix A provides additional calculation details.

Table 2. Total Construction-Related Fuel Consumption

Diesel		
On-Road Construction Trips*	58,522	gallons
Off-Road Construction Equipment†	214,174	gallons
Diesel Total	***272,696***	***gallons***
Gasoline		
On-Road Construction Trips*	142,095	gallons
Off-Road Construction Equipment‡	0	gallons
Gasoline Total	***142,095***	***gallons***
Total	**414,791**	**gallons**

* On-road mobile source fuel use based on VMT from CalEEMod for construction and fleet-average fuel consumption in gallons per mile from EMFAC web-based data for South Coast Air Basin.

† Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallon of diesel per horsepower (HP)-hour, based on South Coast Air Quality Management District CEQA Air Quality Handbook, Table A9 -3E.

‡ All emissions from off-road construction equipment were assumed to be diesel.

Each of these is discussed and analyzed in greater detail in the sections below. As specified earlier, these figures represent a highly conservative estimate, in that it assumes the maximum volume of on-road and off-road construction equipment usage every day for each phase of construction.

5.2.1 Electricity

During construction of the project, electricity would be consumed, on a limited basis, to power lighting, electric equipment, and supply and convey water for dust control and for an on-site construction trailer. Electricity would be supplied to the project site by LADWP and would be obtained from the existing electrical lines that connect to the project site. The electricity demand at any given time would vary throughout the construction period based on the construction activities being performed and would cease upon completion of construction. Electricity use from construction would be short term, limited to working hours, used for necessary construction-related activities, and would represent a small fraction of the project's net annual operational electricity. When not in use, electric equipment would be powered off so as to avoid unnecessary energy consumption. Furthermore, the electricity used for off-road light construction equipment would have the co-benefit of reducing construction-related air pollutant and GHG emissions from more traditional construction-related energy in the form of diesel fuel. Therefore, impacts from construction electrical demand would be less than significant and would not result in the wasteful, inefficient, and unnecessary consumption of energy.

5.2.2 Natural Gas

As stated above, construction activities, including the construction of new buildings and facilities, typically do not involve the consumption of natural gas. Accordingly, natural gas would not be supplied to support project construction activities; thus, there would be no expected demand generated by construction of the project. Therefore, the project would result in no impacts from construction natural gas demand and would not result in the wasteful, inefficient, and unnecessary consumption of energy.

5.2.3 Transportation Energy

During project construction, on- and off-road vehicles would consume an estimated annual average of approximately 142,095 gallons of gasoline and 272,696 gallons of diesel. Project construction activities would last for approximately 4 years. Construction of the project would use fuel-efficient equipment consistent with state and federal regulations, such as fuel efficiency regulations in accordance with the CARB Pavley Phase II standards, the anti-idling regulation in accordance with Section 2485 in 13 CCR, and fuel requirements in accordance with 17 CCR Section 93115. The project would benefit from fuel and automotive manufacturers' compliance with CAFE standards, which would result in more efficient use of transportation fuels (lower consumption). As such, the project would indirectly comply with regulatory measures to reduce the inefficient, wasteful, and unnecessary consumption of energy, such as petroleum-based transportation fuels. While these regulations are intended to reduce construction emissions, compliance with the anti-idling and emissions regulations discussed above would also result in fuel savings from the use of more fuel-efficient engines.

In addition, the project would divert mixed construction and demolition debris to City-certified construction and demolition waste processors using City-certified waste haulers, consistent with the Los Angeles City Council approved Ordinance No. 181519 (LAMC Chapter VI, Article 6, Section 66.32-6.32.5). Diversion of mixed construction and demolition debris would reduce truck trips to landfills, which are typically located some distance away from City centers and would increase the amount of waste recovered (e.g., recycled, reused, etc.) at material recovery facilities, thereby further reducing transportation fuel consumption.

Based on the analysis above, construction would use energy only for necessary on-site activities and to transport construction materials and demolition debris to and from the project site. As discussed above, idling restrictions and the use of cleaner, energy efficient equipment and fuels would result in less fuel combustion and energy consumption, and thus minimize the project's construction-related energy use. Therefore, construction of the project would not result in the wasteful, inefficient, and unnecessary consumption of energy.

5.3 Operations

During operation of the project, energy would be consumed for multiple purposes, including, but not limited to, HVAC, refrigeration, lighting, and the use of electronics, equipment, and machinery. Energy would also be consumed during project operations related to water usage, solid waste disposal, and vehicle trips. Development of the project would result in an annual estimated energy demand of 1,082,928 kWh per year and require 155,576 gallons of gasoline and 4,493 gallons of diesel per year (Table 3). Appendix A provided additional calculation details.

Table 3. Total Operations-Related Energy Consumption

Fuel Type	Energy Consumption	Units
Electricity		
Building*	1,026,740	kWh/year
Parking Lot*	19,372	kWh/year
Water†	36,816	kWh/year
Total Electricity	**1,082,928**	kWh/year
Natural Gas		
Building*	**3,745,669**	kBTU/year
Mobile‡		
Gasoline	155,576	gallons/year
Diesel	3,175	gallons/year
Equipment§		
Diesel	1,318	gallons/year
Total Gallons Diesel	**4,493**	gallons/year
Total Gallons Gasoline	**155,576**	gallons/year

* Building electricity and parking lot electricity and natural gas use provided by CalEEMod defaults.

† Calculated based on the project's annual water consumption using CalEEMod South Coast Air Quality Management District energy intensity of 0.0111 kWh per gallon for indoor water and 0.009727 kWh per gallon for outdoor water.

‡ Mobile source fuel use based on annual VMT from CalEEMod output and fleet-average fuel consumption in gallons per mile from EMFAC web-based data in South Coast Air Basin.

§ Stationary and off-road operational equipment is based on CalEEMod equipment assumptions to calculate total gallons of diesel fuel.

kWh = kilowatt hours
kBTU = thousand British Thermal Units

The project would be designed to meet the State and County green building requirements and include the installation of additional features to reduce energy use throughout the buildings. The project includes the incorporation of several energy efficient features to the Page Museum. The features include enhanced daylighting, rainwater collection leading to bioswales, a sloped green roof, and incorporation of rooftop solar photovoltaic panels onto the buildings, where possible.[2] Daylighting is the controlled admission of natural light, direct sunlight, and diffused-skylight into a building to reduce electric lighting and save energy. By providing a direct link to the dynamic and perpetually evolving patterns of outdoor illumination, daylighting helps create a visually stimulating and productive environment for building occupants, while reducing as much as one-third of total building energy costs. Water conservation measures could include the use of drought-tolerant planting, installation of dual plumbing in order to use reclaimed water for toilet flushing, use of restaurant faucets of a self-closing design, and stormwater retention through a biofiltration flow-through system to treat the first flush of stormwater runoff before it is captured in belowgrade cisterns, and used on-site for toilets, urinals, landscape irrigation. These features would further maximum energy efficiency. The project's estimated demand for natural gas has been determined by CalEEMod defaults and is considered conservative.

The project's annual net new operational energy demand for electricity, natural gas, and gasoline and diesel transportation fuels is summarized below.

5.3.1 Electricity

With compliance with Title 24 standards and applicable CALGreen requirements, at buildout, the project would result in a projected net increase in the on-site annual demand for electricity totaling 1,082,928 kWh for the project (see Table 3). The project would include energy-saving measures, including natural light to be harvested for the main spaces using large expanses of glass and skylights; daylighting systems to coordinate the levels of artificial lighting; HVAC systems that would be sized and designed in compliance with the CALGreen Code to maximize energy efficiency caused by heat loss and heat gain; and new and existing tree canopies to be used to protect building walls from sun exposure and provide shade for the ground area. These measures were generally accounted for based on compliance with Title 24 standards. In addition to compliance with CALGreen, the project would also incorporate rooftop solar photovoltaic panels onto the buildings, where possible.

Further, it is important to note that the total net project energy demand shown in Table 3 does not reflect the fact that project operational-related energy would likely be lower, as the project would provide sustainability features that would reduce the project's indoor and outdoor water demand. These measures include rainwater collection leading to bioswales and drought-tolerant landscaping, resulting in a reduction in water demand and less use of pesticides. These measures were conservatively not accounted for since a specific outdoor water reduction value could not conclusively be calculated.

In addition, LADWP was required to procure at least 33% of its energy portfolio from renewable sources by 2020 (LADWP has met this requirement as discussed below). With the passage of SB 100 in September 2018, LADWP will be required to update its long-term plans to demonstrate compliance, including providing 60% of its energy portfolio from renewable sources by December 31, 2030, and ultimately planning for 100% eligible renewable energy resources and zero-carbon resources by December 31, 2045. LADWP's current sources include biomass and biowaste, geothermal, eligible hydroelectric, solar, and wind sources. These sources accounted for 35% of LADWP's overall energy mix

[2] At this stage of the design process, it is undetermined whether it will be feasible to incorporate solar panels on both the new museum building and the existing Page Museum. To the extent it is practicable within other limitations (e.g., existing structural and historic considerations), solar panels would be incorporated.

in 2021, the most recent year for which data are available, and represent the available off-site renewable sources of energy that would meet the project's energy demand.

LADWP generates its load forecast to account for regional economic and population growth based on multiple forms of data from various agencies, including historical sales from the General Accountings Consumption and Earnings report, historical Los Angeles County employment data provided from the State's Economic Development Division, plug-in electric vehicle projections from the CEC account building permits when determining electricity Load Forecasts, solar rooftop installations from the Solar Energy Development Group, electricity price projections from the Financial Services organization, and LADWP program efficiency forecasts. In addition, LADWP considers projected Los Angeles County building permit amounts calculated by the UCLA Anderson School of Management when determining its load forecast and would, therefore, account for the project's electricity demand.

Based on the LADWP 2017 Power Strategic Long-Term Resource Plan, LADWP forecasts that its total energy sales in the 2028–2029 fiscal year (the project's buildout year) will be 24,341 gigawatt hours (GWh) of electricity (LADWP 2017). As such, the project-related annual electricity consumption of 1.13 GWh per year would be less than 0.005% of LADWP's projected sales in 2028. As previously described, the project incorporates a variety of energy and water conservation measures and features to reduce energy usage and minimize energy demand. Therefore, with the incorporation of these measures and features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of electricity.

5.3.2 Natural Gas

The project would increase the demand for natural gas resources. With compliance with Title 24 standards and applicable CALGreen requirements, at buildout, the project is projected to generate a net increase in the on-site annual demand for natural gas totaling 3,745,669 cubic feet.

SoCalGas accounts for anticipated regional demand based on various factors, including growth in employment by economic sector, growth in housing and population, and increasingly demanding State goals for reducing GHG emissions. SoCalGas accounts for an increase in employment and housing between 2018 to 2035. The project forecasted annual consumption would fall within SoCalGas' projected consumption for the area and would be consistent with SoCalGas' anticipated regional demand from population or economic growth. As would be the case with electricity, the project would comply with the applicable provisions of Title 24 and the CALGreen Code in effect at the time of building permit issuance to minimize natural gas demand. As such, the project would minimize energy demand. Therefore, with the incorporation of these measures and features, operation of the project would not result in the wasteful, inefficient, or unnecessary consumption of natural gas.

5.3.3 Transportation Energy

During operations, project-related traffic would result in the consumption of petroleum-based fuels related to vehicular travel to and from the project site. A majority of the vehicle fleet that would be used by project visitors and employees would consist of light-duty automobiles and light-duty trucks, which are subject to fuel efficiency standards.

As shown in Table 3, the project's estimated annual net increase in petroleum-based fuel usage would be 155,576 gallons of gasoline and 4,493 gallons of diesel for the project. Based on the CEC's California Retail Fuel Outlet Annual Reporting (CEC 2022b), Los Angeles County consumed 3,559,000,000 gallons of gasoline and 563,265,306 gallons of diesel fuel in 2019.

Transportation fuels (gasoline and diesel) are produced from crude oil, which can be domestic or imported from various regions around the world. Based on current proven reserves, crude oil production would be sufficient to meet over 50 years of worldwide consumption. The project would benefit from fuel and automotive manufacturers' compliance with CAFE standards, which would result in more efficient use of transportation fuels (lower consumption). Project-related vehicle trips would also indirectly benefit from Pavley Standards, which are designed to reduce vehicle GHG emissions by mandating increasingly stringent emissions standards on new vehicles but would also result in fuel savings from more efficient engines in addition to compliance with CAFE standards.

The project would support statewide efforts to improve transportation energy efficiency and reduce transportation energy consumption with respect to private automobiles for the reasons provided below. The project would not conflict with the 2020-2045 RTP/SCS goals and benefits intended to improve mobility and access to diverse destinations, provide better "placemaking," provide more transportation choices, and reduce vehicular demand and associated emissions. The project would support these strategies by creating a community serving recreational development comprising recreational uses (including a museum, park, and cafe) that offer employment and other community-serving opportunities. The project supports the development of a balanced mixed of uses by co-locating complementary land uses on an infill project site that is in close proximity to existing off-site commercial and residential uses, being located within 0.25 of off-site commercial and residential uses, and located within an identified high-quality transit area (HQTA) in a highly walkable area well-served by public transportation (refer to the *Air Quality and Greenhouse Gas Technical Report* [SWCA 2022] for additional information regarding the 2020-2045 RTP/SCS). The project would concentrate recreational and athletic facility uses within an HQTA in an urban infill location in proximity to multiple public transit stops. There would be pedestrian entry gates along the perimeter of the project site that would provide access to the park, museum, and landscaped areas. The project would minimize vehicle trips and VMT by virtue of being in a location that has existing high-quality public transit (with access to existing regional bus and rail service), employment opportunities, restaurants and entertainment, all within walking distance—and by including features that support and encourage increase transit use, pedestrian activity, and other non-vehicular transportation.

Additionally, the project design would provide for the installation of the conduit and panel capacity to accommodate EV charging stations for a minimum of 10% of the parking spaces pursuant to the CALGreen Code. Based on the above, the project would minimize operational transportation fuel demand consistent with state, regional, and city goals. Therefore, operation of the project would not result in the wasteful, inefficient, and unnecessary consumption of energy.

5.4 Conclusion

As demonstrated by the previous analysis, the project would not cause wasteful, inefficient, or unnecessary consumption of energy during construction or operation. The project's energy usage during peak and base periods would also not conflict with electricity, natural gas, and transportation fuel future projections for the region. During operations, the project would comply with and exceed existing minimum energy efficiency requirements, such as the Title 24 standards and CALGreen Code. In summary, the project's energy demands would not significantly affect available energy supplies and would comply with existing energy efficiency standards. Therefore, project impacts related to energy use would be less than significant during construction and operation, and would not cause wasteful, inefficient, and unnecessary consumption of energy.

The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. With respect to truck fleet operators, the EPA and NHSTA have adopted fuel efficiency

standards for medium- and heavy-duty trucks. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles, and are phased in for model years 2014 through 2018 and result in a reduction in fuel consumption from 6% to 23% over the 2010 baseline, depending on the vehicle type. The EPA and NHTSA also adopted the Phase 2 heavy-duty truck standards, which would be phased in from model years 2021 through 2027 and require the phase-in of a 5% to 25% reduction in fuel consumption over the 2017 baseline, depending on the compliance year and vehicle type. The energy modeling for trucks does not take into account specific fuel reductions from these regulations, since they would apply to fleets as they incorporate newer trucks meeting the regulatory standards; however, these regulations would have an overall beneficial effect on reducing fuel consumption from trucks over time as older trucks are replaced with newer models that meet the standards. In addition, construction equipment and trucks are required to comply with CARB regulations regarding heavy-duty truck idling limits of 5 minutes at a location and the phase-in of off-road emission standards that result in an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines. Although these regulations are intended to reduce criteria pollutant emissions, compliance with the anti-idling and emissions regulations would also result in the efficient use of construction-related energy.

Project construction activities would not conflict with energy conservation plans and impacts would be less than significant. A detailed discussion of the project's comparison with the applicable actions and strategies in the City's Green New Deal is provided in the *Air Quality and Greenhouse Gas Technical Report* (SWCA 2022). The project is designed in a manner that is consistent with and not in conflict with relevant energy conservation plans that are intended to encourage development that results in the efficient use of energy resources. The project would comply with applicable regulatory requirements for the design of new buildings, including the provisions set forth in the Title 24 standards and CALGreen Code. Electricity and natural gas usage during project operations (see Table 3) would be minimized through incorporation of applicable Title 24 standards and applicable CALGreen requirements. Furthermore, the project incorporates energy-conservation measures beyond regulatory requirements, which includes solar panels that would offset some of its overall energy usage with on-site renewable electricity. The project would also provide sustainability features that would all reduce the project's indoor and outdoor water demand. The project would also be consistent with and not conflict with regional planning strategies that address energy conservation. As part of the approach, the 2020-2045 RTP/SCS focus on reducing fossil fuel use by decreasing VMT, encouraging the reduction of building energy use, and increasing use of renewable sources. The project's design and its location on an infill site within an HQTA in proximity to transit; its proximity to existing off-site retail, restaurant, entertainment, commercial, and job destinations; and its walkable environment would achieve a reduction in VMT.

These land use characteristics are included in the transportation fuel demand for the project's mobile sources. With respect to operational transportation-related fuel usage, the project would support statewide efforts to improve transportation energy efficiency and reduce transportation energy consumption with respect to private automobiles. The project would also benefit from fuel and automotive manufacturers' compliance with CAFE fuel economy standards and the Pavley Standards, which are designed to result in more efficient use of transportation fuels.

As a result, the project would implement project design features and incorporate water conservation, energy conservation, landscaping, and other features consistent with applicable actions and strategies in the City's Green New Deal. The project's design would comply with existing energy standards and incorporate project design features to reduce energy consumption. Therefore, the project would not conflict with energy conservation plans and impacts would be less than significant.

6 CUMULATIVE IMPACTS

Cumulative impacts occur when the incremental effects of a proposed project are significant when combined with similar impacts from other past, present, or reasonably foreseeable projects in a similar geographic area. The geographic context for the analysis of cumulative impacts on electricity is LADWP's service area, and the geographic context for the analysis of cumulative impacts on natural gas in SoCalGas' service area, because the project and related projects are located within the service boundaries of LADWP and SoCalGas. While the geographic context for transportation-related energy use is more difficult to define, the City has determined to consider the project in the context of countywide consumption, given the tendency for vehicles to travel within and through the county and the availability of county-level data. Growth within these geographies is anticipated to increase the demand for electricity, natural gas, and transportation energy, as well as the need for energy infrastructure, such as new or expanded energy facilities.

6.1 Electricity

Buildout of the project, related projects, and additional forecasted growth in LADWP's service area would cumulatively increase the demand for electricity supplies and on infrastructure capacity. However, LADWP, in coordination with the CEC, accounts for future increases in service area demand based on various economic, population, and efficiency factors. LADWP relies on multiple forms of data from various agencies, including historical sales from the General Accountings Consumption and Earnings report, historical Los Angeles County employment data provided from the State's Economic Development Division, plug-in electric vehicle projections from the CEC account building permits when determining electricity Load Forecasts, solar rooftop installations from the Solar Energy Development Group, electricity price projections from the Financial Services organization, and LADWP program efficiency forecasts. As described in LADWP's 2017 Power Strategic Long-Term Resource Plan, LADWP would continue to expand delivery capacity as needed to meet demand increases within its service area at the lowest cost and risk consistent with LADWP's environmental priorities and reliability standards. The 2017 Power Strategic Long-Term Resource Plan takes into account future energy demand, advances in renewable energy resources and technology, energy efficiency, conservation, and forecast changes in regulatory requirements. Accordingly, LADWP considers projected Los Angeles County building permit amounts calculated by the UCLA Anderson School of Management when determining its load forecast and would, therefore, account for the project's and the related projects' electricity demand within its forecasts. Thus, LADWP considers growth from related projects within its service area for the increase in demand for electricity, as well as the need for energy infrastructure, such as new or expanded energy facilities.

Although project development would result in the use of renewable and nonrenewable electricity resources during construction and operation, which could affect future availability, the project's use of such resources would be on a relatively small scale and would be reduced by measures rendering the project more energy efficient. Related projects, as with the project, would be required to evaluate energy impacts during construction and operation related to the wasteful, inefficient, or unnecessary use of electricity, incorporate energy conservation features, comply with applicable regulations including the City's Green Building Code, the Title 24 standards and CALGreen Code, and incorporate mitigation measures, as necessary under CEQA. Related projects, as with the project, would also be required to evaluate potential impacts related to local and regional supplies or capacity based on regional growth plans, such as the SCAG 2020-2045 RTP/SCS, and LADWP energy supply projections for long-term planning. Each of the related projects would be reviewed by the local utility provider to identify necessary electricity service connections to meet the needs of their respective projects. In addition, the local utility provider would provide service letters (which take into account all current uses and projected future development projects) for each related project, confirming availability of adequate electricity

supplies and infrastructure as part of the total load growth of the regional power system. Project applicants would be required to provide for the needs of their individual projects, thereby contributing to the electrical infrastructure in the project site area.

Additionally, LADWP was required to procure a minimum of 33% of its energy portfolio from eligible renewables sources by 2020, which LADWP has achieved. LADWP's current sources of renewable energy include biomass and biowaste, geothermal, eligible hydroelectric, solar and wind, and accounted for 34% of LADWP's overall energy mix, the most recent year for which data are available. This represents the available off-site renewable sources of energy that could meet the project's and related projects' energy demand. Therefore, the project and related projects would comply with the energy conservation plans and efficiency standards required to ensure efficient energy use.

Therefore, the project's impact, when considered together with related projects, would not be cumulatively considerable and would not result in cumulatively significant impacts related to wasteful, inefficient, or unnecessary use of electricity.

6.2 Natural Gas

Buildout of the project, related projects, and additional forecasted growth in SoCalGas' service area would cumulatively increase the demand for natural gas supplies and on infrastructure capacity. SoCalGas forecasts consider projected population growth and development based on local and regional plans, and the project's growth and development would not conflict with those projections. Additionally, as with the project, each of the related projects would be reviewed by SoCalGas to identify necessary natural gas service connections to meet the needs of their respective projects, and SoCalGas would provide service letters for each related project confirming availability of adequate natural gas supplies as part of the total load growth of the regional natural gas system. Natural gas infrastructure is expanded and improved in response to increasing demand and it is expected that SoCalGas would continue to expand delivery capacity if necessary to meet growth requirements in the service area. Although project development would result in the use of natural gas resources, which could limit future availability, the use of such resources would be on a relatively small scale, would be reduced by measures rendering the project more energy-efficient, would be consistent with regional and local growth expectations for SoCalGas' service area, and would not result in the need to construct new or expand existing natural gas facilities or distribution lines.

Related projects, as with the project, would be required to evaluate natural gas impacts during construction and operation related to the wasteful, inefficient, or unnecessary use of natural gas, incorporate energy conservation features, comply with applicable regulations including the Los Angeles Green Building Code, the Title 24 standards and CALGreen Code, and incorporate mitigation measures, as necessary under CEQA. As with the project, related projects would also be required to obtain evidence of service from SoCalGas, or the appropriate utility provider, to ensure that natural gas service would be available and provided to meet related project demands. Furthermore, the related projects are generally infill projects in a highly urbanized area already served by existing facilities and are generally residential, mixed-use, and commercial projects, and not high-energy-demand facilities, such as heavy industrial uses.

Therefore, the project's contribution to cumulative impacts due to wasteful, inefficient, and unnecessary use of natural gas would not be cumulatively considerable, and, thus, cumulative impacts would be less than significant.

6.3 Transportation Energy

Buildout of the project, related projects, and additional forecasted growth would cumulatively increase the demand for transportation-related fuel in the state and region. As described above, at buildout, the project would consume a total net increase of 155,576 gallons of gasoline and 4,493 gallons of diesel per year.

Additionally, petroleum currently accounts for 90% of California's transportation energy sources; however, over the last decade, the State has implemented several policies, rules, and regulations to improve vehicle efficiency, increase the development and use of alternative fuels, reduce air pollutants and GHGs from the transportation sector, and reduce VMT, which would reduce reliance on petroleum fuels.

The project would not conflict with the energy efficiency policies emphasized by the 2020-2045 RTP/SCS. As discussed previously, the project would be consistent with and not conflict with SCAG's land use type for the area and would encourage alternative transportation and a reduction in overall VMT. The project site is an infill location close to jobs, off-site housing, shopping, and entertainment uses and is in close proximity to existing public transit stops, which would result in reduced VMT, as compared to a project of similar size and land uses at a location without close and walkable access to off-site destinations and public transit stops. The project would concentrate recreational and athletic facility uses within an HQTA in an urban infill location in proximity to multiple public transit stops. Therefore, operation of the project would provide visitors and employees with transportation options, and the implementation of construction features would reduce idling times and construction transportation fuel use.

The 2020-2045 RTP/SCS is a regional planning tool that addresses cumulative growth and resulting environmental effects and is applicable to the project and related projects with respect to transportation energy efficiency. Related projects would be required under CEQA to evaluate if their respective developments would conflict with the energy efficiency policies emphasized by the 2020-2045 RTP/SCS, such as the per-capita VMT targets, promotion of alternative forms of transportation, proximity to public transportation options, and provisions for encouraging multi-modal and energy efficient transit, such as by accommodating bicycle parking and EV chargers at or above regulatory requirements.

Furthermore, as with the project, the related projects within the project vicinity and HQTA would similarly be expected to reduce VMT by encouraging the use of alternative modes of transportation and other design features that promote VMT reductions that would not be in conflict with applicable provisions of the SCAG 2020-2045 RTP/SCS for the land use type.

Since the project would not conflict with the 2020-2045 RTP/SCS, the project's contribution to cumulative impacts due to wasteful, inefficient, or unnecessary use of transportation fuel would not be cumulatively considerable, and, thus, cumulative impacts would be less than significant.

6.4 Conclusion

Based on the analysis provided above, the project's contribution to cumulative impacts related to energy consumption (i.e., electricity, natural gas, and transportation energy) would not result in a cumulatively considerable effect related to potentially significant environmental impacts due to the wasteful, inefficient, and unnecessary consumption of energy during construction or operation. Therefore, the project's cumulative energy impacts would be less than significant.

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APPENDIX A

Fuel Usage and Energy Calculations

Total Construction-Related Fuel Consumption

Diesel		
On-Road Construction Trips[1]	58,522	Gallons
Off-Road Construction Equipment[2]	214,174	Gallons
Diesel Total	**272,696**	**Gallons**
Gasoline		
On-Road Construction Trips[1]	142,095	Gallons
Off-Road Construction Equipment[3]	-	Gallons
Gasoline Total	**142,095**	**Gallons**
Total	**414,791**	**Gallons**

Notes:
1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod for construction and fleet-average fuel consumption in gallons per mile from EMFAC web based data for the South Coast Air Basin to ensure a conservative analysis.
2. Off-road mobile source fuel usage based on a fuel usage rate of 0.05 gallons of diesel per horsepower (HP)-hour, based on SCAQMD CEQA Air Quality Handbook, Table A9 -3E.
3. All emissions from off-road construction equipment were assumed to be diesel.

On-Road Construction Trip Estimates

Trip Type	Trips	Trip length	Vehicle Miles Traveled (VMT)	Fuel Efficiency	Annual Fuel Usage[1]	
	(trips)	(miles)	(miles)	(mpg)	(Fuel)	(gallon)
Worker[2,3]	188,180	18.5	3,481,330	24.5	Gasoline	142,095
Vendor[4]	17,160	10.2	175,032	6.9	Diesel	25,367
Hauling[5]	11,356	20	227,120	6.9	Diesel	32,916
Onsite Truck[6]	1,647	1.00	1,647	6.9	Diesel	239

Notes:
1. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod output for all years of construction and fleet-average fuel consumption in gallons per mile from EMFAC web based data in the South Coast Air Basin.
2. Worker trips were assumed to be 100% gasoline powered vehicles.
3. Per CalEEMod, worker Trips were assumed to be 50% LDA, 25% LDT1, and 25% LDT2.
4. Vendor trips were assumed to be 50% MHDT and 50% HHDT, split evenly between the MHDT and HHDT construction categories.
5. Per CalEEMod, hauling trips were assumed to be 100% HHDT. 6. Per CalEEMod, onsite truck trips were assumed to be 100% HHDT.

Calculation of Diesel Usage During Construction (Off-Road Equipment)								
Phase Name	**Off-Road Equipment Type**	**Units**	**Hours**	**HP**	**Load Factor**	**Avg. Daily Factor**	**Number of Days**	**Diesel Fuel Usage**
Demolition	Rubber Tired Dozers	2	8	367	0.4	1	262	30,769.28
Demolition	Excavators	3	8	36	0.38	1	262	4,300.99
Demolition	Concrete/Industrial Saw	1	8	33	0.73	1	262	2,524.63
Site Preparation	Rubber Tired Dozers	3	8	367	0.4	1	262	46,153.92
Site Preparation	Tractors/Loaders/Backhoes	4	8	84	0.37	1	262	13,028.74
Grading	Graders	1	8	148	0.41	1	52	1,262.14
Grading	Excavators	2	8	36	0.38	1	52	569.09
Grading	Tractors/Loaders/Backhoes	2	8	84	0.37	1	52	1,292.93
Grading	Scrapers	2	8	423	0.48	1	52	8,446.46
Grading	Rubber Tired Dozers	1	8	367	0.4	1	52	3,053.44
Building Construction	Aerial Lifts	3	8	82	0.2	1	808	15,901.44
Building Construction	Bore/Drill Rigs	1	8	14	0.74	1	808	3,348.35
Building Construction	Cranes	1	8	367	0.29	1	808	34,398.18
Building Construction	Forklifts	1	8	46	0.45	1	808	6,690.24
Building Construction	Generator Sets	3	8	84	0.37	1	808	30,135.17
Paving	Pavers	2	8	81	0.42	1	184	5,007.74
Paving	Paving Equipment	2	8	89	0.36	1	184	4,716.29
Paving	Rollers	2	8	36	0.38	1	184	2,013.70
Architectural Coating	Air Compressors	1	8	37	0.48	1	79	561.22
							Total Diesel Usage for Construction (Offroad Equipment):	**214,173.94**

gallons of diesel fuel per horsepower hour= 0.05

Notes: Equipment assumptions are provide in the CalEEMod output files and fuel usage estimate of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Ait Quality Handbook, Table A9-3E

Annual Calculation of Diesel Usage During Construction (Off-Road Equipment)		
Year	**Construction Phases**	**Total Diesel Usage for Construction (Offroad Equipment):**
2024	Demolition; Site Preparation; Grading	111401.624
2025	Building Construction	40869.78
2026	Building Construction; Architectural Coating	41430.996
2027	Building Construction; Paving	20471.544

Annual Energy Consumption from Operation		
Fuel Type	**Energy Consumption**	**Units**
Electricity		
Buildings[1]	1,026,740	kWh/year
Parking Lot[1]	19,372	kWh/year
Water[2]	36,816	kWh/year
Total Electricity	**1,082,928**	kWh/year
Natural Gas		
Buildings[1]	3,745,669	kBTU/year
Mobile[3]		
Gasoline	155,576	gallons/year
Diesel	3,175	gallons/year
Equipment[4]		
Diesel	1,318	gallons/year
Total Gallons Diesel	**4,493**	gallons/year
Total Gallons Gasoline	**155,576**	gallons/year

Notes:
1. Building electricity and parking lot electricity and natural gas use provided by CalEEMod defaults.
2. Calculated based on the Project's annual water consumption using CalEEMod SCAQMD energy intensity of 0.0111 kWhr per gallon for indoor water and 0.009727 kWhr per gallon for outdoor water.
3. Mobile source fuel use based on annual vehicle miles traveled (VMT) from CalEEMod output and fleet-average fuel consumption in gallons per mile from EMFAC web-based data in South Coast Air Basin.
4. Stationary and off-road operational equipment is based on CalEEMod equipment assumptions to calculate total gallons of diesel fuel.

On-Road Operations Trip Estimates				
Trip Type	**Vehicle Miles Traveled (VMT)**	**Fuel Efficiency**	**Annual Fuel Usage[1]**	
	(miles per year)	**(mpg)**	**(Fuel)**	**(gallon)**
Weekday	2,851,680	24.6	Gasoline/Diesel	115,922
Saturday	617,474	24.6	Gasoline/Diesel	25,101
Sunday	436,125	24.6	Gasoline/Diesel	17,729

Notes:
1. Mobile source fuel use based on annual vehicle miles traveled (VMT) from CalEEMod output and fleet-average fuel consumption in gallons per mile from EMFAC web based data in South Coast Air Basin.

Calculation of Diesel Equipment Usage During Operations								
Phase Name	**Equipment Type**	**Units**	**Hours**	**HP**	**Load Factor**	**Daily Factor**	**Number of Days**	**Diesel Fuel Usage**
Operations	Forklifts	1	4	82	0.2	1	260	852.80
Operations	Generator Sets	3	2	85	0.73	1	25	465.38

APPENDIX M

Resumes of Key EIR Personnel

BOBBETTE BIDDULPH, B.S., SENIOR ENVIRONMENTAL PLANNER

Ms. Biddulph is an environmental consultant with a diverse professional background throughout California. She has a deep knowledge of the California Environmental Quality Act (CEQA). Ms. Biddulph balances competing objectives throughout the planning process, providing clients sophisticated insight and guidance to inform decision-making. Ms. Biddulph's experience with planning, environmental documentation, and compliance spans a myriad of project types, from the small and focused to the large, complex, and controversial. She specializes in the management of large multidisciplinary environmental contracts and projects. With a degree in City and Regional Planning, Ms. Biddulph's academic training provides a necessary foundation to provide a range of services to public and private clients.

SELECTED PROJECT EXPERIENCE (∗ denotes project experience prior to SWCA)

YEARS OF EXPERIENCE

28

EXPERTISE

CEQA Compliance

Project Management

City and Regional Planning

Entitlement Processing and Permitting

EDUCATION

B.S., City and Regional Planning; California Polytechnic State University, San Luis Obispo; 1992

AWARDS / HONORS

PG&E Topock Compressor Station Soil Investigation Project Final EIR, Merit Award, AEP

North Torrey Pines Bridge Seismic Retrofit, Best Available Environmental Technology, first place, NAEP

Caltrans District 11 Headquarters EIR, Award of Excellence, ASCE

Milpitas Midtown Specific Plan and EIR; first place, Small Jurisdiction, Northern Section APA

Tuolumne River Regional Park Master Plan and EIR; Outstanding Environmental Resource Document, Large Jurisdiction, second place, AEP

MEMBERSHIPS

Member, Association of Environmental Professionals

La Brea Tar Pits Master Plan EIR; Los Angeles County Natural History Museum; Los Angeles County, California. SWCA is preparing an EIR addressing the environmental impacts of significant improvements to this iconic site in central Los Angeles. Significant development has occurred in the project vicinity in recent years (e.g., at the adjacent LA County Museum of Art and with the LA Metro), and the EIR and approach to construction phasing will be highly scrutinized. In addition to leading the EIR process, SWCA is assisting with the public engagement process. The conceptual master plan was recently developed by the Natural History Museum for the future development and enhancement of the La Brea Tar Pits site. The master plan includes the existing museum and Hancock Park and seeks to unify the critical research sites, buildings, exhibition space, and the park with an inspiring new identity. *Role: Senior Project Manager.*

As-Needed Environmental Assessment and Air Quality Services; Los Angeles Department of Water and Power (LADWP); Los Angeles, California. Providing as-needed consultant environmental consultant support, including specialized monitoring and technical studies for the maintenance and development of water and power facilities. *Role: Contract Manager.*

Pacific Industrial IS/MND; City of Santa Clarita; Los Angeles County, California. SWCA is preparing the IS/MND for the proposed Pacific Industrial Warehouse project. The IS/MND evaluates the environmental effects of the project, which includes the construction and operation of a 174,000-square-foot industrial warehouse building and associated site improvements on a 12.84-acre property. In addition, SWCA provided technical peer reviews of the Applicant-prepared technical reports, including biological resources and cultural resources. SWCA is managing potential stakeholder concerns through close coordination with the City and clearly addressing the areas of controversy through the environmental document. *Role: Project Manager.*

City of San Luis Obispo As-Needed Planning and Environmental Services Contract; City of San Luis Obispo; San Luis Obispo County, California. SWCA holds an as-needed environmental and CEQA services contract with the City of San Luis Obispo. SWCA supplements City of San Luis Obispo staff by providing full-service planning and environmental review services for specific plans and amendments, general plan and zoning amendments, and development projects, including commercial, redevelopment, and residential projects. *Role: Project Manager/Environmental Planner.*

East Niles Community Services District; MKN Associates; Kern County, California. SWCA has been assisting MKN Associates with CEQA compliance for many public water utility projects, including construction of pipelines, new water tanks and pump stations, and filtration systems. *Role: Project and Contract Manager.*

*Santa Susana Field Laboratory EIR; California Department of Toxic Substances Control; Ventura County, California. The Santa Susana Field Laboratory is a former rocket engine test, nuclear, and liquid metals research facility located on a 2,849-acre site in the Simi Hills. The use of hazardous substances at the field laboratory such as trichloroethylene and other solvents, heavy metals, and radioactive material has resulted in soil and/or groundwater contamination. The field laboratory is currently the focus of a comprehensive environmental investigation and cleanup program, conducted by Boeing, the United States Department of Energy and the National Aeronautics and Space Administration, and overseen by the Department of Toxic Substances Control. *Role: Senior CEQA Specialist.*

*Riverside County State Vehicular Recreation Area Planning and Environmental Studies; County of Riverside and State Department of Parks and Recreation and Riverside County; Riverside County, California. Ms. Biddulph worked with the County of Riverside and the State Parks in planning for a state vehicular recreation area for OHV and multiuse trails. The project included a comprehensive advisory committee and community involvement process, which addressed the interests of the local environmental community, City of Beaumont, CDFG, USFWS, County of Riverside, State Parks, and members of the OHV community. *Role: Project Manager.*

*As-Needed CEQA Support, Resource Monitoring and Biological Restoration Services Contract; County of San Diego Department of Parks and Recreation; California. On-call services for task orders related to development of County park facilities and trails. These projects included a range of tasks including biological and cultural resources inventory surveys, long-term species monitoring, vegetation management and public access plans, and CEQA documents for recreational projects. *Principal-in-charge and Senior CEQA Lead.*

*Encinitas Hall Property Community Park EIR; City of Encinitas; Encinitas, California. The Hall Property Community Park was proposed and developed by the City of Encinitas on a 43-acre site adjacent to Interstate 5. The park includes two full-sized baseball fields and a third smaller baseball field in the southern portion of the project site. Lighting was proposed and ultimately developed for the baseball fields to facilitate nighttime play. The park also provides soccer fields, an aquatic center, skate park, teen center, dog park, and additional recreation facilities for varied experiences. The environmental process was highly scrutinized by the community, due to the prominence of the project and adjacency issues that result from nearby single-family residential uses. Because the detailed engineering and design of the park was not yet developed at the time of CEQA analysis, the EIR provided a flexible and performance-based approach to many of the potential environmental issues. The EIR withstood challenge in court. *Role: Ms. Biddulph led the preparation of the technical studies and the EIR for this landmark City project.*

*Owens Lake Master Project EIR; City of Los Angeles Department of Water and Power; Inyo County, California. Owens Lake has been known as the largest source of particulate-matter pollution in the United States because of historic water diversions from Owens Valley. To address dust control and public values, the Los Angeles Department of Water and Power initiated a stakeholder-driven process to define an integrated land use, resource management, and public use vision that will result in a Master Project to manage and enhance Owens Lake. To be ratified as the vision for Owens Lake, the Master Project must be adopted by the California State Lands Commission and evaluated under CEQA and the Public Trust doctrine. *Role: Project Director.*

*Oceanside Coast Highway Corridor Study and EIR; City of Oceanside; Oceanside, California. This project was managed jointly by the Oceanside Planning and Engineering departments between 2016 and 2019. In 2009, the City adopted the Coast Highway Vision and Strategic Plan, which calls for complete street improvements and zoning incentives to create a vibrant, pedestrian-oriented mixed-use environment within the Coast Highway corridor. As part of the effort to implement the Vision Plan, the City initiated the Coast Highway Corridor Study, which included a program EIR that considers potential environmental impacts associated with complete street improvements and optional zoning standards. The project established a preferred “Road Diet” alternative and an implementation plan to achieve it. The EIR was a hybrid EIR, analyzing the zoning standards at a program-level and providing more detailed review of the public right-of-way improvements. *Role: Project Manager.*

JOHN DIETLER, PH.D., RPA, PRINCIPAL-IN-CHARGE

Dr. Dietler is the Vice President of the Southern California and Pacific Islands subregion, as well as a cultural resources Principal Investigator. He serves as principal-in-charge of large, multidisciplinary, and on-call contracts for major municipalities, utilities, and federal departments., ensuring the timely delivery of high quality, legally compliant CEQA and cultural, natural, and paleontological resources analyses. As a cultural resources subject matter expert, Dr. Dietler is responsible for creating innovative research, mentoring staff, and providing QA/QC for technical studies. He has conducted extensive archaeological research in support of development, infrastructure, and multidisciplinary environmental projects in compliance with CEQA and Section 106 of the National Historic Preservation Act. A versatile consultant who has supervised research projects of all sizes and descriptions, Dr. Dietler has served as subject matter expert for over 150 projects throughout the west. He has managed large on-call contracts with His extensive experience enables him to produce legally compliant, industry-leading research within limited budgets and timeframes.

YEARS OF EXPERIENCE

27

EXPERTISE

Contract management

Cultural resources management

California history and archaeology

Historic preservation

NHPA Section 106 and 110

CEQA/NEPA

Native American and NAGPRA Consultation

EDUCATION

Ph.D., Anthropology, e: Archaeology; University of California - Los Angeles; 2008

M.A., Anthropology, e: Archaeology; University of California - Los Angeles; 2003

B.A. magna cum laude, Anthropology, e: Archaeology, m: Geology; George Washington University, Washington D.C.; 1996

REGISTRATIONS / CERTIFICATIONS

Registered Prof. Archaeologist No. 15224; 2003

Exceeds the U.S. Secretary of Interior's Professional Qualifications Standards for prehistoric archaeologist

SELECTED PROJECT EXPERIENCE

La Brea Tar Pits Master Plan EIR; Los Angeles County Natural History Museum; Los Angeles County, California. SWCA is preparing an EIR addressing the environmental impacts of significant improvements to this iconic site in central Los Angeles. Significant development has occurred in the project vicinity in recent years (e.g., at the adjacent LA County Museum of Art and with the LA Metro), and the EIR and approach to construction phasing will be highly scrutinized. In addition to leading the EIR process, SWCA is assisting with the public engagement process. The conceptual master plan was recently developed by the Natural History Museum for the future development and enhancement of the La Brea Tar Pits site. The master plan includes the existing museum and Hancock Park and seeks to unify the critical research sites, buildings, exhibition space, and the park with an inspiring new identity. *Role: Senior Principal-in-charge.*

Los Angeles County Natural History Museum Commons Project; Los Angeles County Natural History Museum; Los Angeles, California. SWCA prepared a California Environmental Quality Act (CEQA) Class 32 Infill Exemption for the demolition of the existing Jean Delacour Auditorium, interior improvements, and construction of an addition to the Los Angeles County Natural History Museum. The CEQA analysis included Air Quality, Biology, Archaeology, Architectural History, Paleontology, and Traffic studies. *Role: Principal-in-charge.*

LA Plaza de Cultura y Artes EIR Addendum; LA Plaza Foundation; City and County of Los Angeles, California. Across seven contracts, SWCA provided expert CEQA and cultural resources consultation for the LA Plaza de Cultura y Artes campus, in compliance with state and federal laws including Section 106 of the NHPA, the Native American Graves Protection and Repatriation Act (NAGPRA), NEPA, and CEQA. Services provided to date included archaeological laboratory analysis, treatment and reburial of human remains, historical research, Native American and other interested party consultation, expert witness services, archaeological testing and data recovery, archaeological and Native American monitoring, technical reports, a Historic Properties Management Plan, an update to the Los Angeles Plaza Historic District National Register of Historic Places District nomination, and two Addenda EIR. SWCA provided technical expertise and consultation at the highest level, ensuring compliance and

allowing numerous phases of the project to come to successful conclusions. *Role: Lead Consultant, Principal Investigator, and Project Manager, and Principal-in-charge.*

LA Plaza Cultura Village Project EIR; Terry A. Hayes Associates; Los Angeles County, California. The LA Plaza Cultura Foundation (Foundation) engaged SWCA, via a small business prime, to perform technical analyses supporting an environmental impact report (EIR) under CEQA and appropriate documentation under NEPA to analyze the environmental impacts of the Foundation's proposed development of LA Plaza Cultura Village, an approximately 425,000 square foot mixed-use project located on two County of Los Angeles owned parcels in downtown Los Angeles that had long been surface parking lots. Our cultural resources study identified a large and significant archaeological deposit beneath the parking lots dating from the 1880s, and SWCA prepared a mitigation and monitoring plan to record and mitigate impacts to this important resource. *Role: Project Manager, Principal Investigator.*

SCAG 2020 RTP/SCS Program Environmental Impact Report; Impact Sciences, Inc.; Multiple Counties, California. SWCA was retained by Impact Sciences to provide environmental services in support of the Southern California Association of Governments (SCAG) Program Environmental Impact Report (PEIR) for the 2020 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) (RTP/SCS) in accordance with environmental compliance procedures under federal metropolitan planning law and regulations, the California Environmental Quality Act (CEQA) statutes and guidelines, and other relevant federal and state environmental laws and regulations. SWCA is conducting biological, cultural, and paleontological resources studies in support of the 2020 RTP/SCS PEIR. *Role: Principal Investigator.*

San Bernardino Web-based Countywide General Plan and Environmental Impact Report; PlaceWorks; San Bernardino County, California. SWCA is currently conducting cultural and paleontological resources studies supporting Placeworks in their development of a Web-based Countywide Plan and preparation of a Program EIR for the County of San Bernardino. SWCA is providing Native American consultation support, conducting records searches for cultural and paleontological resources to summarize the existing conditions and inform a sensitivity analysis for the plan area, which includes Community Plan Area within unincorporated portions of San Bernardino County. *Role: Cultural Resources Specialist.*

Valentine Environmental Impact Report; Provost & Pritchard Consulting Group; Kern County, California. SWCA was retained first by Provost & Pritchard Consulting Group, and later directly by EDF RE, to provide biological, cultural, and paleontological resources services in support of the Valentine Solar Project located on 2,000 acres in Kern County, California. SWCA's primary efforts were to provide a Biological Constraints Analysis (BCA) of the project area, which was used to refine the preliminary design of the project. Following preparation of the BCA, SWCA conducted full technical studies for biological, cultural, and paleontological field surveys to support the preparation of an Environmental Impact Report (EIR) and other permitting requirements. Natural resources studies conducted include surveys for nesting birds, burrowing owls, desert tortoise, special-status plants, vegetation communities, and jurisdictional waters. *Role: Cultural Resources Specialist. Managed project and provided research direction and QA/QC for all cultural resources deliverables.*

ACE - San Gabriel Trench; San Gabriel Valley Council of Governments; San Gabriel, Los Angeles County, California. SWCA conducted surveys and technical studies on botanical and wildlife resources and prepared Environmental Impact Report sections for compliance with state and federal statutes, particularly CEQA and NEPA, for review by Caltrans, the lead agency. Over nearly a decade, SWCA conducted a cultural resources project of unmatched scale and complexity. The scope of work included technical studies and prepared Environmental Impact Report sections for compliance with state and federal statutes, particularly CEQA and NEPA, for review by Caltrans, the lead agency. Cultural resources work included archaeological and architectural history surveys and evaluation studies, which were prepared in compliance with Section 106 of the NHPA and Caltrans standards. SWCA oversaw mitigation for adverse effects to the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) listed San Gabriel Mission site. These included a Phase I survey, extended Phase I (XPI) testing, Phase II NRHP evaluation, multiple Phase III archaeological data recoveries, as well as the preparation of HABS and HAER documentation, and the nomination of the mission as a National Historic Landmark.
The project's results were disseminated broadly, including through numerous publications for professional and public audiences.
Role: Principal Investigator. Oversaw all cultural resources work for the project. Senior author or quality control officer for all key planning documents and technical reports.

SHANNON PAGAN, B.A., ENVIRONMENTAL PLANNER

Ms. Pagan is an environmental planner with experience preparing and managing environmental documents for projects subject to compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). She has contributed to a wide range of projects with varying levels of complexity, including authoring numerous sections of environmental impact reports (EIRs) as well as initial studies (ISs) and mitigated negative declarations (MNDs) for agency, utility, and land development clients in California. Ms. Pagan is skilled at providing comprehensive analyses tailored to fit each project.

YEARS OF EXPERIENCE

8

EXPERTISE

CEQA compliance

Environmental planning

Project management assistance

EDUCATION

B.A., Geography; Urban and Regional Analysis Emphasis; San Diego State University; 2007

TRAINING

Advanced CEQA Workshop, Association of Environmental Professionals; March 2022

SELECTED PROJECT EXPERIENCE (∗ denotes project experience prior to SWCA)

La Brea Tar Pits Master Plan EIR; Los Angeles County Natural History Museum; Los Angeles County, California. SWCA is preparing an EIR addressing the environmental impacts of significant improvements to this iconic site in central Los Angeles. Significant development has occurred in the project vicinity in recent years (e.g., at the adjacent LA County Museum of Art and with the LA Metro), and the EIR and approach to construction phasing will be highly scrutinized. In addition to leading the EIR process, SWCA is assisting with the public engagement process. The conceptual master plan was recently developed by the Natural History Museum for the future development and enhancement of the La Brea Tar Pits site. The master plan includes the existing museum and Hancock Park and seeks to unify the critical research sites, buildings, exhibition space, and the park with an inspiring new identity. *Role: Planning Specialist. Primary author for aesthetics, geology and soils; hazards and hazardous materials; hydrology and water quality, land use and planning, recreation, transportation, and project alternatives.*

Richards Ranch EIR; City of Santa Maria; Santa Barbara County, California. SWCA is preparing an EIR for the Richards Ranch project, which includes the annexation of 43.75 acres located within Santa Barbara County into the city of Santa Maria. The project site is currently identified as Key Site 26 in the County of Santa Barbara Orcutt Community Plan. The project proposes a mix of high-density residential uses, retail commercial, and mini-storage. *Role: Planning Specialist. Section author for project description, aesthetics, public services and recreation*, *and project alternatives.*

East Niles Community Services District; MKN Associates; Bakersfield, Kern County, California. SWCA has been assisting MKN Associates with CEQA compliance for many public water utility projects, including construction of new water tanks and pump stations, installation of filtration systems, and pipeline construction. *Role: Planning Specialist. Primary author of IS/MND for the College-Fairfax to Country Club Improvements Project. Coordination of in-house biological resources analysis and determination of compliance with the Metropolitan Bakersfield Habitat Conservation Plan.*

***La Mesa General Plan Program EIR; City of La Mesa; La Mesa, California.** The City of La Mesa prepared a general plan update to strengthen policies that preserve neighborhoods and promote infill development opportunities in the City of La Mesa's commercial areas and along transit corridors. A program EIR was prepared to address the environmental impacts associated with implementing the general plan. *Role: Assistant Project Manager and Section Author. Authored several EIR sections. Provided project budget maintenance, project scheduling, client relations, internal staff coordination, and document delivery.*

***San Marcos General Plan Update and Program EIR; City of San Marcos; San Marcos, California.** The City of San Marcos prepared a comprehensive general plan update to clarify a long-range vision, establish policy guidelines for addressing growth and development, and maintain the desirable qualities of the City of San Marcos. This project involved extensive public outreach and stakeholder coordination to develop a comprehensive update to reflect the vision of the community. Development of the general plan included working closely with the City of San Marcos to update general plan elements and revise and create new goals and policies and implementation

programs. Lastly, a program EIR was prepared to address the environmental impacts associated with implementing the general plan. *Role: Community Outreach Facilitator for all public meetings associated with the general plan development. Coauthor of general plan and Section Author for the EIR.*

*2050 Regional Transportation Plan and Sustainable Communities Strategy EIR; San Diego Association of Governments; San Diego, California. The San Diego Association of Governments prepared the 2050 Regional Transportation Plan and Sustainable Communities Strategy (SC), which provides a plan for investing local, state, and federal transportation funds expected to come into the San Diego region over the next 40 years. The SCS details how the region will reduce greenhouse gas emissions to state-mandated levels over time. The inclusion of the SCS is required by Senate Bill 375, and the San Diego region is the first in California to produce a regional transportation plan with an SCS. The accompanying program EIR prepared for this plan was complex and examined both transportation network improvements and the regional growth and land use changes forecasted. Due to the long-term nature of the plan, future conditions and impact analyses were provided for three target years: 2020, 2035, and 2050. *Role: Assistant Project Manager. Provided project scheduling, client and attorney relations, internal staff coordination, and document delivery at all stages of the project. Reviewed and revised EIR sections. Organized and authored response to comments on draft EIR.*

*On-Call Biological Services Contract for Utility and Infrastructure Projects; San Diego Gas and Electric; San Diego, California. Ongoing on-call biological evaluation services were provided to SDG&E for transmission poles and accompanying infrastructure identified for maintenance or replacement activities. *Role: Assistant Project Manager focused on task project budgeting and invoicing support. Report writing assistance and field support provided to biologists as needed.*

*On-Call Environmental Consulting Services Contract for Downtown San Diego Redevelopment Projects; former City Centre Development Corporation (CCDC); San Diego, California. On-call environmental consulting services were provided to CCDC for various redevelopment projects occurring within the Downtown San Diego area, inducing high-density residential, retail/commercial, historical restoration, and public facility projects. *Role: Assistant Project Manager and Primary Author of focused environmental evaluations used to comply with CEQA review and project approval. Provided project budget maintenance, project scheduling, client relations, internal staff coordination, and document delivery.*

*San Elijo Lagoon Restoration Project EIR/Environmental Impact Statement; San Elijo Lagoon Conservancy; Encinitas, California. The San Elijo Lagoon Restoration Project involved the enhancement and restoration of the biological functions and values of the San Elijo Lagoon Ecological Reserve, located in city of Encinitas in San Diego County. The San Elijo Lagoon Conservancy administered a joint EIR/environmental impact statement for the U.S. Army Corps of Engineers and County of San Diego Department of Parks and Recreation. *Role: Assistant Project Manager and Section Author. Authored several EIR/environmental impact statement sections. Provided project budget maintenance, project scheduling, client and stakeholder relations, internal staff coordination, and document delivery.*

*Regional Beach Sand Project II Environmental Assessment/Final EIR; San Diego Association of Governments; San Diego, California. The San Diego Association of Governments and the U.S. Army Corps of Engineers placed 1.5 million cubic yards of beach quality sand on regional beaches to help address the erosional nature of the San Diego coastline. A joint Environmental Assessment/Final EIR was prepared to address the potential environmental consequences associated with dredging and placement of sand on numerous potential receiver sites in the San Diego region. *Role: Section Author and Permitting Support. Authored several EIR/EA sections. Prepared applications and supplemental information necessary to obtain permits from various jurisdictions and resource agencies.*

*Wood to Steel Pole Replacements Focused Environmental Impact Assessments; San Diego Gas and Electric; San Diego, California. SDG&E conducted major wood-to-steel projects to replace thousands of power poles with fire resistant steel poles throughout its service area in areas identified as susceptible to fire damage in the event of a wildland fire. Focused environmental assessments were prepared following a modified version of CEQA Appendix G guidelines to assess impacts related to implementing these utility improvements. *Role: Planning Specialist. Primary Author of environmental impact assessments for three separate transmission lines (tie lines) in eastern San Diego County.*

CHRIS MILLINGTON, M.A., RPA, SENIOR ARCHAEOLOGIST

Mr. Millington is a principal investigator in SWCA's Pasadena, California, office with 18 years of experience in cultural resources management. His responsibilities include technical oversight, research, project management, agency coordination, authoring cultural resources reports, analyzing spatial data, map production, and graphics. Across his entire career, Mr. Millington has contributed to over 300 compliance-driven projects with SWCA in eight states across the western United States. In the last 13 years, he has focused on projects and research predominantly within his native Southern California, including both rural and urban settings. Mr. Millington has developed expertise in CEQA compliance, urban archaeology, and Los Angeles history. He has overseen more than a dozen task orders for the City of Los Angeles Bureau of Engineering, served as a project manager and lead archaeologist for over 100 tasks orders supporting various Southern California Edison maintenance and construction projects across southern California, and since 2017, prepared CEQA technical studies over for over 60 individual projects within the City of Los Angeles. He regularly collaborates with engineers, construction crews, planners, and attorneys, on both the private and public sides, and is experienced in responding to mid-stream project design changes, public scrutiny, and unanticipated budget and schedule adjustments. Mr. Millington has extensive experience supporting public agencies for tribal consultation under Assembly Bill 52 (AB 52) and regularly conducts desktop sensitivity assessments for archaeological and tribal cultural resources.

YEARS OF EXPERIENCE

18

EXPERTISE

Los Angeles history

CEQA

Tribal consultation, AB 52 compliance

National Historic Preservation Act

National Environmental Policy Act

EDUCATION

M.A., Archaeology; University of New Mexico; 2006

B.A., Anthropology, e: Archaeology, m: Religious Studies; University of New Mexico; 2004

A.A., Liberal Arts; Long Beach City College; 2002

REGISTRATIONS / CERTIFICATIONS

Registered Professional Archaeologist No. 32790536

PERMITS

U.S. Bureau of Land Management Cultural Resource Use Permit (CA-20-28), Principal Investigator; California

SELECTED PROJECT EXPERIENCE

La Brea Tar Pits Master Plan EIR; Los Angeles County Natural History Museum; Los Angeles County, California. SWCA is preparing an EIR addressing the environmental impacts of significant improvements to this iconic site in central Los Angeles. Significant development has occurred in the project vicinity in recent years (e.g., at the adjacent LA County Museum of Art and with the LA Metro), and the EIR and approach to construction phasing will be highly scrutinized. In addition to leading the EIR process, SWCA is assisting with the public engagement process. The conceptual master plan was recently developed by the Natural History Museum for the future development and enhancement of the La Brea Tar Pits site. The master plan includes the existing museum and Hancock Park and seeks to unify the critical research sites, buildings, exhibition space, and the park with an inspiring new identity. *Role: Cultural Resources Specialist.*

Natural History Museum of Los Angeles County, Center for History and Culture Project; Los Angeles County Museum of Natural History; Los Angeles County, California. To facilitate the demolition of the existing Jean Delacour Auditorium and construction of an addition to the Los Angeles County Natural History Museum, SWCA analyzed environmental review options under CEQA and recommended a Class 32 Infill Exemption as the most cost- and time-efficient document. SWCA is currently completing the Class 32 Infill Exemption, and previously prepared the archaeological, paleontological, transportation, and historic preservation supporting technical studies. *Role: Senior Archaeologist. Oversaw assessment of archaeological resources, conducted historical research, produced maps/graphics and performed GIS analysis, and authored technical report.*

LA Plaza de Cultura y Artes; Los Angeles, Los Angeles County, California. Across seven contracts, three directly with the County of Los Angeles, SWCA provided expert cultural resources consultation for the LA Plaza de Cultura y Artes campus, in compliance with state and federal laws including Section 106 of the NHPA, the Native American Graves Protection and Repatriation Act (NAGPRA), NEPA, and CEQA. Services provided to date included archaeological

laboratory analysis, treatment and reburial of human remains, historical research, Native American and other interested party consultation, expert witness services, archaeological testing and data recovery, archaeological and Native American monitoring, technical reports, a Historic Properties Management Plan, an update to the Los Angeles Plaza Historic District National Register of Historic Places District nomination, and an Addendum EIR. SWCA provided technical expertise and consultation, ensuring compliance and allowing numerous phases of the project to come to successful conclusions. Role: Project Archaeologist. Supervised fieldwork, spatial data management and analysis, research, and reporting QA/QC.

Archaeological and/or Tribal Cultural Resource Technical Studies for CEQA Compliance; Multiple Clients; City of Los Angeles, California. SWCA has prepared technical reports assessing archaeological and/or tribal cultural resources on multiple land development projects within the City of Los Angeles. The projects include mixed-use developments in the Mid-City area, multi-family residential developments in suburban neighborhoods, construction of high-rise towers in Downtown Los Angeles, and single-family home remodeling projects. The technical studies were conducted by SWCA to inform various types of regulatory compliance documents, primarily pursuant to the California Environmental Quality Act (CEQA), but also supporting due diligence efforts where a project was found to meet CEQA exemption criteria. Each of the technical studies included archival research, ethnographic literature review, searches of the California Historical Resources Information System and Sacred Lands File search, and geoarchaeological assessments. *Role: Principal Investigator, Author/Co-Author, and Project Manager.*

Sample Project List within the City of Los Angeles:

- 1001 Olympic Boulevard
- 1024 Mateo
- 10850 Riverside Drive
- 1330 West Pico Boulevard
- 17346 Sunset Project
- 1855-1871 South Westwood Boulevard
- 2110 Bay Street
- 222 West 2nd Street
- 216-234 Pico Boulevard
- 2800 Casitas Loft
- 2859 Coldwater Canyon Drive
- 2900 Wilshire Boulevard
- 3rd and Fairfax
- 350 S Figueroa
- 3600 Wilshire Boulevard
- 4850 Hollywood Boulevard
- 4882-4888 Lankershim Boulevard
- 520 Mateo Street
- 5407 Wilshire Boulevard
- 5th and Hill
- 6733 Sepulveda Residential
- 6834-6838 North Baird Avenue
- Arts District Center
- Culver City Transfer Station
- Korean American National Museum
- Marquette Residential Development
- Olympic Tower
- Southern California Flower Market
- Venice Place
- Victory Boulevard

Secondary Sewer Renewal Program (SSRP) N11 7th Street and Valencia Street Cultural Resources Assessment (W.O. SZC13161); Los Angeles Department of Public Works (LADPW), Bureau of Engineering (BOE); Los Angeles County, California. LADPW BOE awarded SWCA with a task order to prepare an archaeological and paleontological assessment in support of an SSRP in a commercial and residential portion of the downtown Los Angeles area. The task included background research and records searches to identify any existing archaeological or paleontological resources and assess the potential for undocumented resources that could be encountered during construction. The study was conducted as part of the project's environmental review, which was completed consistent with CEQA and standard BOE environmental review practices. SWCA developed detailed mitigation measures that were incorporated into the project design. *Role: Project Manager and Cultural Resources Specialist.*

Alameda Corridor East (ACE) Monitoring and Management Services for the Trench Package; The San Gabriel Valley Council of Governments (SGVCOG); San Gabriel, Alhambra, Rosemead, Los Angeles County, California. SWCA conducted technical studies and prepared Environmental Impact Report (EIR) sections for compliance with state and federal statutes, particularly CEQA and NEPA, for review by Caltrans, the lead agency. Cultural resources work included archaeological and architectural history surveys and evaluation studies, in compliance with Section 106 of the NHPA and Caltrans standards. SWCA oversaw mitigation for adverse effects to the CRHR/NRHP-listed San Gabriel Mission. *Role: Project Archaeologist. Total station mapping, GPS data collection, geospatial data management and analysis, and map production for field-use and report graphics, archival research.*

DEBI HOWELL-ARDILA, MHP, SR. ARCHITECTURAL HISTORIAN

Ms. Howell-Ardila is an award-winning historic preservation professional with over 17 years of experience in environmental compliance and historic preservation. She leads SWCA's Southern California Architectural History Group. She has led site investigations and evaluations for thousands of properties throughout California, with a focus on Southern California and the San Francisco Bay Area. Her experience includes preparation of thematic historic context statements, citywide historic resource surveys, environmental compliance studies and documentation in support of CEQA, federal and local landmark nominations, Mills Act applications, and Secretary of the Interior's Standards project review. She exceeds the Secretary of the Interior's Professional Qualification Standards in Architectural History and History.

YEARS OF EXPERIENCE

17

EXPERTISE

Specialized practice in historic preservation planning and policy

Specialized expertise in program- and project-level CEQA analyses

Secretary of the Interior's Standards project review and compliance

EDUCATION

M.H.P., Historic Preservation; University of Southern California, School of Architecture; 2010

B.A., German and Architectural History; University of California, Berkley; 1997

REGISTRATIONS / CERTIFICATIONS

Meets and exceeds requirements in the Secretary of the Interior's Professional Qualification Standards in Architectural History and History

SELECTED PROJECT EXPERIENCE (* denotes project experience prior to SWCA)

La Brea Tar Pits Master Plan EIR; Los Angeles County Natural History Museum; Los Angeles County, California. SWCA is preparing an EIR addressing the environmental impacts of significant improvements to this iconic site in central Los Angeles. Significant development has occurred in the project vicinity in recent years (e.g., at the adjacent LA County Museum of Art and with the LA Metro), and the EIR and approach to construction phasing will be highly scrutinized. In addition to leading the EIR process, SWCA is assisting with the public engagement process. The conceptual master plan was recently developed by the Natural History Museum for the future development and enhancement of the La Brea Tar Pits site. The master plan includes the existing museum and Hancock Park and seeks to unify the critical research sites, buildings, exhibition space, and the park with an inspiring new identity. *Role: Senior Architectural Historian and principal researcher/author.*

City of Colton, Cultural Resources Element and Historic Preservation Ordinance Updates, Colton, California. SWCA is currently updating the City of Colton's Cultural Resources Element and providing recommendations for potential updates to its Historic Preservation Ordinance. Work efforts include development of clear, user-friendly Goals, Policies, and Action Items; planning and leading community workshops and hearings with commissions and City Council; and guiding the element through the reviews and approval process. *Role: Senior Architectural Historian and principal researcher/author.*

City of San Gabriel Historic Preservation and Cultural Resources Ordinance Update; City of San Gabriel Department of Planning; California. SWCA updated the City of San Gabriel Historic Preservation and Cultural Resources Ordinance. In 2017/2018, San Gabriel's Historic Preservation and Cultural Resources Ordinance Update won preservation awards from the Los Angeles Conservancy and California Preservation Foundation. *Role: Project Manager and Lead Author/Historic Preservation Specialist.*

Los Angeles Unified School District (LAUSD) Design Guidelines and Treatment Approaches for Historic Schools; LAUSD; Los Angeles County, California. SWCA prepared district-wide design guidelines for LAUSD, the second largest public school district in the United States. Given LAUSD's 130-year history and expansive geographic range, the LAUSD Design Guidelines provided detailed treatment approaches for a range of school types, architectural styles, and projects, using the Secretary of the Interior's Standards as the point-of-departure. *Role: Project Manager and Lead Historic Preservation Specialist. Served as the project manager and principal author of the design guidelines.*

City of Manhattan Beach Historic Preservation Ordinance; City of Manhattan Beach Department of Community Development; Los Angeles County, California. SWCA drafted a new Historic Preservation Ordinance for the City of Manhattan Beach. Work efforts included training sessions and outreach to the City's Planning Commission and City Council, as well as public workshop hearings, stakeholder outreach, and developing educational materials. *Role: Project Manager and Lead Historic Preservation Specialist. Led efforts to provide historic*

AWARDS

2019: California Preservation Foundation Award, *City of Riverside Latino Historic Context Statement*

2018: California Preservation Foundation Award, City of San Gabriel Historic Preservation and Cultural Resources Ordinance

2018: Los Angeles Conservancy Preservation Award, City of San Gabriel Historic Preservation and Cultural Resources Ordinance

2015: Los Angeles Conservancy Preservation Award, *LAUSD Historic Context Statement, 1870 to 1969*

2014: California Preservation Foundation Award, *LAUSD Historic Context Statement, 1870 to 1969*

preservation consulting services in support of a new historic preservation ordinance and Mills Act Tax Abatement program in the City of Manhattan Beach.

1023 N. Soldano Avenue, Azusa, Historic Preservation Project Review; City of Azusa Planning Division, Azusa, California. Ms. Howell-Ardila recently completed historic preservation project review for the City of Azusa Planning Division for 1023 N. Soldano Avenue. Constructed in 1905, the property is a two-story, single-family residence included on City's list of Potential Historic Landmarks. Ms. Howell-Ardila provided a due-diligence Memorandum for the Record and *Secretary's Standards* project review as part of the entitlements process for modifications to the property. Ms. Howell-Ardila also completed a project impacts screening to offer guidance on the potential for direct or indirect significant adverse impacts to historical resources. *Role: Project Manager and Lead Author/Historic Preservation Specialist*

Historic Resources Technical Study, Existing Sites Technical Memorandum; Academy of Art University; San Francisco, California. SWCA prepared a multi-property historic resources technical study in support of an Existing Sites Technical Memorandum (ESTM) for the Academy of Art University. Key issues included updating historic resource evaluations for 26 properties, documenting exterior and interior character-defining features and alterations over time, and subjecting unpermitted alterations to Secretary of the Interior's Standards project review and analyzing potential impacts. Treatment approaches were also recommended to facilitate compliance with the Secretary of the Interior's Standards. SWCA's Architectural History team completed/updated historic resource evaluations for 26 properties on an accelerated schedule of five months. *Role: Lead Architectural Historian and Project Manager.*

LA Plaza Cultura Village Environmental Impact Report (EIR), Cultural Resources Technical Report; County of Los Angeles; Los Angeles County, California. Analysis of potential impacts to historic resources dealt primarily with indirect impacts to adjacent historic districts, an analysis based on study of the Secretary of the Interiors Standards for the Treatment of Historic Properties as well as community plan design guidelines. *Role: Senior Architectural Historian/principal author.*

*Riverside Latino Historic Context Statement; City of Riverside; Riverside County, California. Preparation of the *City of Riverside Latino Historic Context Statement*, which explored over a century of history and culture of Riverside's Latino community. This effort was recognized with an award from the California Preservation Foundation in 2019. *Role: Principal Author/Investigator. Authored historic context statement.*

Monterey Regional Airport Historic Resources Survey Report; Coffman Associates; Monterey County, California. In support of CEQA environmental review, SWCA conducted a historic resources survey and evaluation for the Monterey Regional Airport. Efforts included archival research, site investigations, and survey and preparation of a historic resources technical report summarizing the results. *Role: Senior Architectural Historian/principal author.*

Historic District Survey for the Air Force Research Laboratory; Edwards Air Force Base, California. SWCA completed a comprehensive, context-driven historic resources survey and historic district update of the Edwards Air Force Base Air Force Research Laboratory. Using the multiple-property documentation historic context statement prepared by SWCA, architectural historians completed an intensive-level survey and evaluation of over 230 properties. Subsequent to these efforts, SWCA prepared a technical report, which documented the results and provided management recommendations. *Role: Architectural Historian.*

APPENDIX N

Tree Survey for the La Brea Tar Pits Site

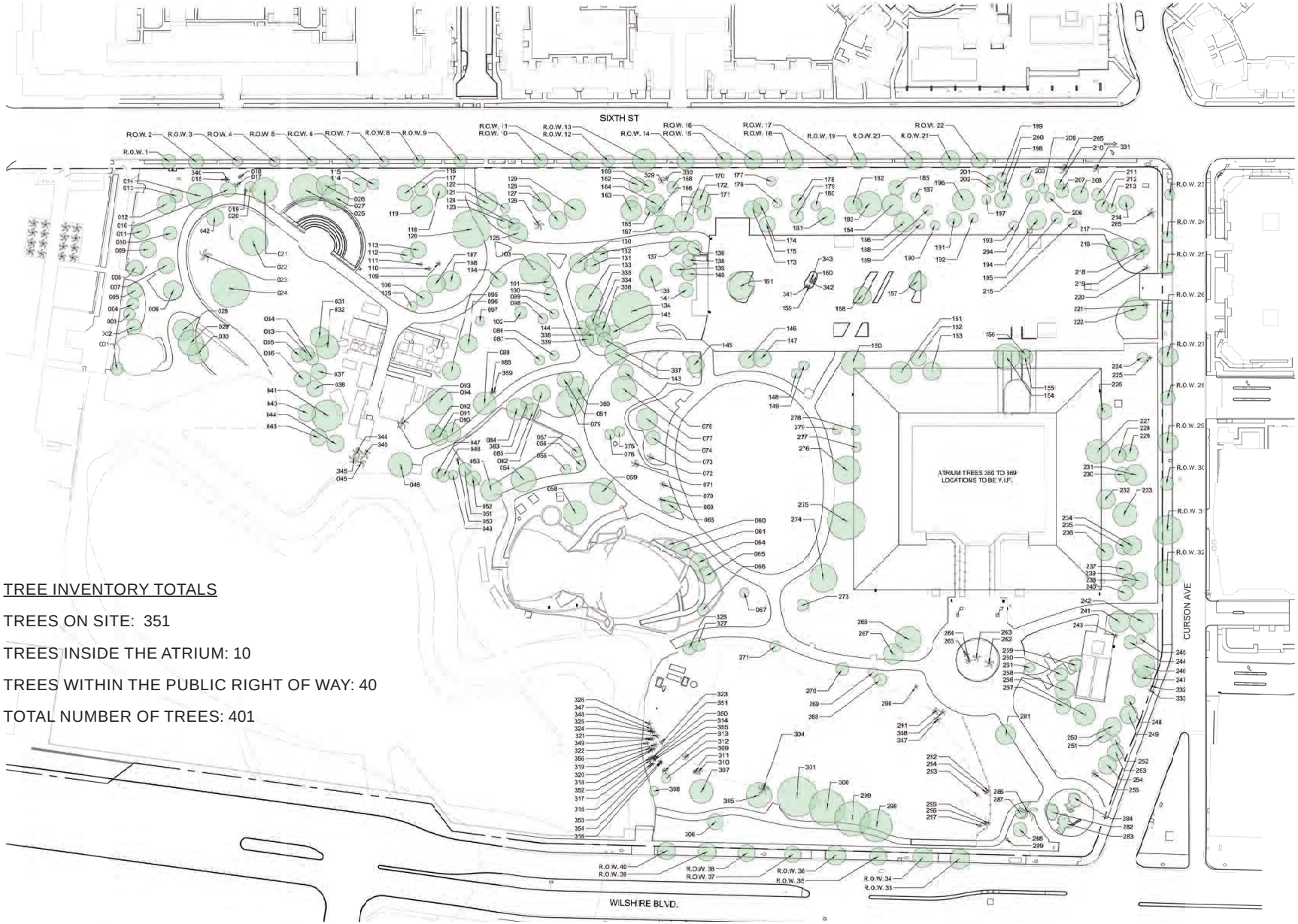
NATURAL HISTORY MUSEUMS OF LA COUNTY
LA BREA TAR PITS

TREE INVENTORY

DECEMBER 05, 2024

GRUENASSOCIATES
ARCHITECTURE PLANNING INTERIORS LANDSCAPE

LA BREA TAR PITS - TREE INVENTORY



TREE INVENTORY TOTALS

TREES ON SITE: 351

TREES INSIDE THE ATRIUM: 10

TREES WITHIN THE PUBLIC RIGHT OF WAY: 40

TOTAL NUMBER OF TREES: 401

N

N.T.S.

LA BREA TAR PITS - TREE INVENTORY

TREE INVENTORY // IDENTIFICATION

No.	Species
001	Eucalyptus nicholii
002	Eucalyptus citriodora
003	Eucalyptus citriodora
004	Eucalyptus nicholii
005	Eucalyptus nicholii
006	Quercus agrifolia
007	Platanus acerifolia
008	Platanus acerifolia
009	Platanus acerifolia
010	Platanus acerifolia
011	Platanus acerifolia
012	Platanus acerifolia
013	Geijera parvifolia
014	Jacaranda mimosifolia
015	Washingtonia robusta
016	Pistacia chinensis
017	Washingtonia robusta
018	Washingtonia robusta
019	Washingtonia robusta
020	Pistacia chinensis
021	Quercus agrifolia
022	Quercus agrifolia
023	Washingtonia robusta
024	Platanus racemosa
025	Tipuana tipu
026	Tipuana tipu
027	Tipuana tipu
028	Eucalyptus cladocalyx
029	Pinus eldarica
030	Pinus eldarica
031	Pinus eldarica
032	Pinus halepensis
033	Platanus racemosa
034	Platanus racemosa
035	Eucalyptus sideroxylon
036	Eucalyptus sideroxylon
037	Pinus halepensis
038	Pinus halepensis
039	*Omit*
040	Eucalyptus sideroxylon
041	Pinus halepensis
042	Pinus sabiniana
043	Geijera parvifolia
044	Eucalyptus camaldulensis

No.	Species
045	Washingtonia robusta
046	Jacaranda mimosifolia
047	Sequoia sempervirens
048	Cupaniopsis anacardioides
049	Eucalyptus camaldulensis
050	Washingtonia robusta
051	Cinnamomum camphora
052	Geijera parvifolia
053	Platanus racemosa
054	Platanus racemosa
055	Ginkgo biloba
056	Ginkgo biloba
057	Ginkgo biloba
058	Platanus racemosa
059	Platanus racemosa
060	Pinus thunbergii
061	Cedrus deodara
062	*Omit*
063	*Omit*
064	Pinus canariensis
065	Pinus canariensis
066	Pinus canariensis
067	Lagerstroemia indica
068	Platanus acerifolia
069	Washingtonia robusta
070	Washingtonia robusta
071	Washingtonia robusta
072	Washingtonia robusta
073	Quercus agrifolia
074	Rhus ovata
075	Rhus ovata
076	Rhus ovata
077	Heteromeles arbutifolia
078	Platanus racemosa
079	Schinus terebinthifolius
080	Schinus terebinthifolius
081	Schinus terebinthifolius
082	Schinus terebinthifolius
083	Platanus racemosa
084	Platanus racemosa
085	Platanus racemosa
086	Quercus agrifolia
087	Quercus agrifolia
088	Washingtonia robusta
089	Platanus racemosa
090	Populus fremontii
091	Populus fremontii

No.	Species
092	Populus fremontii
093	Washingtonia robusta
094	Fraxinus uhdei
095	Platanus racemosa
096	Jacaranda mimosifolia
097	Lagerstroemia indica
098	Ginkgo biloba
099	Ginkgo biloba
100	Ginkgo biloba
101	Ginkgo biloba
102	Quercus lobata
103	Platanus acerifolia
104	Pinus halepensis
105	Eucalyptus ficifolia
106	Platanus racemosa
107	Pinus torreyana
108	Olea europea
109	Washingtonia robusta
110	Washingtonia robusta
111	Washingtonia robusta
112	Agonis flexuosa
113	Schinus terebinthifolius
114	Eucalyptus nicholii
115	Pistacia chinensis
116	Platycladus arborvitae
117	Platycladus arborvitae
118	Platycladus arborvitae
119	Jacaranda mimosifolia
120	Eucalyptus globulus
121	Jacaranda mimosifolia
122	Calocedrus decurrens
123	Pinus halepensis
124	Pinus halepensis
125	Pinus halepensis
126	Washingtonia robusta
127	Jacaranda mimosifolia
128	Pinus canariensis
129	Pinus canariensis
130	Quercus agrifolia
131	Quercus agrifolia
132	Quercus agrifolia
133	Aesculus californica
134	Platanus racemosa
135	Sequoia sempervirens
136	Pinus sp.
137	Sequoia sempervirens
138	Umbellularia californica

No.	Species
139	Umbellularia californica
140	Sequoia sempervirens
141	Sequoia sempervirens
142	Celtis sp.
143	Sambucus mexicana
144	Juglans californica
145	Cupressus macrocarpa
146	Pinus sabiniana
147	Pinus sabiniana
148	Quercus agrifolia
149	Quercus agrifolia
150	Schinus terebinthifolius
151	Koelreuteria bipinnata
152	Koelreuteria bipinnata
153	Koelreuteria bipinnata
154	Platanus racemosa
155	Platanus racemosa
156	Cinnamomum camphora
157	Pinus torreyana
158	Pinus radiata
159	Washingtonia robusta
160	Washingtonia robusta
161	Pinus torreyana
162	Schinus terebinthifolius
163	Jacaranda mimosifolia
164	Jacaranda mimosifolia
165	Prunus Persica
166	Lagerstroemia indica
167	Calocedrus decurrens
168	Platanus acerifolia
169	Sapote sp.
170	Cedrus atlantica
171	Jacaranda mimosifolia
172	Cupaniopsis anacardioides
173	Cupressus sempervirens
174	Cupressus sempervirens
175	Cupressus sempervirens
176	Jacaranda mimosifolia
177	Prunus persica
178	Jacaranda mimosifolia
179	Jacaranda mimosifolia
180	Jacaranda mimosifolia
181	Cupressus sempervirens
182	Jacaranda mimosifolia
183	Ceratonia siliqua
184	Jacaranda mimosifolia
185	Robinia pseudoacacia

No.	Species
186	Cedrus deodara
187	Pinus sabiniana
188	Koelreuteria bipinnata
189	Koelreuteria bipinnata
190	Koelreuteria bipinnata
191	Koelreuteria bipinnata
192	Koelreuteria bipinnata
193	Magnolia grandiflora
194	Magnolia grandiflora
195	Koelreuteria bipinnata
196	Jacaranda mimosifolia
197	Ligustrum lucidum
198	Ligustrum lucidum
199	Platycladus arborvitae
200	Platycladus arborvitae
201	Platycladus arborvitae
202	Platycladus arborvitae
203	Platycladus arborvitae
204	Jacaranda mimosifolia
205	Washingtonia robusta
206	Jacaranda mimosifolia
207	Ligustrum lucidum
208	Jacaranda mimosifolia
209	Ligustrum lucidum
210	Platycladus arborvitae
211	Jacaranda mimosifolia
212	Jacaranda mimosifolia
213	Jacaranda mimosifolia
214	Jacaranda mimosifolia
215	Koelreuteria bipinnata
216	Jacaranda mimosifolia
217	Pinus eldarica
218	Pinus eldarica
219	Pinus eldarica
220	Washingtonia robusta
221	Washingtonia robusta
222	Schinus molle
223	*Omit*
224	Cinnamomum camphora
225	Washingtonia robusta
226	Platanus acerifolia/racemosa hybrid
227	Platanus racemosa
228	Ceratonia siliqua
229	Ceratonia siliqua
230	Ligustrum lucidum
231	Ligustrum lucidum
232	Robinia pseudoacacia

LA BREA TAR PITS - TREE INVENTORY

TREE INVENTORY // IDENTIFICATION (CONT.)

No.	Species
233	Jacaranda mimosifolia
234	Ligustrum lucidum
235	Jacaranda mimosifolia
236	Jacaranda mimosifolia
237	Ligustrum lucidum
238	Sambucus mexicana
239	Pinus canariensis
240	Pinus halepensis
241	Jacaranda mimosifolia
242	Schinus molle
243	Washingtonia robusta
244	Koelreuteria bipinnata
245	Koelreuteria bipinnata
246	Cedrus deodara
247	Cedrus deodara
248	Lagerstroemia indica
249	Geijera parvifolia
250	Tabebuia avellanedae
251	Tabebuia avellanedae
252	Tipuana tipu
253	Tipuana tipu
254	Tipuana tipu
255	Washingtonia filifera
256	Tipuana tipu
257	Tipuana tipu
258	Tipuana tipu
259	Tipuana tipu
260	Tipuana tipu
261	Pinus halepensis
262	Syagrus romanzoffiana
263	Syagrus romanzoffiana
264	Syagrus romanzoffiana
265	Syagrus romanzoffiana
266	Erythrina caffra
267	Pinus halepensis
268	Platanus racemosa
269	Sambucus mexicana
270	Heteromeles arbutifolia
271	Prunus ilicifolia
272	*Omit*
273	Tabebuia avellanedae
274	Tipuana tipu
275	Tipuana tipu
276	Tipuana tipu
277	Ginkgo biloba
278	Ginkgo biloba
279	Ginkgo biloba

No.	Species
280	*Omit*
281	Fraxinus uhdei
282	Melaleuca armillaris
283	Melaleuca armillaris
284	Melaleuca armillaris
285	Washingtonia robusta
286	Phoenix canariensis
287	Cupaniopsis anacardioides
288	Ulmus parvifolia
289	Washingtonia robusta
290	Washingtonia robusta
291	Washingtonia robusta
292	Washingtonia robusta
293	Washingtonia robusta
294	Washingtonia robusta
295	Washingtonia robusta
296	Washingtonia robusta
297	Washingtonia robusta
298	Eucalyptus globulus
299	Eucalyptus globulus
300	Eucalyptus globulus
301	Eucalyptus globulus
302	*Omit*
303	*Omit*
304	Washingtonia robusta
305	Sambucus mexicana
306	Eucalyptus viminalis
307	Ceratonia siliqua
308	Eucalyptus viminalis
309	Chamaerops humilis
310	Washingtonia robusta
311	Washingtonia robusta
312	Washingtonia robusta
313	Washingtonia robusta
314	Washingtonia robusta
315	Washingtonia robusta
316	Washingtonia robusta
317	Washingtonia robusta
318	Washingtonia robusta
319	Washingtonia robusta
320	Washingtonia robusta
321	Washingtonia robusta
322	Washingtonia robusta
323	Washingtonia robusta
324	Washingtonia robusta
325	Washingtonia robusta
326	Washingtonia robusta

No.	Species
327	Sambucus mexicana
328	Quercus agrifolia
329	Washingtonia robusta
330	Washingtonia robusta
331	Washingtonia robusta
332	Washingtonia robusta
333	Washingtonia robusta
334	Salix lasiolepis
335	Salix lasiolepis
336	Salix lasiolepis
337	Juglans californica
338	Salix lasiolepis
339	Salix lasiolepis
340	Washingtonia robusta
341	Washingtonia robusta
342	Washingtonia robusta
343	Washingtonia robusta
344	Washingtonia robusta
345	Washingtonia robusta
346	Washingtonia robusta
347	Washingtonia robusta
348	Washingtonia robusta
349	Washingtonia robusta
350	Washingtonia robusta
351	Washingtonia robusta
352	Washingtonia robusta
353	Washingtonia robusta
354	Washingtonia robusta
355	Washingtonia robusta
356	Washingtonia robusta
357	Washingtonia robusta
358	Washingtonia robusta
359	Washingtonia robusta
360	Schefflera pueckleri
361	Schefflera pueckleri
362	Schefflera pueckleri
363	Schefflera pueckleri
364	Stenocarpus sinuatus
365	Schefflera pueckleri
366	Ficus rubiginosa
367	Lagerstroemia indica
368	Ginkgo biloba
369	Ficus rubiginosa

PUBLIC R.O.W TREE INVENTORY // IDENTIFICATION

ROW tree No.	Species
001	Jacaranda mimosifolia
002	Jacaranda mimosifolia
003	Jacaranda mimosifolia
004	Jacaranda mimosifolia
005	Jacaranda mimosifolia
006	Jacaranda mimosifolia
007	Jacaranda mimosifolia
008	Jacaranda mimosifolia
009	Jacaranda mimosifolia
010	Jacaranda mimosifolia
011	Jacaranda mimosifolia
012	Jacaranda mimosifolia
013	Jacaranda mimosifolia
014	Jacaranda mimosifolia
015	Jacaranda mimosifolia
016	Jacaranda mimosifolia
017	Jacaranda mimosifolia
018	Jacaranda mimosifolia
019	Jacaranda mimosifolia
020	Jacaranda mimosifolia
021	Jacaranda mimosifolia
022	Jacaranda mimosifolia
023	Jacaranda mimosifolia
024	Jacaranda mimosifolia
025	Jacaranda mimosifolia
026	Jacaranda mimosifolia
027	Jacaranda mimosifolia
028	Jacaranda mimosifolia
029	Jacaranda mimosifolia
030	Jacaranda mimosifolia
031	Jacaranda mimosifolia
032	Jacaranda mimosifolia
033	Platanus racemosa
034	Platanus racemosa
035	Platanus racemosa
036	Platanus racemosa
037	Platanus racemosa
038	Platanus racemosa
039	Platanus racemosa
040	Platanus racemosa

BOARD LETTER/MEMO
CLUSTER FACT SHEET

☐ Board Letter ☒ Board Memo ☐ Other

CLUSTER AGENDA REVIEW DATE	1/15/2025
BOARD MEETING DATE	2/4/2025
SUPERVISORIAL DISTRICT AFFECTED	☒ All ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th
DEPARTMENT(S)	Chief Executive Office
SUBJECT	**CHIEF EXECUTIVE OFFICE RISK MANAGEMENT ANNUAL REPORT, FISCAL YEAR 2023-24 (ITEM NO 30-A, BOARD MEETING OF FEBRUARY 6, 2018)**
PROGRAM	
AUTHORIZES DELEGATED AUTHORITY TO DEPT	☐ Yes ☒ No
SOLE SOURCE CONTRACT	☐ Yes ☒ No If Yes, please explain why:
SB 1439 SUPPLEMENTAL DECLARATION FORM REVIEW COMPLETED BY EXEC OFFICE	☐ Yes ☒ No – Not Applicable **If unsure whether a matter is subject to the Levine Act, email your packet to EOLevineAct@bos.lacounty.gov to avoid delays in scheduling your Board Letter.**
DEADLINES/ TIME CONSTRAINTS	This annual report is due to the Board the first week of February.
COST & FUNDING	Total cost: $ N/A Funding source: N/A TERMS (if applicable): N/A Explanation:
PURPOSE OF REQUEST	The purpose of the report is to inform the Board of a summarized Cost of Risk in Liability and Workers' Compensation exposures; assist departments in recognizing the nature and extent of their exposures and losses; and provide direction on risk management strategies to be taken in the current and subsequent fiscal years.
BACKGROUND (include internal/external issues that may exist including any related motions)	Details of the number, type, and cost of claims are included in the annual report, along with risk categories and prevention activities implemented by CEO Risk Management. 1. The total of all costs related to Liability and Workers' Compensation decreased by 4.8% from FY 2022-23 to FY 2023-24. 2. Total liability (AL, GL, MM) claim expenses decreased 37.3% from FY 2022-23 to FY 2023-24. 3. Workers' Compensation claim expenses increased 13.6% from FY 2022-23 to FY 2023-24. 4. The County's Total Cost of Risk decreased from 2.23% to 2.13% of the County's operating budget; this represents a 4.48% decrease over FY 2022-23.
EQUITY INDEX OR LENS WAS UTILIZED	☐ Yes ☒ No If Yes, please explain how:
SUPPORTS ONE OF THE NINE BOARD PRIORITIES	☐ Yes ☒ No If Yes, please state which one(s) and explain how:
DEPARTMENTAL CONTACTS	Name, Title, Phone # & Email: Destiny Castro, Acting Branch Manager, Risk Management Ph. (213) 738-2194 Email: DCastro@ceo.lacounty.gov

BOARD OF SUPERVISORS

Hilda L. Solis
First District

Holly J. Mitchell
Second District

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Kathryn Barger
Fifth District

COUNTY OF LOS ANGELES
Kenneth Hahn Hall of Administration
500 West Temple Street, Room 713, Los Angeles, CA 90012
(213) 974-1101 ceo.lacounty.gov

CHIEF EXECUTIVE OFFICER
Fesia A. Davenport

February 4, 2025

DRAFT

To: Supervisor Kathryn Barger, Chair
Supervisor Hilda L. Solis
Supervisor Holly J. Mitchell
Supervisor Janice Hahn
Supervisor Lindsey P. Horvath

From: Fesia A. Davenport
Chief Executive Officer

CHIEF EXECUTIVE OFFICE RISK MANAGEMENT ANNUAL REPORT, FISCAL YEAR 2023-24 (ITEM NO 30-A, BOARD MEETING OF FEBRUARY 6, 2018)

Attached is the *Chief Executive Office Risk Management Annual Report, Fiscal Year 2023-24.* The purpose of the report is to inform the Board of Supervisors (Board) of a summarized Cost of Risk in Liability and Workers' Compensation exposures; assist departments in recognizing the nature and extent of their exposures and losses; and provide direction on risk management strategies to be taken in the current and subsequent fiscal years (FYs).

In previous FYs, we focused on improving the County's risk culture and operational capabilities. These initiatives ultimately led to an enterprise risk model that embeds risk management into the planning, execution, and completion of all Board of Supervisors (Board) priorities and operational functions of the County.

Details of the number, type, and cost of claims are included in the attached report. The following is a summary of the risk categories.

Total Cost of Risk
The total of all costs related to Liability and Workers' Compensation decreased by $46 million to $935 million, which represents a 4.8 percent decrease over FY 2022-23. The County's Total Cost of Risk decreased from 2.23 to 2.13 percent of the County's operating budget; this represents a 4.48 percent decrease over FY 2022-23.

DRAFT

The Total Cost of Risk is measured as a percentage of the County's operating budget and has varied between 2.01 and 2.26 percent over the last 10 FYs. The decrease in costs can be attributed to a reduction in general liability claims and costs over the last FY and are more fully described in the County Counsel Annual Litigation Cost Report.

Vehicle Liability[1]
Vehicle accident claims increased by 149 to 1,218, which represents a 13.9 percent increase over FY 2022-23. The cost of claims and lawsuits increased by $2.4 million to $17.9 million, which represents a 15.5% percent increase over FY 2022-23.

Other General Liability[1]
These claims decreased by 11,627 to 3,665, which represents a 76.0 percent decrease over FY 2022-23. The decrease in Other General Liability claims is due to the absence of additional claims related to the Dominguez Hills/Carson odor incident. The cost of claims and lawsuits decreased by $82.3 million to $43.4 million, which represents a 65.5 percent decrease over FY 2022-23. The decrease in cost is attributable to payouts made on claims related to the Dominguez Hills/Carson odor incident and significant settlements paid in FY 2022-23.

Employment Practices Liability (non-Workers' Compensation)[1]
These claims decreased by 22 to 184, which represents a 10.7 percent decrease over FY 2022-23. The cost of claims and lawsuits increased by less than $1 million to $38.3 million, which represents a 2.4 percent increase over FY 2022-23.

Law Enforcement Liability[1]
These claims have decreased by 18 to 746, which represents a 2.4 percent decrease over FY 2022-23. The cost of claims and lawsuits decreased by $29.1 million to $79.3 million, which represents a 26.9 percent decrease over FY 2022-23.

Medical Malpractice Liability[1]
These claims decreased by 22 to 143, which represents a 13.3 percent decrease over FY 2022-23. The cost of claims and lawsuits decreased by

[1] In FY 2020-21, County Counsel implemented a new system to manage litigation activities and CEO implemented a new system to manage claim activities with data exchange between the two systems. These systems allow the County to generate more accurate reporting and classification studies based on our specific needs. Therefore, these reports will have different costs associated with the departments. CEO reports on tort liability and Worker's Compensation claims, while County Counsel reports on both non-tort and tort liability cases and does not report on Workers' Compensation matters. County Counsel's Annual Litigation Cost Report should be utilized to evaluate trends related to litigation expenses, and the CEO Risk Management Annual Report should be used to analyze Workers' Compensation and Liability claims trends.

$2.3 million to $6.8 million, which represents a 25.6 percent decrease over FY 2022-23.

Workers' Compensation
These claims have decreased by 447 to 11,164, which represents a 3.8 percent decrease over FY 2022-23. The cost of claims and lawsuits increased by $70.1 million to $587 million, which represents a 13.6 percent increase over FY 2022-23. The cost increase can be attributable to statutory changes in physician charges and payments to injured workers.

The Chief Executive Office – Risk Management Branch continues to work with departments to prevent injuries and lower costs through guided assistance, and training and education initiatives, including:

- Collaboration with Departments in addressing cost drivers associated with issues driving workers' compensation and tort liability costs, including vehicle, general, employment practices, and medical malpractice liability.

- Measurement of departments' risk performance and focused loss prevention efforts to improve departments experiencing higher loss trends.

- Collaboration with departments in increasing the quality of Corrective Action Plans to include more robust descriptions, supporting documentation, exhibits, and contain in-depth discussions as to the violations and/or system issues that occurred and how suggested corrective actions will address the problems in the present and into the future.

- Partnering with the Third-Party Administrators to improve communication and customer satisfaction to injured workers.

Furthermore, as directed by the Board on March 9, 2021, the Chief Executive Office – Risk Management Branch and the Department of Human Resources, developed metrics to rank departmental risk management performance by clusters and provided consultative services to the lower performing (bottom 10%) for each cluster. The results of the performance metrics and prevention activities are included in this report.

This report represents the combined efforts of the entire Chief Executive Office – Risk Management Branch team. Input and analysis were provided by staff of Liability Claims and Recovery, Loss Control and Prevention, Data Analytics, Office of Privacy, Risk Management Finance, Risk Management Inspector General, Risk Transfer, and Workers' Compensation Units.

DRAFT

Should you have any questions concerning this matter, please contact me or Destiny Castro, Acting Branch Manager/County Risk Manager, at (213) 738-2194 or DCastro@ceo.lacounty.gov.

FAD:JMN
DC:RC:ef

Attachment

c: All Department Heads

County of Los Angeles
Risk Management

DRAFT

Inside County Risk
FY 2023-24 Annual Report

Destiny Castro
Acting Branch Manager
February 2025

LA County Library
Youth Development
Public Social Services
Economic Development
Medical Examiner-Coroner
Auditor-Controller
Board of Supervisors
Regional Planning
Public Defender
Museum of Art
LACERA
Assessor
Public Works
Sheriff
County Counsel
Fire
Chief Executive Office
Agricultural Commissioner/Weights and Measures
Alternate Public Defender
Public Health
District Attorney
Beaches and Harbors
Health Services
Internal Services
Arts and Culture
Parks and Recreation
Probation
Human Resources
Mental Health
Child Support Services
Animal Care and Control
Treasurer and Tax Collector
Justice, Care and Opportunities
Aging and Disabilities
Consumer and Business Affairs
Superior Court
Children and Family Services
Museum of Natural History
Military and Veterans Affairs
Registrar-Recorder/County Clerk

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Fifth District

COUNTY OF LOS ANGELES
BOARD OF SUPERVISORS

CHIEF EXECUTIVE OFFICE
RISK MANAGEMENT BRANCH

2023-24

Inside LA County's Risk Management Annual Report

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Risk Manager's Message

The County of Los Angeles (County), Chief Executive Office – Risk Management Branch (CEO-RMB) is pleased to provide its Risk Management Annual Report for fiscal year (FY) 2023-24.

In previous fiscal years, we focused on improving the County's risk culture and operational capabilities. These initiatives ultimately led to an enterprise risk model that embeds risk management into the planning, execution, and completion of all Board of Supervisors (Board) priorities and operational functions of the County.

As these programs begin to mature, we are realizing significant results including the ability to attract multiple insurers to finance our larger loss exposures, the elimination of hundreds of workers' compensation claims, predictable loss development, and increased third-party recoveries.

Over the last several years we focused on updating data management associated with claims and litigation. The comprehensive Risk Management Information Platform (RMIP) has already proven to be flexible, reliable and user friendly.

In FY 2023-24, we continued to implement a multi-year plan to control costs and reduce liability, as follows:

1. The expansion of purchasing commercial insurance to protect against the risk of catastrophic loss events.
2. An aggressive claim closure program has been implemented to finalize Workers' Compensation claims for employees who are no longer employed by the County. This benefits the injured worker as it provides more control over the administration of their health care, and it benefits the County as it lowers our long-term liabilities.
3. The development and implementation of a comprehensive Risk Financing Plan to lower our long-term workers' compensation liabilities. This year the County entered into a Special Excess Workers' Compensation Insurance Policy expunging workers' compensation obligation for claims opened between July 1, 1969 through September 30, 1988 (over 220,000 open and closed workers' compensation claims).

Overall, the County's cost of risk remains near the industry standard of 2.0%. The next page displays a brief trend indicator for the categories of loss we typically observe and how it contributes to the overall cost of risk.

When we see upward trends in claims (marked in red) we typically see increased costs associated with increased claims. Conversely, as we see downward trends in claims (marked in green) we can usually expect to see lower costs in the future.

This year's annual report is organized to allow identification of claim trends specific to general liability and sub-categorized areas, including law enforcement, employment, medical malpractice, auto, and general liability. These categories represent different exposures and prevention requirements that will allow County departments the ability to focus efforts according to specific losses.

Lastly, as directed by the Board of Supervisors on March 9, 2021, we added department performance metrics to this report to highlight department opportunities to focus on loss prevention, privacy, and workers' compensation/return-to-work.

Claim Type	% Change in Frequency		% Change in Expense
Workers' Compensation	-3.8%		13.6%
Automobile Liability	13.9%		15.5%
General Liability - Other	-76.0%		-65.5%
Law Enforcement Liability	-2.4%		-26.9%
Employment Practices Liability	-10.7%		2.4%
Medical Malpractice Liability	-13.3%		-25.6%
Total	-41.2%		-11.2%
Cost or Risk (excluding non-County agencies)			-2.1%

Many opportunities to lower our overall costs remain. The remainder of this report outlines our key objectives for the upcoming FY and the specific cost drivers impacting our overall Cost of Risk.

Risk Horizon

The number and type of losses we experience are generally predictable over the horizon of many years. However, there are events and risks that we have identified that will increase these losses both in frequency and severity. Below you will find a synopsis of exposures on the horizon.

Privacy Protection and Cyber Security

Privacy legislation and restrictions associated to personal data continue to increase at an exponential rate. The resulting litigation and costs will increase our cost of risk unless we match the increased restrictions with specific actions to reduce the opportunities for unauthorized release of information. This includes:

- Identification of high-risk operations and coordination of a comprehensive data protection implementation plan to staff, train, and appropriately fund privacy and data security teams in those departments;
- Implementation of proactive cybersecurity and data protection infrastructure;
- regularly performing risk assessments of business processes involving County data, systems, and information assets;
- provide ongoing employee privacy and cybersecurity training; and
- deploying specific policies and procedures to decrease and avoid data and cybersecurity privacy risks.

Legislative

Legislative agendas continue to contain legislation that increases costs, as follows:

- Workers' Compensation legislation and regulations have increased workers' compensation costs over $45 million in the last two years.
- California's Child Victims Act (AB 218) allowed claims/lawsuits to be filed against the County with no statute of limitations. The County is managing thousands of claims that will significantly increase costs to the entire County over the next several years.

Risk Structure

To enhance risk management in the future, the County is:

- Formalizing a Risk Management Policy for the County.
- Providing appropriate authority to the Risk Manager to formally manage the intricacies of the Risk Management Program and align outdated Workers' Compensation and other risk-related policies under the auspices of the Risk Manager.
- Creating a Risk Financing plan to manage the losses of the future that hold departments accountable for not appropriately managing their risks while protecting the County from catastrophic losses that will occur.

The County's objective is to minimize the Cost of Risk

KEY OBJECTIVES—FISCAL YEAR 2024-25

CEO Risk Management provides leadership and direction for the County's Risk Management and Privacy programs. Key objectives for FY 2024-25 include:

- Continue to improve the Risk Management Information Platform to ensure loss data availability is timely, accurate, easily accessed, and confidential.
- Provide streamlined guidance to County departments on privacy-focused and HIPAA-focused initiatives, policies, training, risk assessments, audits, and compliance.
- Implement unified and minimum standards across County departments for protecting County Information and Personal Information against unauthorized access and releases.
- Provide technical guidance on the County's contract provisions to ensure the protection of County's data and Protected Health Information and assist with privacy risk assessments of the County's third-party vendors.
- Provide incident response training and tabletop exercises for County stakeholders in response to privacy and cyber breach events.
- Continue to mitigate workers' compensation unfunded liabilities in Workers' Compensation by closing claim exposures, explore funding liabilities through alternate risk techniques, and capping losses with catastrophic loss insurance.

- Implement system and software upgrades to incorporate a framework of accountability to include auditing, tracking, and compliance elements of all Corrective Action Plans.
- Incorporate County Counsel's Workers' Compensation Division and Fire Department's Return-To-Work disability management efforts into the comprehensive Risk Management Information System to improve workflow, track capabilities, and promote efficiencies.
- Evaluate the process of threat assessment evaluation as part of workplace violence prevention.
- AB 218 is one of the biggest challenges the County has ever seen and will continue to work to determine a path forward to not only evaluate working conditions and best practices and develop appropriate policies but to ensure this never happens again in the future.
- Finally, as homelessness is one of the County's highest priorities we will become more involved and supportive of the County's homelessness mission, by weighing the magnitude of the priority against the benefits of existing policies/procedures that are designed to reduce risk and cost to the County as well as looking at options outside the box.

Cost of Risk

The cost of risk is the ratio of expenditures for the County's various cost of claims paid, divided by the County's operating budget in a specific fiscal year. The effectiveness of the County's risk management programs, policy decisions, and effects of State and Federal regulations are reflected in the cost of risk since it includes paid workers' compensation claims, general liability claims, and the cost to defend a myriad of tort and non-tort-related claims. The cost of risk also includes costs associated with loss control and prevention programs, insurance premiums, and operational and administrative expenses.

During FY 2023-24, the County experienced a decrease in the Cost of Risk of -4.48%.

The County's Objective is to Minimize its Total Cost of Risk

Detailed information is listed in the "Statistics" section of this report regarding the number of claims and expenses for each of the last three fiscal years by department for workers' compensation, State of California Labor Code (LC) 4850 and salary continuation, automobile liability, general liability, employment practices liability, law enforcement liability, and medical malpractice.

The table on the next page illustrates the totality of all categories of risk as related to the County's operating budget.

COST OF RISK[1]

Category	FY 2021-22	FY 2022-23	FY 2023-24
Workers' Compensation			
Workers' Compensation Expense	**$468,381,386**	**$516,434,811**	**$640,665,600**
Labor Code 4850/Salary Continuation	$162,510,229	$169,637,324	$163,209,727
Workers' Compensation Expense Total	**$630,891,615**	**$686,072,135**	**$803,875,327**
Liability			
Liability Expense Total	**$173,641,389**	**$321,049,517**	**$207,796,597**
Purchased Insurance (premium and fees)	$28,476,443	$32,312,000	$42,201,681
Cost of Risk	**$804,533,003**	**$1,007,121,652**	**$1,011,671,924**
Cost of Risk (excluding non-County agencies)	**$795,422,715**	**$997,710,154**	**$1,002,296,553**
Total County Operating Budget (000)	$39,576,967	$44,642,000	$47,102,288
Cost of Risk (Excluding non-County agencies as a percentage of the County's Operating Budget)	**2.01%**	**2.23%**	**2.13%**

1. Detailed Cost of Risk Information can be found in Exhibit G of this report.
2. Labor Code 4850 benefits are provided to defined safety officers. The benefit pays full salary tax free for one year while they are disabled due to an industrial injury and cannot work. The County provides certain employees salary continuation benefits that restore 70% of their wages tax free while they are unable to work due to an industrial injury. The benefit is available for one year from the date of the industrial injury.
3. Workers' Compensation Expenses includes Administrative Expenses and Purchased Insurance.

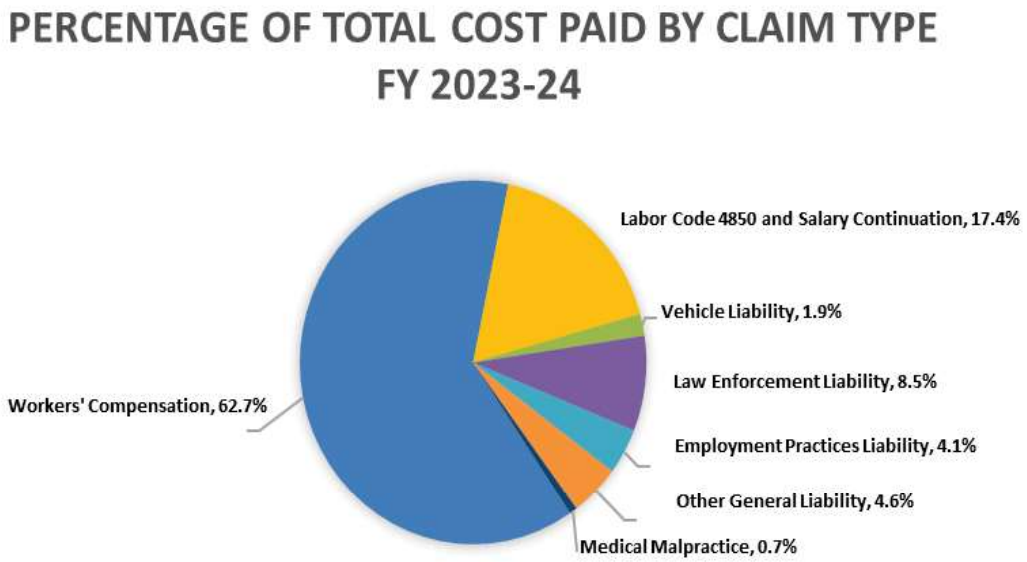
RISK FINANCING

The County finances nearly all losses on a cash basis; therefore, any liability or Workers' Compensation claim that arises is subject to cash payment by the County, regardless of size. Based on the nature and scope of County operations, natural disasters, and external influences, County departments will be susceptible to large claims that significantly impact expenses. The results of FY 2023-24 illustrate this susceptibility as the top-10 claims of each expense category accounted for significant portions of expense, as follows: law enforcement top-10 claims accounted for 81.0% of expenses; general liability top-10 claims accounted for 57.4% of expenses; automobile liability top-10 claims accounted for 51.8% of expenses; medical malpractice top-10 claims accounted for 95.6% of expenses; and employment liability top-10 claims accounted for 49.5% of expenses. The County has instituted several risk management techniques to manage the cost of large loss claims outside of litigation management. Minimizing the frequency of claims minimizes the possibility of one of those claims becoming a large loss. The County currently utilizes loss control and prevention best practices specific to departments that are coordinated through the CEO, as follows:

- Corrective Action Plans and/or Summary Corrective Action Plans are required for all settlements with an indemnity amount in excess of $100,000 and as requested by the Risk Management Inspector General (RMIG). These plans summarize the nature of the claim and identify the root cause of the problem and corrective action steps to be taken by the department, or the County as a whole, to minimize the potential for similar events to occur.
- CEO Risk Management's Loss Control and Prevention Unit updated several online training modules to address risk factors that contribute to vehicle accidents, and issued notices to departments that were experiencing increased claims.
- Risk Management Plans (RMP) are developed by each department on an annual basis. These plans provide an overview of each department's risk management program, significant risk issues for that department, and mitigation measures or goals designed to prevent or minimize the given exposure.
- CEO-RMB provides reporting and early trend analysis capabilities through department-specific dashboards. This includes a drill-down capacity to identify the "Top-5 Causes of Concern" for each type of loss.
- Contractual risk transfer of large loss potential involves reviewing, recommending, and constructing departmental insurance contract language, including indemnification language and proper endorsement usage that is consistent throughout the County and formulated to provide protection to the various contractors and the County, should an adverse event occur. County Counsel and CEO-RMB collaborate with departments in this endeavor.

Overall Costs

The overall cost of risk graph below illustrates that Workers' Compensation accounts for 62.7% of the cost of risk. For FY 2023-24, this represents approximately $586 million.



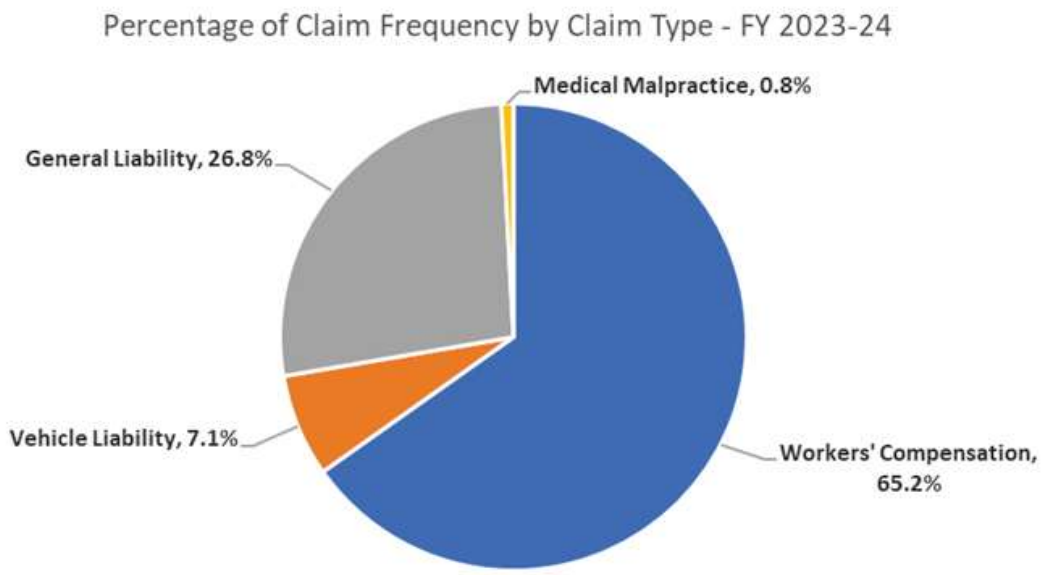
Claim Severity (Total Cost Paid) - All Claims 1,2,3 - FY 2021-2022 through FY 2023-24

Claim Type	FY 2021-22	FY 2022-23	FY 2023-24
Workers' Compensation	$468,381,387	$516,434,811	$586,590,317
Labor Code 4850 and Salary Continuation	$162,510,229	$169,637,324	$163,209,727
Vehicle Liability	$ 26,706,747	$ 15,487,137	$ 17,893,153
Law Enforcement Liability	$ 58,073,978	$108,436,291	$ 79,318,797
Employment Practices Liability	$ 24,897,057	$ 37,378,021	$ 38,279,983
Other General Liability	$ 38,489,633	$125,737,213	$ 43,398,896
Medical Malpractice	$ 3,489,914	$ 9,125,855	$ 6,786,661
TOTAL	**$782,548,944**	**$982,236,652**	**$935,477,534**

1. Data does not include unemployment costs.
2. Data includes pending and non-jurisdictional departments, but does not include associated agencies that are not County departments (i.e., MTA, Foothill Transit). This information includes County Counsel tort claims.
3. Amount Paid is the total of the transactions paid by coverage code in the fiscal year; amount includes indemnity and legal fees and expenses, regardless of occurrence date; does not include Reported But Not Paid (RBNP) or Incurred But Not Reported (IBNR) reserves.
4. Workers' Compensation paid does not reflect State of California Labor Code 4850 and Salary Continuation payments, which are shown separately.

Claim Frequency by Claim Type – FY 2023-24

In further demonstrating the impact of Workers' Compensation on the total risk management program, the graph below illustrates that Workers' Compensation accounts for over half of all claims.



Claim Frequency (Total Number of Claims Filed) by Claim Type FY 2021-22 through FY 2023-24

Claim Type[1,2]	FY 2021-22	FY 2022-23	FY 2023-24
Workers' Compensation	13,807	11,611	11,164
Vehicle Liability	819	1,069	1,218
Law Enforcement Liability	574	764	746
Employment Practices Liability	189	206	184
Other General Liability	10,540	15,292	3,665
Medical Malpractice	90	165	143
TOTAL	**26,019**	**29,107**	**17,120**

1. Total number of claims filed by fiscal year regardless of date of occurrence; count includes all suffixes.
2. Includes County Counsel tort claims, but not agencies that are not County departments (i.e., MTA, Foothill Transit).
3. Does not Include Unassigned Claims

Note: Increase in Other General Liability claims is due to the Dominquez Hills/Carson odor complaints.

The methods and activities of managing the overall Cost of Risk are outlined in the remainder of this FY 2023-24 Annual Report.

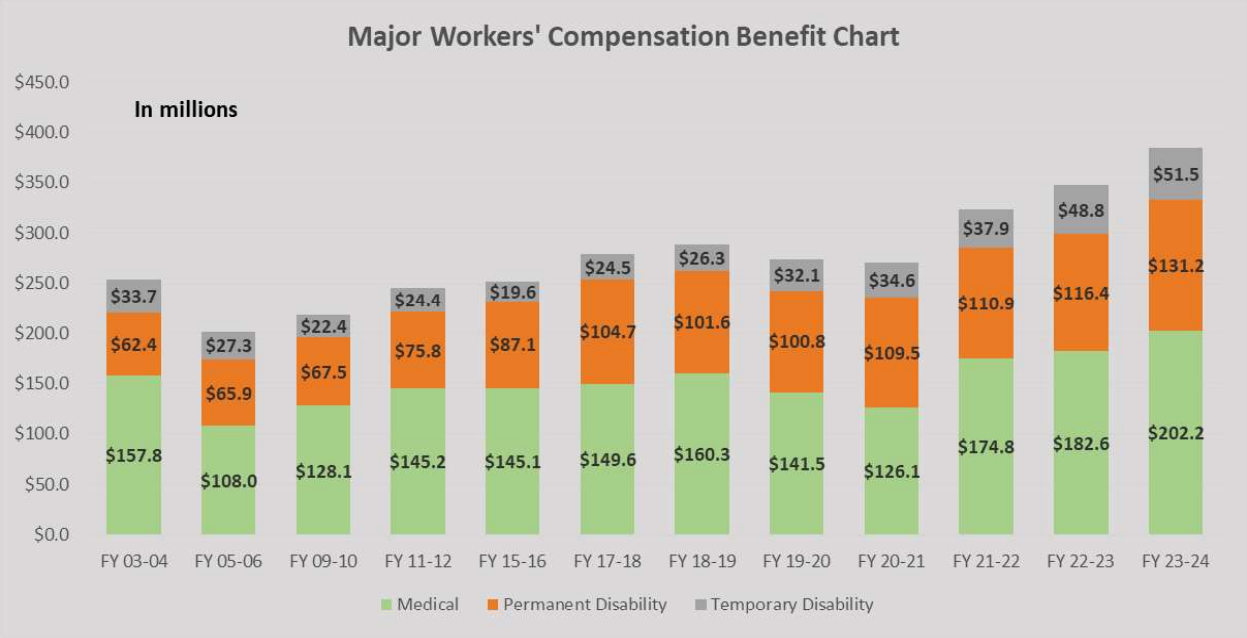
Workers' Compensation Program—Major Allocated Benefit Expenses

In FY 2023-24, the total medical expenses equaled $202.2 million. This represents a 10.6% increase from the total medical expense of $182.9 million experienced in FY 2022-23. Overall medical cost increases over the last three fiscal years were partially due to medical facilities providing services delayed during the pandemic. Additionally, medical costs were impacted by a regulatory increase in payments to medical-legal reporting physicians. The regulatory increase to the California medical-legal fee schedule added an approximate $45 million to medical costs in the last three fiscal years.

Temporary disability expenses increased from $49.4 million in FY 2022-23 to $51.5 million in FY 2023-24, an increase of 4.3%. This increase was driven by unprecedented increases in the State temporary disability rate of 13.5% and 5.2% in calendar year's (CY) 2022 and 2023, respectively. Salary continuation and LC 4850 expenses (predominately driven by Labor Code 4850 benefits) decreased 3.8% from the $169.6 million in FY 2022-23 to $163.2 million in FY 2023-24. CEO-RMB staff continues to believe the LC 4850 expense is driven by the demographic of an aging public safety population.

Permanent disability expenses increased 11.6%, from $117.6 million in FY 2022-23 to $131.2 million in FY 2023-24. CEO-RMB staff believes increases in permanent total disability payments will be experienced based on the statutory increases bound to increases in the State Average Weekly Wage. Overall permanent disability obligations are impacted by the aging public safety population and awarded settlements related to such.

Changes to the permanent disability rating and payment schedule under SB 863 significantly increased an employer's exposure to workers' compensation disability payments. As an example, a fire fighter with a presumptive industrial heart condition with a 40% whole person impairment would be entitled to $87,835 in permanent disability prior to the passage of SB 863. The same exact disability under the SB 863 provisions will entitle that firefighter to $206,307.50 in permanent disability and life pension benefits.



Workers' Compensation Program

The County's self-insured Workers' Compensation Claim Administration Program (Program) is the largest such local governmental program in the State of California. As a mandated employer funded social benefit program, it is responsible for administering approximately 33,200 open workers' compensation claims with over 11,163 new workers' compensation claims reported in FY 2023-24. Statutorily mandated benefits are delivered through processes established under four Third Party Administrator contracts (TPAs), three Medical Management and Cost Containment contracts (MMCCs), and a Pharmacy Benefit Management company (PBM). CEO-RMB's Workers' Compensation On-Site County Representatives (OSCRs) aid TPA staff, County departments, and injured workers. In addition, OSCRs authorize high value settlements and payment transactions, perform fiscal reconciliation services, and act as liaisons between departments, defense counsel, and TPAs. County Counsel staff and contracted defense attorneys provide legal support.

Workers' compensation expenses are generally separated into three categories: 1) allocated benefit expenses (ABE); 2) allocated loss adjustment expenses (ALAE); and 3) unallocated loss adjustment expenses (ULAE). ABE include medical benefits, salary continuation and temporary disability benefits, permanent disability benefits, and death benefits. Such expenses are charged to the workers' compensation claim file.

ALAE include non-benefit payments to contract law firms, investigation firms, and other ancillary service providers. These expenses are also charged to the workers' compensation claim file . ULAE include the cost of TPAs, MMCCs, County Counsel Workers' Compensation Division staff, CEO-RMB staff, State User Assessments, claims administration system, excess insurance, and other overhead charges required to administer or provide risk protection for the workers' compensation program. Such expenses are not charged or allocated to individual workers' compensation claims.

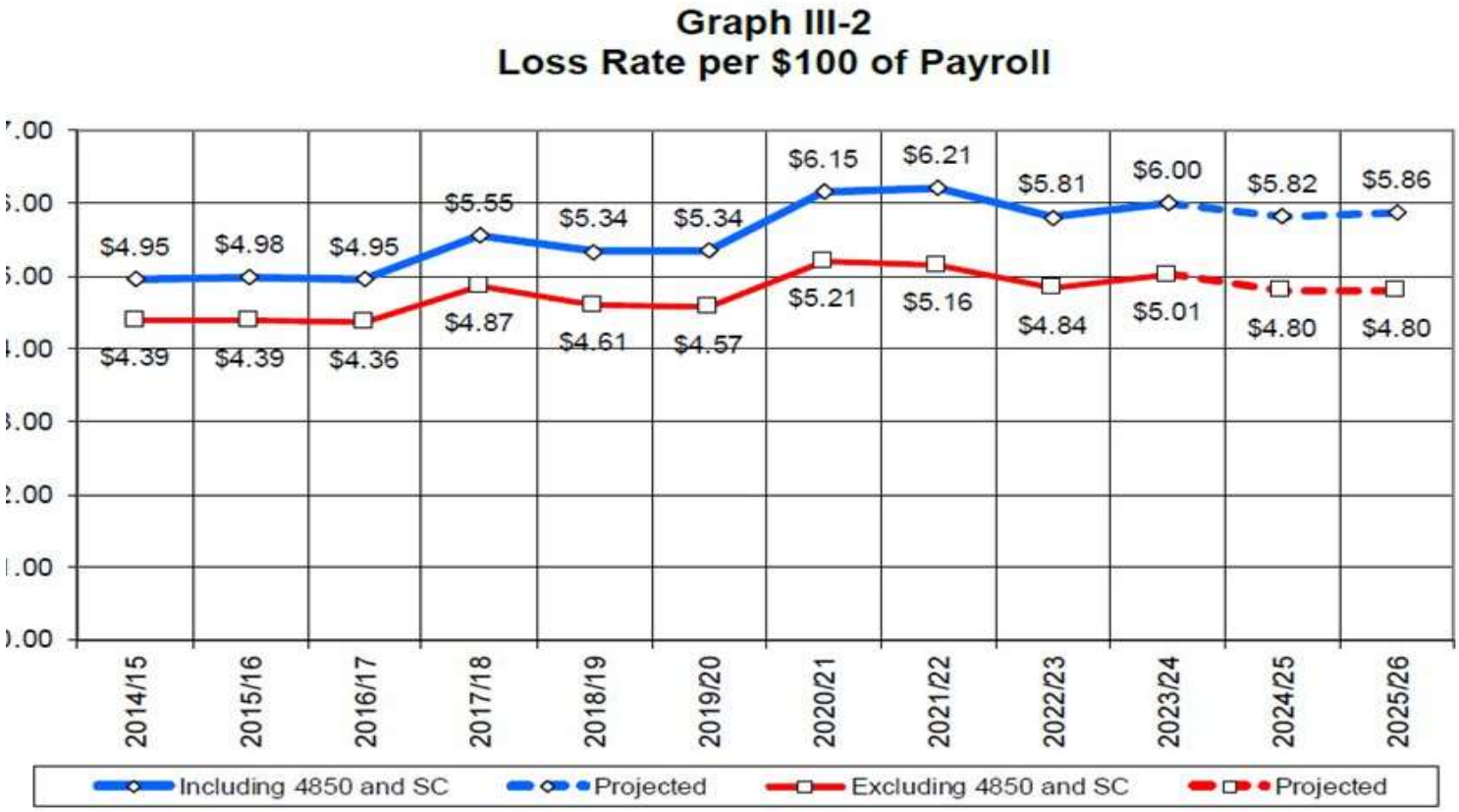
Total workers' compensation expenses paid in FY 2023-24, excluding Labor Code Section 4850 and Salary Continuation benefits, were $561.3 million. This represents a 8.7% increase in workers' compensation expenses from FY 2022-23, which totaled $516.4 million. The annual increase over the last three fiscal years is extraordinary as Program expenses have been stable for the preceding 16 years.

DISABILITY

MANAGEMENT

BENEFITS

Workers' Compensation Program — Major Allocated Benefit Expenses
(Continued)



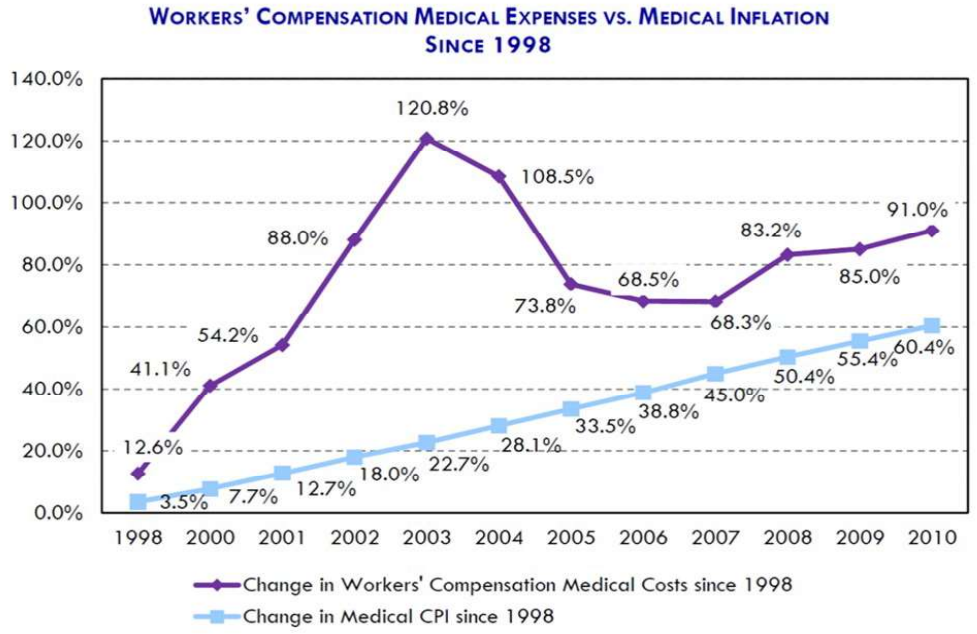
FINANCE

COMPENSATION

Workers' Compensation Program—Allocated and Unallocated Loss Adjustment Expenses

Traditionally, the County workers' compensation program's allocated and unallocated loss adjustment expenses account for approximately 20-22% of overall program expenses. The ALAE and ULAE represent the legal, administrative, and operational costs to deliver balanced workers' compensation benefits. In FY 2023-24, the combined ALAE and ULAE represented 21.5% of program expenses. This includes approximately $6.3 million dollars for excess insurance and $31.6 million for the California State User Fee Assessment. The County workers' compensation program's allocated and unallocated loss adjustment expenses compare favorably to loss adjustment expenses experienced by California workers' compensation insurers and other self-insured employers. The California Commission on Health and Safety and Workers' Compensation (CHSWC) 2023 Annual Report reflected ALAE and ULAE accounted for 35.4% of overall workers' compensation systemwide expenses in CY 2022.

Over the last twenty years, County workers' compensation loss adjustment expenses have increased, in part, due to medical management cost containment strategies that include utilization review. CEO-RMB staff believes California's implementation of evidence-based medical guidelines have stabilized the workers' compensation inflationary trends experienced in the late 1990s and early 2000s. The below graphs demonstrate the impact of workers' compensation legislation that became effective in 2004 and its impact on cost stabilization.

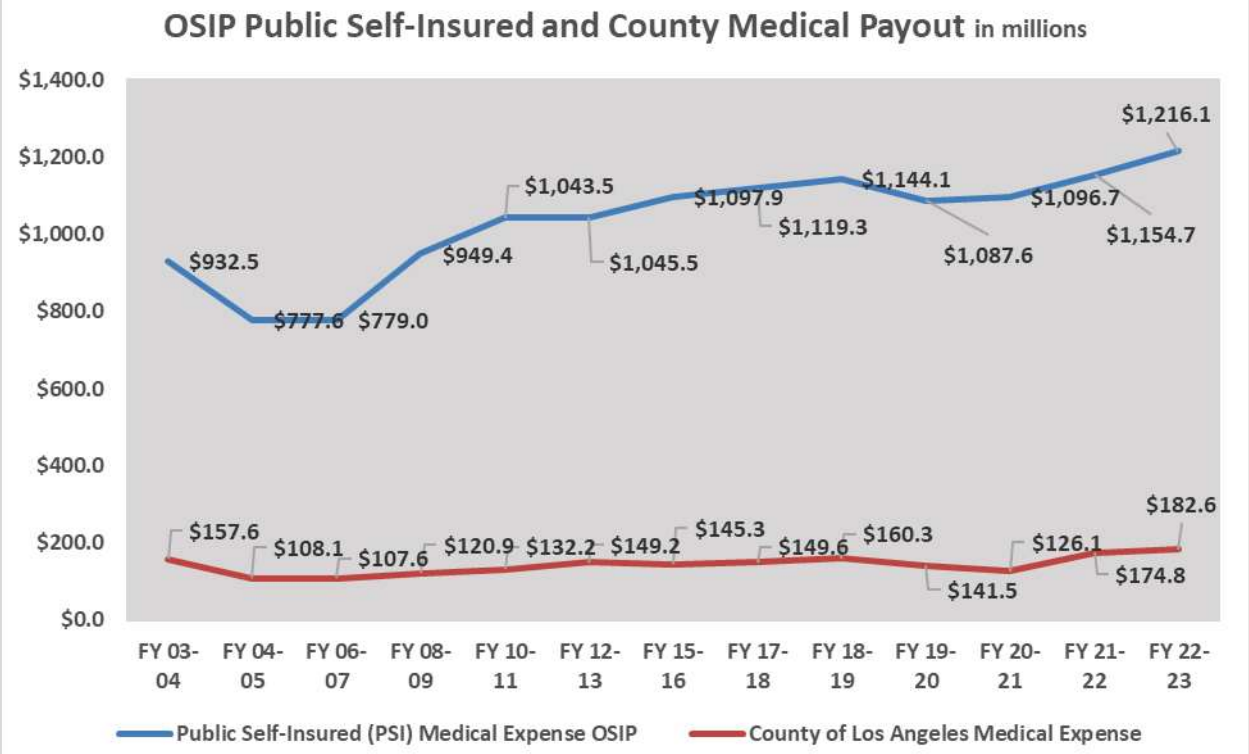


SOURCE: Commission on Health and Safety and Workers' Compensation – Data Source: WCIRB; Bureau of Labor Statistics

Workers' Compensation — Expenses

The County workers' compensation medical spending has remained relatively stable as demonstrated by the below chart (as noted - FY 2021-22 reflected a significant cost in medical spending). The below chart reflects aggregate public agency workers' compensation medical payment data (including the County's workers' compensation payment amounts) and the County's annual workers' compensation medical payments since FY 2003-04.

CEO-RMB staff believes the significant decrease in workers' compensation medical cost experienced between FY 2003-04 and FY 2004-05 was a direct result of urgency legislation implemented to address the California "workers' compensation crisis". Aggregate Office of Self-Insurance Plan (OSIP) FY 2023-24 payment information was not available at the time of the printing of this report.

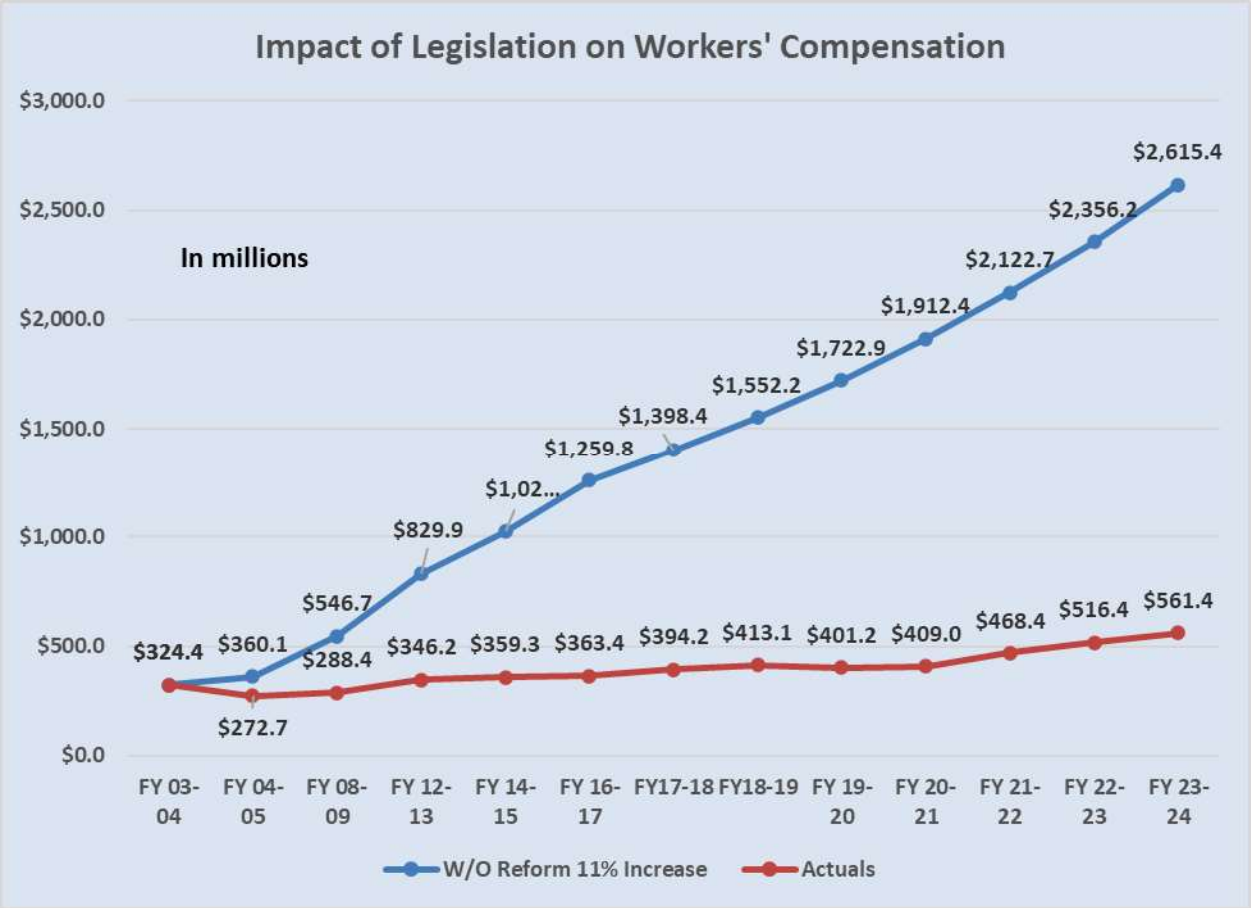


Workers' Compensation — Expenses (Continued)

From FY 98-99 through FY 2002-03, the County workers' compensation medical costs increased 133.8%. During that period, County workers' compensation program costs, excluding salary continuation and LC 4850 benefits, experienced double-digit inflation.

The following chart estimates that escalation absent cost avoidance strategies afforded under the 2003-04 legislation compared to actual costs. FY 2201-22 actual costs contain a premium payment for excess insurance that did not exist in fiscal years prior to FY 2016-17. Regardless of the cost of this additional protection and the FY 2023-24 increase, the workers' compensation program's annual increase since FY 2003-04 calculates to approximately 3%.

Workers' Compensation Expenses (Excluding Salary Continuation and Labor Code 4850) Comparison - Estimated without Reform and Actual Expenses



Medical Management Cost Containment

In FY 23-24, medical expenses were the largest single component of the County workers' compensation program costs. During FY 2023-24, the Program received approximately 538,849 (increase of 3.7% over FY 2022-23) bills accounting for 1,670,302 lines of procedures, services, or supplies from medical providers. Such bills were for medical services to treat injured workers that included inpatient hospital services, nursing care, surgery, physician visits, physical therapy, chiropractic care, durable medical equipment, and drug therapy. Each bill is reviewed to ensure charges are paid at or below the State Official Medical Fee Schedule. Total medical charges billed were approximately $684 million with recommended allowances of slightly over $191 million.

The County workers' compensation program applies utilization review (UR) processes to assess certain physician treatment requests. UR is the process used by California workers' compensation insurers and administrators to determine if requested medical care is consistent with the California Medical Treatment Utilization Schedule. CEO-RMB and MMCC staffs collaborate with respected physicians to determine reasonable utilization review triggers to ensure medical treatment can be delivered in an unencumbered manner. The evaluation of UR triggers is an ongoing process and protocols are assessed periodically and influenced by physician prescribing patterns.

Outstanding Liabilities

As reflected in the Workers' Compensation Actuarial Study, the Program's outstanding liabilities, as of June 30, 2024, were approximately $3.71 billion (at a 50% confidence level). This represents an increase of 5.4% over the estimated outstanding liabilities of $3.52 billion as of June 30, 2024.

As of June 30, 2004, the actuarial study established future outstanding liabilities were $2.63 billion (including the Courts) and as June 30, 2024 the outstanding liabilities were $3.76 billion (including the Courts). This equates to an increase of under 2% annually over a 20 year period. CEO-RMB continues to evaluate various alternate risk techniques to stabilize exposures and expenses, including lump-sum settlements for high exposure workers' compensation claims. During the last seven fiscal years, the County workers' compensation program processed approximately $150 million in such settlements, which impacted approximately 4,700 claims, and resolved an estimated $322 million in ultimate potential exposure (that includes the settlement amount).

Actuarial analysis of the County workers' compensation program's last twenty-years of loss distribution reflects approximately 17.6% of workers' compensation claims account for 83.3% of the total incurred (paid to date and remaining reserves). Additionally, 17% of payments (excluding salary continuation/LC 4850) in FY 2023/24 were issued from claims older than 10 years. Overall, the actuarial study underscores the long-tail nature of workers' compensation exposures and expenses.

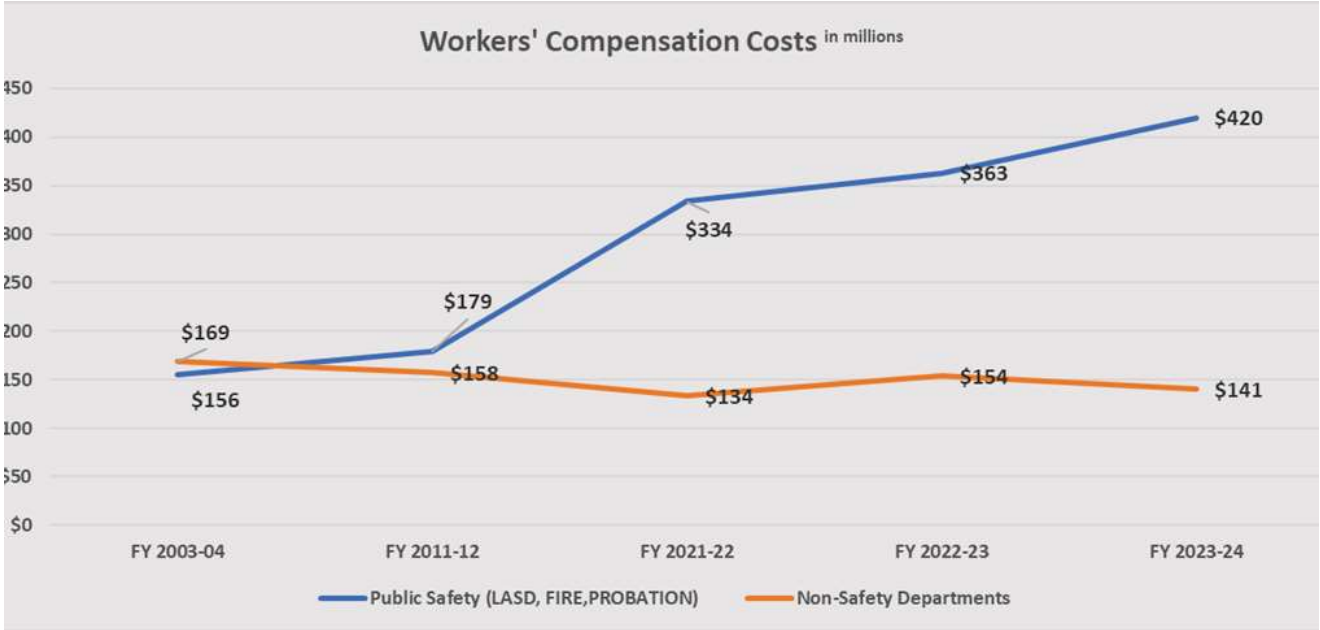
On January 15, 2024, the County entered into a Special Excess Workers' Compensation Insurance Policy with Swiss Re Corporate Solutions Insurance Company expunging workers' compensation obligation for claims opened between July 1, 1969 through September 30, 1988 (over 220,000 open and closed workers' compensation claims). CEO-RMB will continue to explore and implement risk techniques to reduce the County's unfunded long-term workers' compensation liabilities.

Workers' Compensation — Public Safety Departments

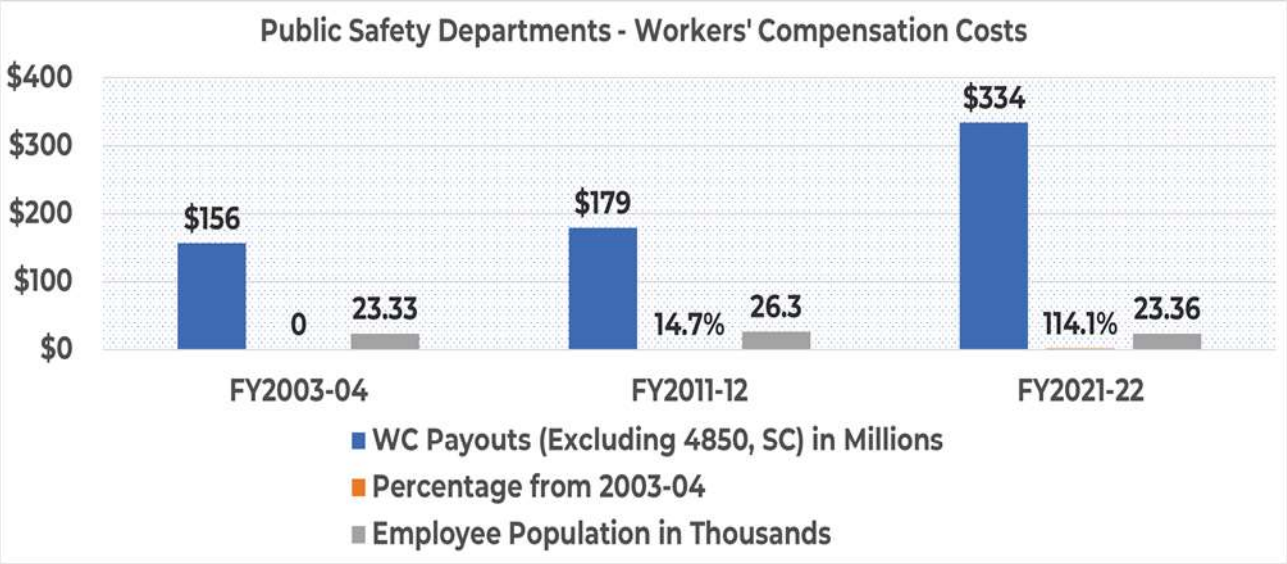
The nature of the job duties County employees perform significantly impacts workers' compensation program expenses. Many County employees subject themselves to dangerous situations on behalf on the public. Those exposures and some of the presumptions afforded to public safety employees because of such are reflected in Countywide workers' compensation expenses.

The charts below demonstrate the association between County public safety departments (defined as Probation, Fire, and Sheriff Departments) and rising workers' compensation costs. As previously indicated, FYs 2003-04 and 2011-12 are notable because of the passage of significant legislation that impacted the California workers' compensation system. Those fiscal years were selected to show how such legislation impacted workers' compensation costs to County public safety and non-public safety departments.

While non-public safety departments (including Courts) saw a 16.6% decrease in workers' compensation payouts over the last 20 years, safety departments saw a 169.2% increase. Those increases were significant enough to drive overall workers' compensation program payout increases.



WORKERS' COMPENSATION — PUBLIC SAFETY DEPARTMENTS (CONTINUED)



CEO-RMB believes public safety workers' compensation expense increases are driven, in part, by an aging workforce that maximizes benefit utilization. For example, the number of Fire Department staff reporting workers' compensation claims between FYs 2019-20 and 2021-22 was 5,175. Of these workers' compensation claims, approximately 47% were filed by individuals 50 years old or older. In the three-year period between FYs 2004-05 and 2006-07, the number of reported workers' compensation claims was 3,952 with approximately 28% filed by individuals 50 years old or older. In FY 2023-24, the trend continued with approximately 47% of all Fire Department reported workers' compensation claims being filed by employees 50 years old or older.

The relationship between age and workers' compensation benefit utilization is demonstrated by a review of Fire Department data. In FY 2023-24, approximately 88% of workers' compensation expenses (excluding LC 4850 and Unallocated Loss Adjustment Expenses) were paid on claims where the injured worker was 50 years old or older (as of October 23, 2024).

Workers' Compensation — Impact of COVID-19 Pandemic

Like many programs and operations, the pandemic has significantly impacted the County workers' compensation program. Traditionally, operations were brick and mortar with claims staff working on-site. Due to the pandemic and social distancing requirements, most claims staff and County On-Site Representatives teleworked during FY 2022-23. This arrangement has promoted a movement away from paper processes and implementation of document management systems that enable staff to work remotely. Internal control processes have been maintained and the impact on injured workers and benefit delivery have been minimal.

As of October 23, 2024, there were 7,117 COVID workers' compensation claims filed. The total payout on those claims exceeded $40 million with estimated total incurred costs of $77 million.

HEALTH

CARE

Workers' Compensation Cost Trends and Influencing Factors

- Future cost escalation will be driven by several factors. Those factors include the following:
- Regulatory increase to the medical-legal fee schedule
- Significant increase to certain indemnity payments effective January 1, 2022. Such increases will continue to have an inflationary impact on workers' compensation program costs. The Labor code requires the maximum and minimum weekly earnings upon which certain indemnity payments are based to increase by an amount equal to percentage increase in the State Average Weekly Wage (SAWW) compared to the prior year. In CYs 2022 and 2023, the SAWW increase was calculated at an unprecedent 13.5% and 5.2%, respectively (usual increases are 2%-4%). On January 1, 2025, an additional increase of approximately 3.8% will apply to such indemnity payments. These increases influence future costs related to some temporary disability, life pension, permanent total disability, and death benefits.
- Labor Code Sections 62.5 and 62.6 authorize the Department of Industrial Relations to assess employers for the costs of the administration of the workers' compensation, health and safety and labor standards enforcement programs. The cost of the assessments has grown from $11.81 million in FY 2013-14 to $31.59 million. This equates to a 167.5% increase over the 10-year period. Much of the increase has been driven by an increase assessment to fund the Subsequent Injury Benefit Trust Fund (SIBTF), which saw a 1,178.6% increase over the same 10-year period.

Workers' Compensation — Accomplishments FY 2023-24

- Continued to collaborate with the Office of County Counsel Workers' Compensation Division to mitigate costs associated with high exposure workers' compensation claims.
- Continued to partner with the Third-Party Administrators to improve communication and customer satisfaction to injured workers.
- Continued to evaluate, test, and recommend enhancements to the workers' compensation claim module (CE) of the comprehensive Risk Management Information Platform.
- Continued to work with public and private sector employers to evaluate and influence workers' compensation legislation and regulation development to ensure such promotes the timely provision of benefits that is balanced with employee and employer needs.
- Executed a Loss Portfolio Transfer transferring select workers' compensation liabilities to an approved and qualified excess insurance carrier. The effective date of the transfer of liability for all workers' compensation claims opened between July 1, 1969 through September 30, 1988 was January 15, 2024.
- Assisted in evaluating the feasibility of implementing a second Loss Portfolio Transfer of select workers' compensation liabilities.

Workers' Compensation Program — Objectives FY 2024-25

- Assist Fire Department's Disability Management and Compliance Section (Fire DM) complete the retirement of their current workers' compensation tracking system and leverage the economies and capabilities of the Riskonnect Claims Enterprise system (CE).
- Continue to evaluate CE robotic process automation and business rule capabilities to reduce resources and auditing related to claims management tasks.
- Continue to work with public and private sector employers to evaluate workers' compensation legislation, regulation development, and critical issues impacting the County workers' compensation program.
- Complete the second Loss Portfolio Transfer and transfer the included workers' compensation claims to the takeover administrator.
- Evaluate implementing data analytic tools to identify medical providers demonstrating "abusive" billing patterns using network modeling and relationship centrality visualization.
- Monitor the use of GLP-1 medications on the workers' compensation program. Such medications are used for diabetes and weight loss. Drugs such as Ozempic, Wegovy, Mounjaro, and Trulicity are seeing a significant rise in utilization in the non-occupation medicine. There is the expectation that increased utilization will also occur on the workers' compensation program.

Liability Claims and recovery

The Liability Claims and Recovery Unit (LCRU) assists in overseeing administration services for incidents, claims, and lawsuits, for automobile, employment, general liability, medical malpractice, and hospital liability matters. These services are performed under contract by two TPAs. In addition, CEO-RMB staff represents the County in cases that are filed in the Superior Court Small Claims Division.

During FY 2023-24, Carl Warren and Company (Carl Warren) provided administration services for incidents, claims, and lawsuits, for automobile, employment, and general liability matters. In addition, Carl Warren provided the Office of County Counsel (County Counsel) with litigation management and support services for automobile, general liability, employment, and social services matters. These services included tracking litigation costs and expenses, participating in Roundtable meetings, and attending and/or monitoring legal proceedings. Carl Warren's contract expired on June 30, 2024, and as a result of the County's solicitation process, these responsibilities were transferred to George Hills Company on July 1, 2024.

Sedgwick Claims Management Services, Inc. (Sedgwick) is responsible for medical malpractice, hospital liability, and limited general liability incident reporting, claim administration, and litigation management support services. These services include early investigation that is defined as contractor-initiated activity resulting from the decision to set up a claim file, or the immediate recognition of extraordinary case circumstances. The activities include immediate contact with those employees, witnesses, and other individuals having any involvement in, or knowledge about, an incident. Additionally, Sedgwick staff participates in Roundtable meetings, provides medical and legal analyses on claims and incidents, and advises on best resolution opportunities.

LCRU works closely with County Counsel to ensure litigation management processes are operating efficiently and that TPAs are providing attorneys with required services. Units within CEO-RMB meets bi-weekly for Triage Meetings, where LCRU staff shares updates on high profile or high exposure liability and medical malpractice claims. These units include RMIG, Finance, and Loss Control and Prevention (LCP).

Recovery is a critical component of the LCRU. Recovery staff focus efforts on identifying, analyzing, and implementing plans of actions necessary to pursue recoveries. These recoveries can result from asserting subrogation rights, protections afforded under contractual indemnification provisions, insurance contracts, contribution obligations, or identifying and pursuing responsible parties for damages and costs.

ACTIONS

LIABILITY CLAIMS

The County experienced a decrease in claim frequency in all areas except vehicle liability which experienced an increase of 13.9%. However, the growth of vehicle liability claims declined when comparing FY 2021-22 to FY 2022-23 (+30.5%) and FY 2022-23 to FY 2023-24 (+13.9%). As addressed in the previous annual report, the large increase in general liability claims over the last two fiscal years were the result of an unprecedented incident that occurred in September 2021 in the Dominguez Channel near the City of Carson. The filing of Dominguez Channel claims has since diminished, and General Liability claims decreased by 76%.

RECOVERY

COST

Claim Type Frequency	FY 2021-22	FY 2022-23	FY 2023-24
Vehicle Liability	819	1,069	1,218
Law Enforcement Liability	574	764	746
Employment Practices Liability	189	206	184
Other General Liability	10,540	15,292	3,665
Medical Malpractice	90	165	143
TOTAL	**12,212**	**17,496**	**5,956**

Medical malpractice claims experienced a decrease of reported claims from 165 in FY 2022-23 to 143 in FY 2023-24, representing a decrease of approximately 13.3%. The communication and optimal resolution process (CANDOR) was implemented on 8 claims. Four CANDOR claims settled with legal and cost expense avoidance estimated between $50,000 to $100,000 per claim.

Primary Cause	Claim Count	Medical Malpractice Liability Causes
Bodily Injury Only Accident	47	32.87%
Procedure (incl surgery)	25	17.48%
Diagnostic cases	21	14.69%
Wrongful Death	9	6.29%
Other	41	28.67%
Total	**143**	**100.00%**

SMALL CLAIMS UNIT

The Small Claims Unit (SCU) represents the County in cases filed in the Superior Court Small Claims Division. SCU also administers lost or stolen property claims filed against DHS and LASD. In FY 2023-24, SCU represented the County in 52 small claims court actions and prevailed in 90% of those.

SCU staff administers recovery efforts made on behalf of DPW and assists in large property claims made against the County. In addition, SCU provides reimbursement recommendations to line departments on claims related to the County's mileage permittee program.

RECOVERY UNIT

A fundamental function of the Recovery Unit (RU) is to identify opportunities to recover funds from various sources. As indicated, those sources include parties that are totally or partially responsible for the loss, insurance, and contractual indemnification obligation. To maximize outcomes, RU partners with third-party administrators, insurance claims experts, and County Counsel staff to ensure the County's recovery rights are protected.

Workers' compensation subrogation rights are outlined in the California Labor Code. RU developed procedures to maximize subrogation identification and recovery. This includes coordinating efforts with the workers' compensation third party administrator, contract law firms, and CEO-RMB WC staff. In FY 2023-24, there was $2,588,389 in workers' compensation recovery, which includes, but is not limited to, excess workers' compensation insurance recovery.

In FY 2023-24, there were combined recoveries of $6,152,361 on the Liability Program. This was driven, in part, by property insurance recoveries totaling $3,716,576 (includes recovery of $2,860,561 from the fire which occurred at 2615 S. Grand Ave on March 8, 2023).

RESOLUTION

ACTION

Liability Claims and recovery—Accomplishments FY 2023-24

- Continued to assist in the administration and management of liability and medical malpractice/hospital liability claims.
- Continued to monitor and enhance Riskonnect Claims Enterprise Module 1 – Liability Claims, as needed.
- Continued to collaborate with RMIG staff to ensure costly and sensitive claims are identified as early as possible.
- Continued to work with County Counsel staff to ensure litigation management processes are robust and effective.
- Collaborated with CEO-Contracts and finalized the selection of the new TPA for Automobile and General Liability and Litigation Management Services and successfully facilitated the new TPA.
- Responded to urgent claims administration and litigation management needs caused by the Dominguez Channel noxious odor incident and AB 218 related claims.
- Collaborated with County Counsel staff to leverage existing processes related to County excess insurance recovery identification and pursuit.

Liability Claims and recovery—Objectives FY 2024-25

- Continue cross-training staff in commercial insurance claims and mileage permittee program to optimize unit resources, efficiency, and effectiveness.
- Continue working with CEO-RMB Finance to ensure sound fiscal policies are implemented and improve the estimation of future outstanding liabilities.
- Continue collaborating with County Counsel staff to leverage existing processes related to County excess insurance recovery identification and pursuit.
- Develop a framework for TPA auditing purposes by identifying measurable objectives based on contract terms.
- Complete development of the Property Insurance Claim Manual.

WORKERS' COMPENSATION CAUSES OF INCIDENTS

The County employs over 100,000 employees with diverse occupational exposures and thousands of job descriptions. While each department has hazards that pose specific risks to its employees, the overall exposure in FY 2023-24 can be summarized into the following six classifications for approximately 86.7% of the injuries sustained by County employees.

ASSAULT (13.0% of all claims)

Assaults include all aspects of a third party combating with County employees. Departments with the majority of assaults include: Sheriff (54.0%), Probation (22.8%), and Health Services (17.8%).

CUMULATIVE TRAUMA/BODILY INJURY (19.2% of all claims)

Cumulative trauma and bodily injury include injuries that are sustained over time due to the repetitive motion of the work performed on the job. Departments with the most cases include: Sheriff (34.5%), Fire (15.6%), Health Services (13.7%), and Public Social Services (8.4%)

EXPOSURE (9.0% of all claims)

This category includes exposure to physical hazards which involves particulates, fumes, and chemicals; environmental exposure including heat, cold, sun, and noise; and biological hazards including blood, body fluids, viral, and bacterial exposures. Departments with the most exposure cases include: Sheriff (38.9%), Fire (22.4%), and Health Services

OVEREXERTION (24.1% of all claims)

Overexertion includes those that involve strain or injuries due to lifting, carrying, pushing, or pulling. Departments with the most cases include: Sheriff (39.5%), Fire (26.7%), Public Social Services (7.5%), and Health Services (6.0%).

STRUCK BY/OR AGAINST (6.2% of all claims)

This category includes injuries resulting from being struck/crushed by a human, animal, or inanimate object, or by force that is not vehicle related. Additionally, this can include injuries caused by striking against something or someone, or from flying or falling objects. Major Injury Cause categories include: Struck or Injured By, Rub or Abraded By, and Struck Against or Stepping On. Departments with the most cases include: Health Services (26.6%), Sheriff (24.3%), and Animal Care and Control (9.5%).

FALL, SLIP, OR TRIP (11.0% of all claims)

This category includes falling down in the office environment which includes stairs, chairs, escalators, elevators, and over various floor surfaces. Externally, this includes falling from vehicles, ladders, rooftops, and surfaces in parking lots, sidewalks, and in rough terrain. Departments with the most cases include: Sheriff (31.0%), Health Services (23.2%), and Probation (8.2%).

OTHER (17.3% of all claims)

This category includes all other causes, including, but not limited to: presumptive injuries, cardio-vascular-related injuries, caught in or between injuries, and transportation-related injuries. Departments with the most cases include: Sheriff (49.3%), Health Services (22.7%), and Fire (5.3%).

Types of Workers' Compensation Claims by Department

Types of Claims by Department:					
	Fire	Health Services	Probation	Public Social Services	Sheriff
Assault	0.3%	14.2%	37.0%	2.1%	17.5%
Cumulative Trauma	21.7%	16.3%	19.8%	29.1%	16.6%
Exposure	14.4%	10.3%	4.9%	2.6%	8.7%
Fall, Slip, or Trip	5.4%	15.7%	11.3%	15.2%	8.4%
Overexertion	46.4%	9.0%	13.1%	32.7%	23.8%
Struck By/Or Against	4.8%	9.6%	4.4%	5.3%	2.9%
All Other Claims	7.1%	24.8%	9.4%	13.0%	22.0%
	100.0%	100.0%	100.0%	100.0%	100.0%

Top six types of claims account for 82.1% of all claims in FY 2023-24.

PREVENTION

MEDICAL

CARE

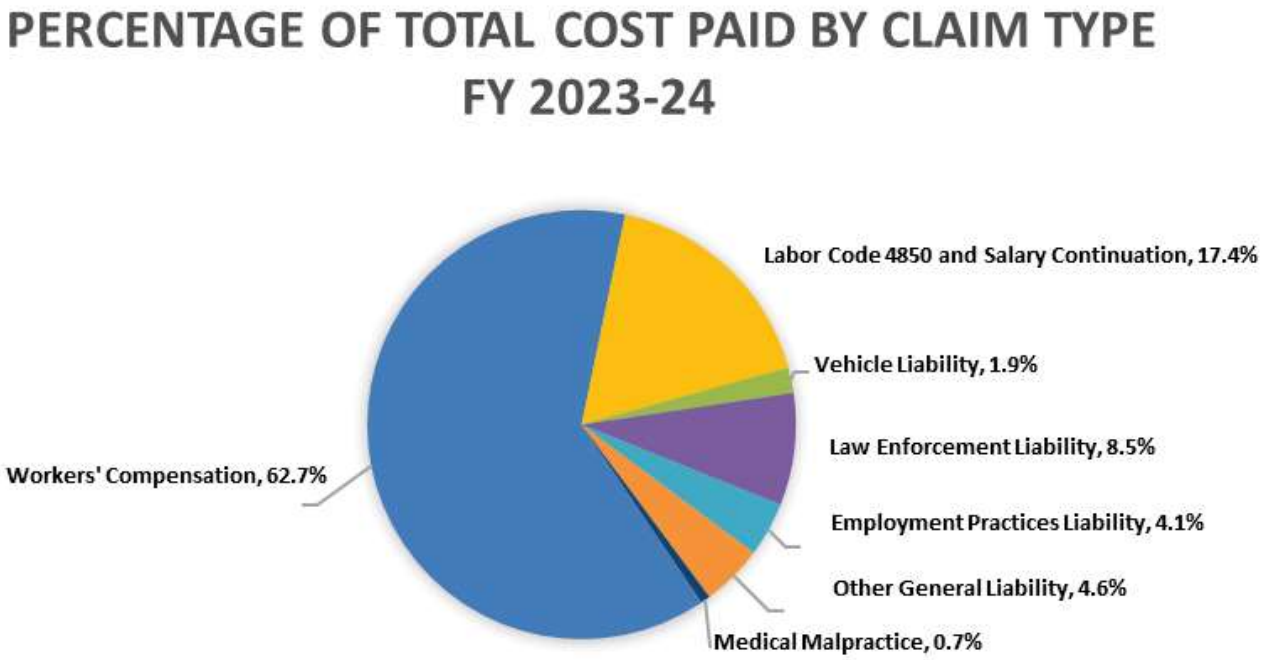
AVOIDANCE

Liability Cause Analysis

The operations and functions of the departments expose the County to several risk factors that result in liability. While each department has risks specific to their operation, the overall exposure can be summarized into five liability classifications:

1) Employment Practices Liability
2) Law Enforcement Liability
3) Medical Malpractice
4) Other General Liability
5) Vehicle Liability

The chart below illustrates the County's cost associated to all liabilities paid by claim type.

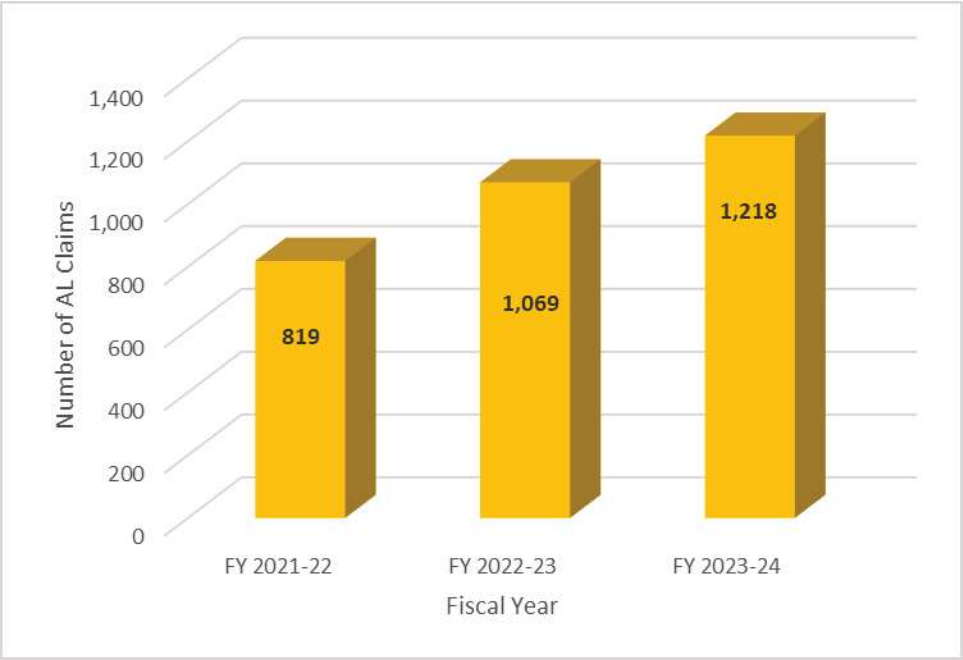


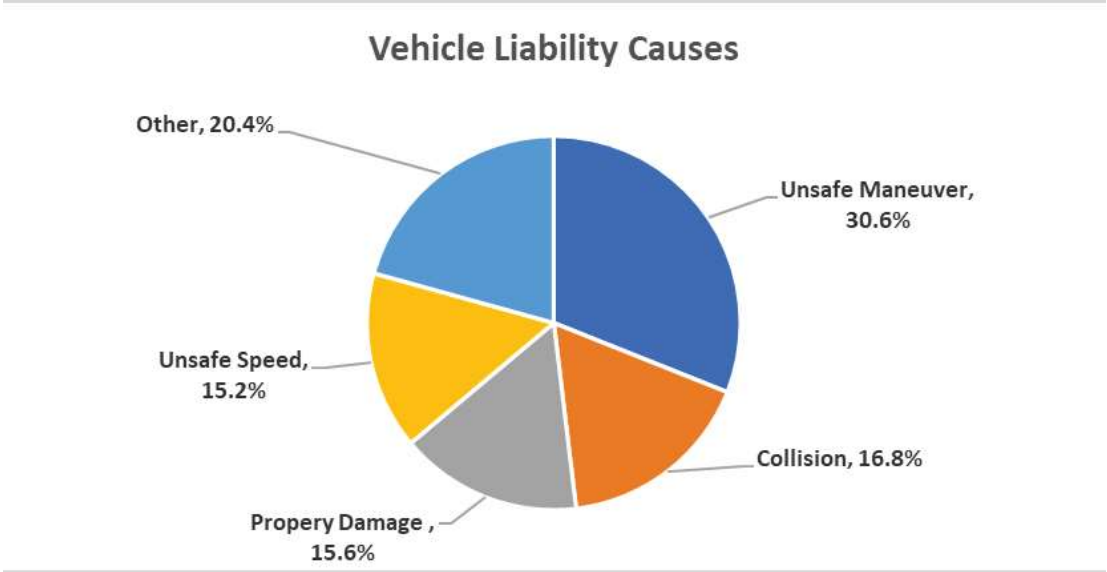
VEHICLE LIABILITY CLAIMS

The County's vehicle liability frequency increased 13.9% from FY 2022-23 to FY 2023-24. The cost of vehicle liability claims increased by approximately 15.5% during the same time period.

Data shows there were increases in all types of vehicle liability accidents in FY 2023-24. Unsafe maneuvers and unsafe speeds account for about a third of all accidents.

Vehicle liability represents 1.9% of the County's Total Cost Paid.

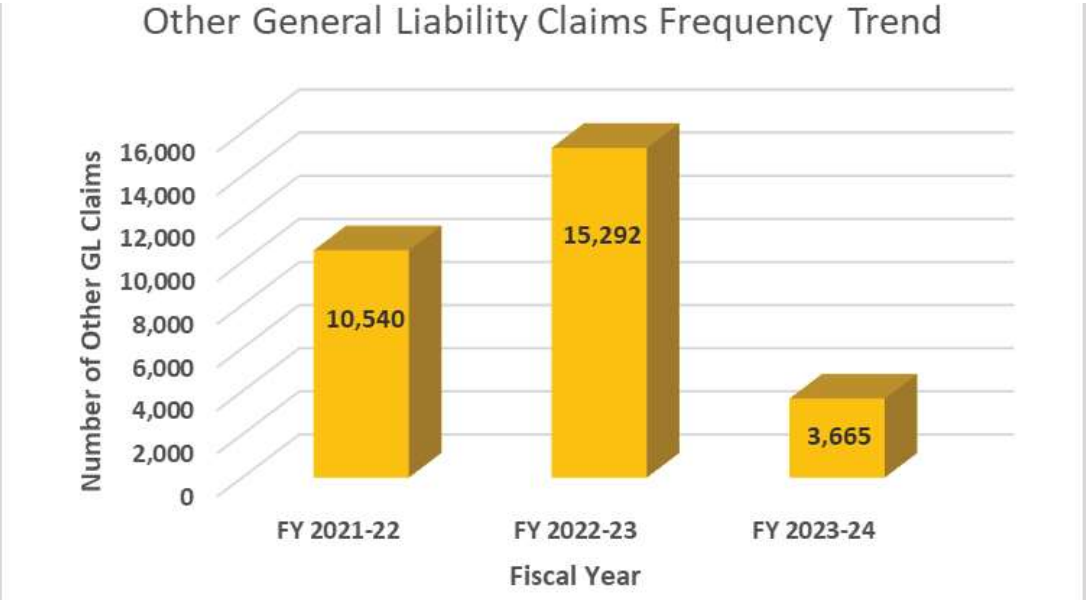


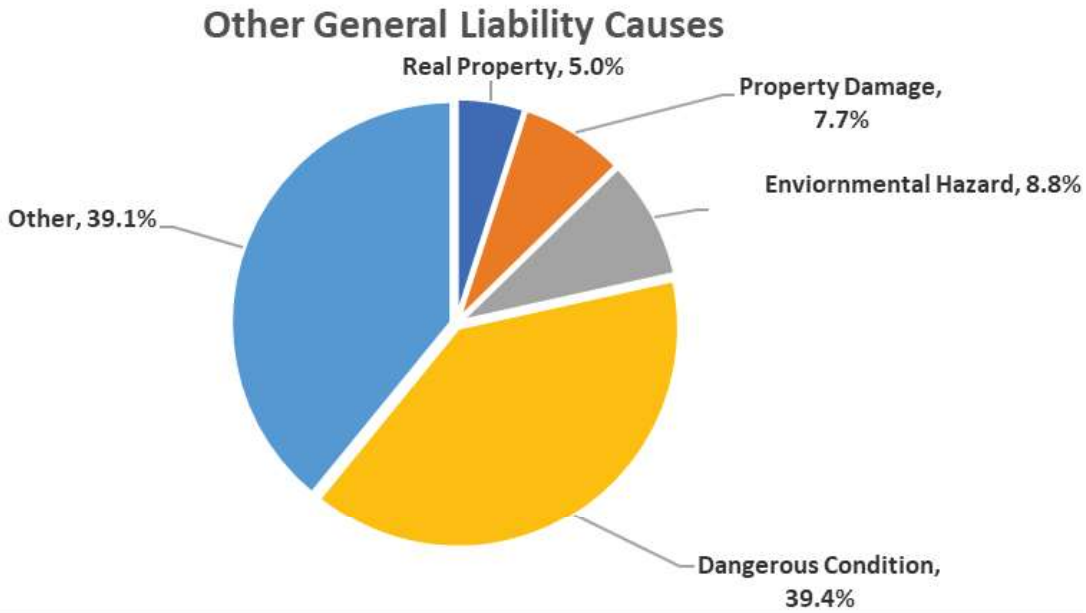


OTHER GENERAL LIABILITY CLAIMS

The Other General Liability frequency decreased by approximately 76.0% from FY 2022-23 to FY 2023-24.

Other General Liability represents 4.6% of the County's Total Cost Paid.

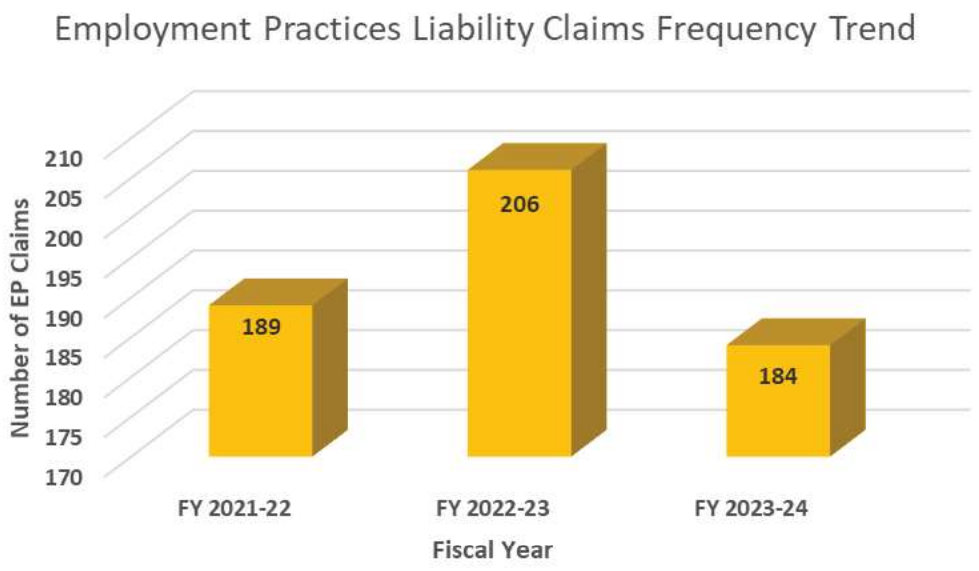


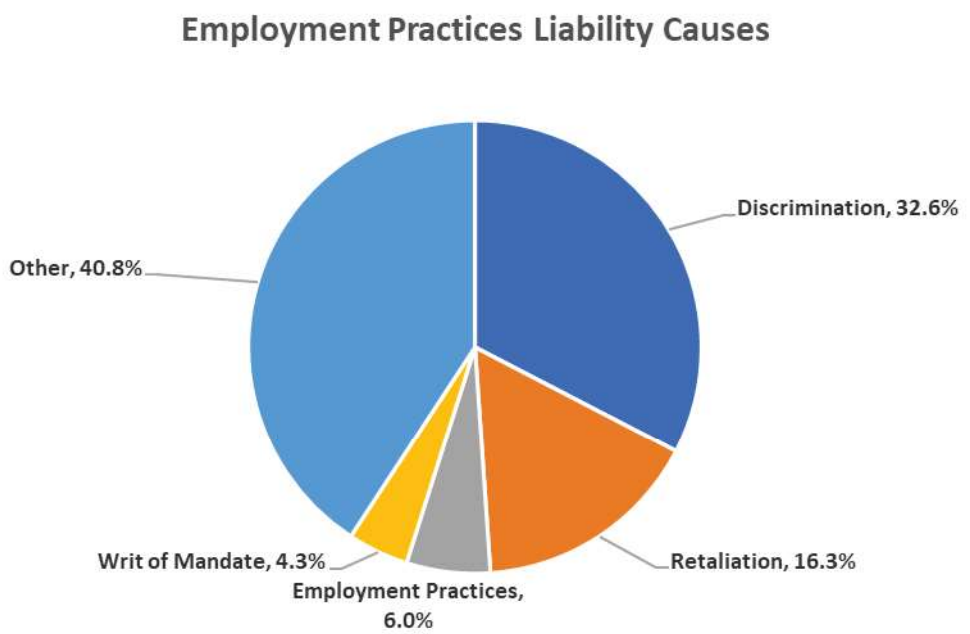


EMPLOYMENT PRACTICES LIABILITY CLAIMS

The County's employment practices liability frequency decreased by 10.7% from FY 2022-23 to FY 2023-24. The County's overall employment practices liability expenses increased by 2.4%.

Employment practices liability represents 4.1% of the County's Total Cost Paid.



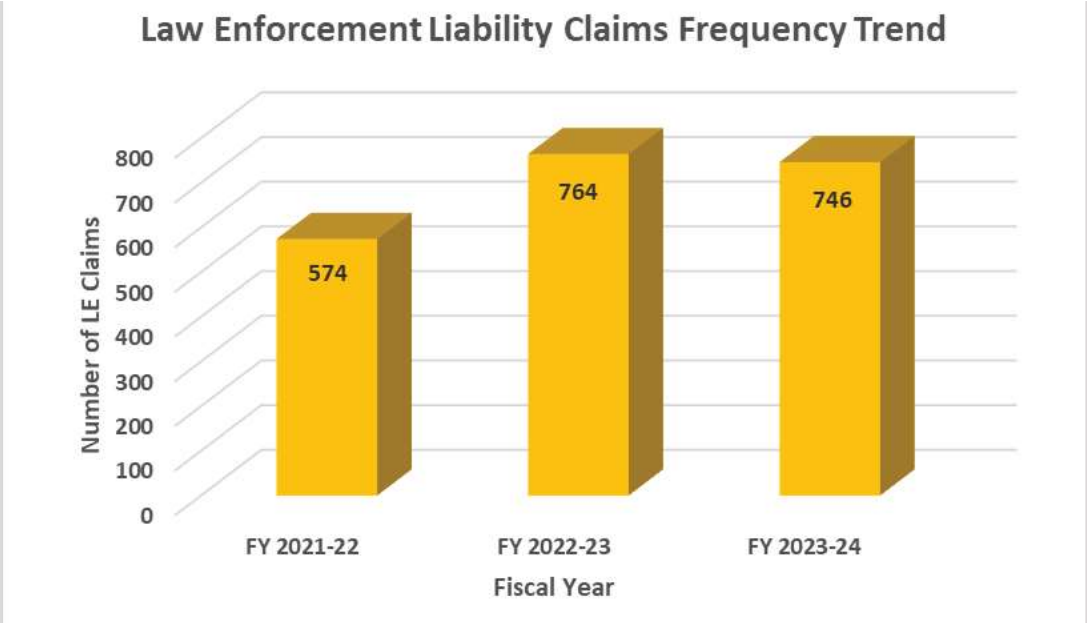


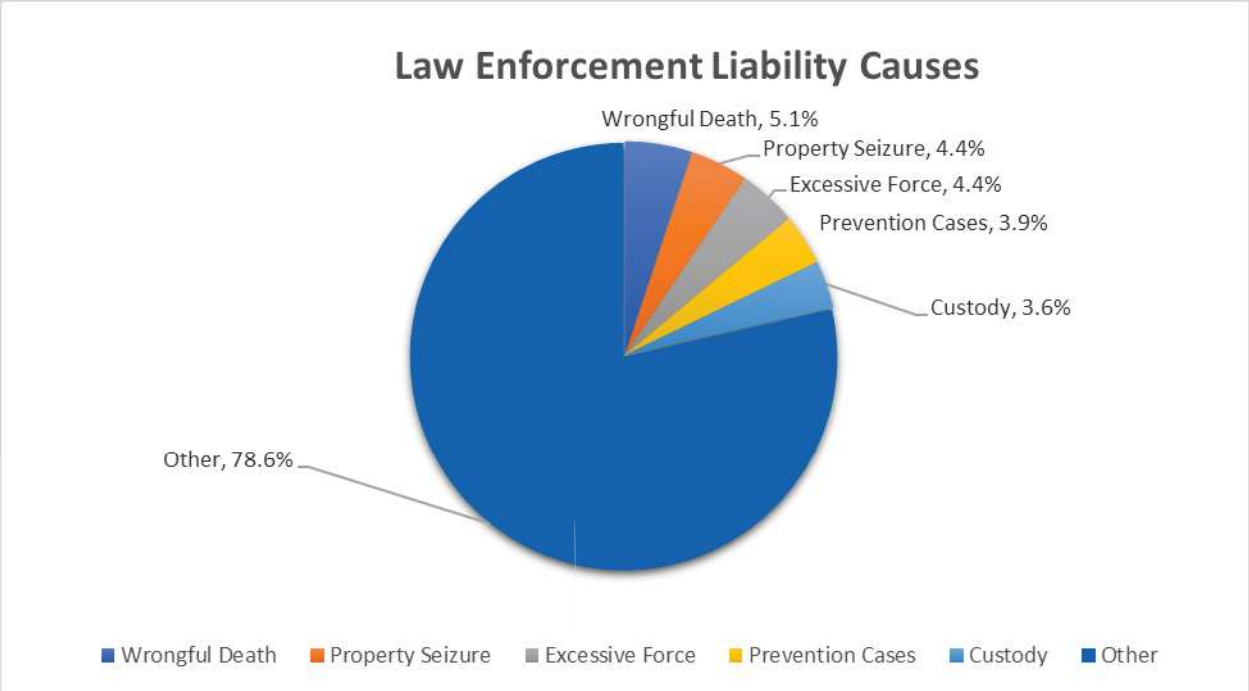
LAW ENFORCEMENT LIABILITY CLAIMS

The County's law enforcement liability frequency rate decreased by 2.4% for FY 2023-24, compared to the previous FY, and paid expenses decreased by 26.9%.

The most prevalent claims were for "Wrongful Death" and "Property Seizure," which represent 5.1% and 4.5%, respectively.

Law enforcement liability represents 8.5% of the County's Total Cost Paid.



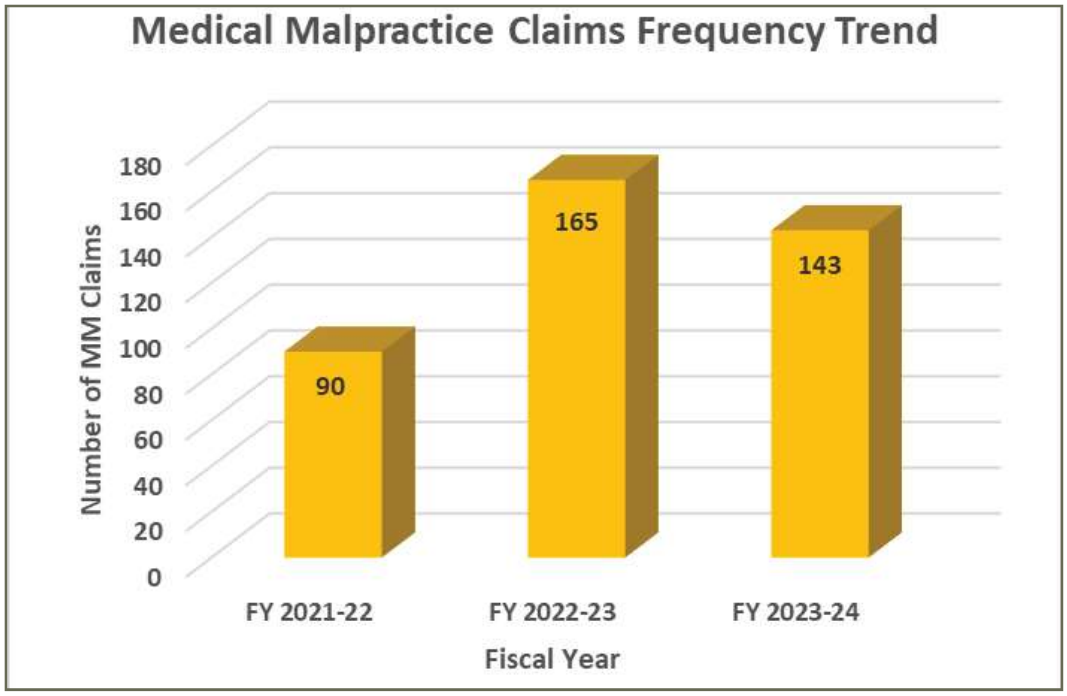


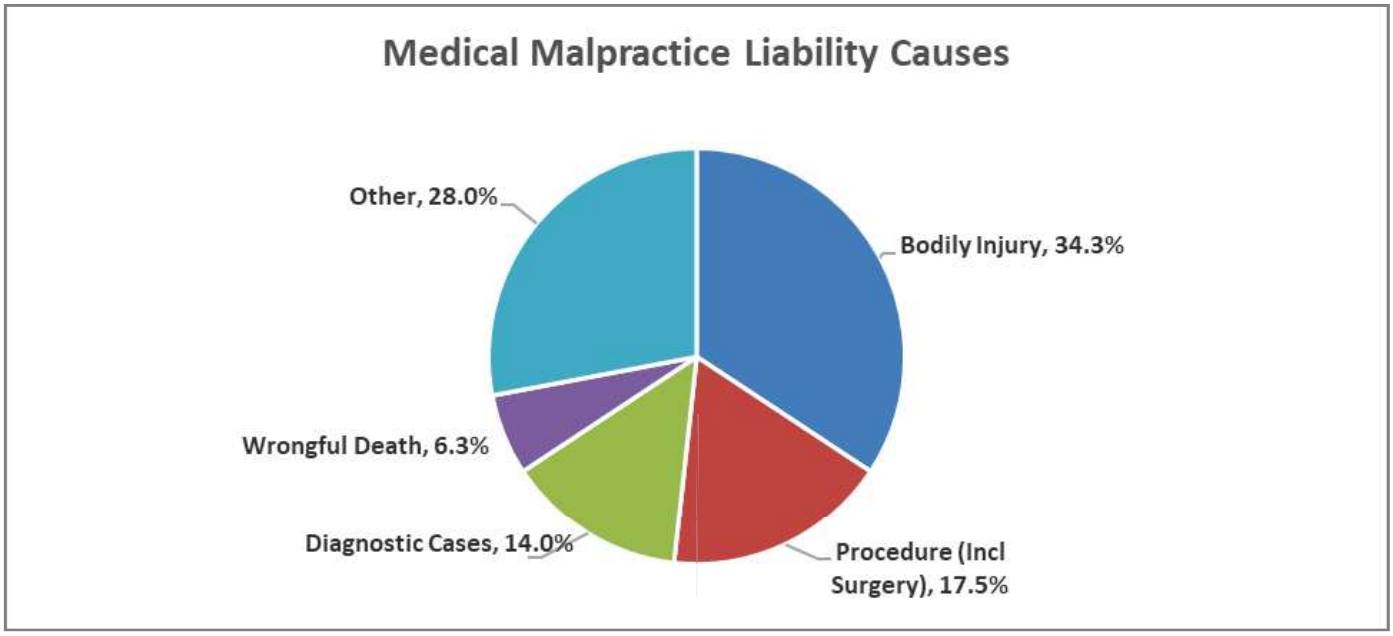
Medical Malpractice Claims

Medical malpractice liability loss is attributable to various departments; however, the majority of the loss is related to care in hospitals. Hospital exposures are those related to patient contact; therefore, the more patients seen, the more probability that claims will arise.

The County's medical malpractice liability overall frequency decreased 13.3% from FY 2022-23 to FY 2023-24. The primary type of claim filed against the County was for procedures (including surgeries) and diagnostic cases.

Medical Malpractice Liability represents 0.7% of the County's Total Cost Paid.





Loss Control and Prevention

The Loss Control and Prevention (LCP) Unit, within the Risk Mitigation Section of the CEO's Risk Management Branch, provides consultative services and risk analysis to find effective solutions for root causes of loss, and training for all departments to ensure a safe and healthful environment for County employees and the public. LCP efforts focus on departments with high-risk activities; however, regular assistance/support is provided to all departments upon request. LCP's activities include the following:

- Enhancing loss control and prevention knowledge and capabilities within County departments through Health and Safety Coordinator meetings, participation in departmental safety and risk management committees, and Countywide education and training efforts, which include:
  - Creating model guidance documents, policies, best practices, and safety bulletins on pertinent loss control issues, including new or amended regulations, or current issues affecting the County.
  - Development and acquisition of training videos, courses, and related content for placement and distribution through the Learning Link and the online Risk Management University.
- Serving as subject matter experts for departments in responding to California Occupational Safety and Health (Cal/OSHA) complaint letters, citations, and informal conferences.
- Establishing County loss control and prevention standards and assisting departments with their risk management related needs.
- Evaluating proposed legislation involving liability and safety for applicability to County department operations including workplace violence and heat illness prevention.
- Addressing cost drivers associated with issues driving workers' compensation and tort liability costs, including vehicle, general, employment practices, and medical malpractice liability.
- Coordinating Countywide risk management training efforts through quarterly risk management, health and safety meetings where forthcoming legislation and other issues are presented and discussed with affected County departments.
- Providing statistical risk management information to departments and assisting with the interpretation of the statistics.
- Enhancing and maintaining the CEO-RMB Internet site and the Joint Labor-Management Committee on Office Ergonomics Intranet site with new and updated material.

Loss Control and Prevention — Accomplishments FY 2023-24

LCP focused efforts on assisting County departments in compliance with new/emergency standards, regulations, and Senate Bill requirements as well existing standards in a more diverse and dynamic work environment. Other significant accomplishments include:

Regulatory Compliance and Operational Effectiveness

- Focused on departmental frequency and severity drivers through the development and implementation of training programs, policies, and guidelines, as well as field visits targeted to the source of risk.
- Monitored new or revised safety-related regulations and provided County departments with regular updates through emails, webinars, safety bulletins, trainings, and other related meetings to ensure compliance.
- Provided over 500 consultations to departments on a variety of issues, including workplace violence prevention, heat illness prevention, ergonomics and telework, risk assessments, data analysis and interpretation, Cal/OSHA compliance, and occupational health, safety, and liability.
- Coordinated Quarterly Health and Safety Coordinator meetings attended by over 250 County risk managers, safety officers, human resources personnel, and others with safety responsibilities. The meetings covered:
  - Cal/OSHA's Wildfire Smoke Regulation
  - Safety Inspections
  - Cal/OSHA's Covid-19 Requirements
- Facilitated the acquisition of automated external defibrillators (AED) and the delivery of hands-only CPR and AED use training modules for County departments to ensure compliance with Board of Supervisor motions.
- Facilitated the use of virtual/video-based property assessments to assist the County's property insurer to survey County establishments for potential sources of loss and worked with County departments to resolve deficiencies when identified.

Cumulative Trauma Disorders/Overexertion Claims

Provided guidance on the County's responsibilities for providing ergonomic-related equipment in telework assignments.

- Developed and gathered resources for County departments to utilize to ensure employees performed their work-related duties in a safe and healthful manner in telework assignments.
- Worked with County departments through meetings, webinars, and other opportunities to ensure telework and ergonomics policies, procedures and guidelines are in adherence with regulatory requirements and established best practices.
- Enhanced the CEO-RMB and the Joint Labor-Management Committee on Office Ergonomics websites to include information on self-assessment evaluation software and training opportunities.

Training and Development of Countywide Risk Management Staff

- Enhanced the standard product list for ergonomic equipment used by departments and the County's workers' compensation TPAs as part of an integrated cost containment strategy related to ergonomic evaluations for workers' compensation cases.

- Participated in Countywide and department safety and risk management committees which provided networking opportunities for risk management personnel in social service departments.
- Utilized the Health and Safety Coordinator Meetings to provide County risk management personnel with regulatory updates and pending legislation, departmental cost drivers and County claim frequency and severity performance.
- Actively worked with County departments, subject matter experts and vendors to coordinate training video development to enhance the educational opportunities on Risk Management's education library.

Regulatory Compliance and Operational Effectiveness

- Monitor new or revised safety-related regulations and provide impacted County departments with regular updates through safety bulletins, trainings, and other related meetings to ensure compliance.
- Continue to advise departments on regulatory compliance related to new or revised standards, Senate Bills, or other related legislation including workplace violence and indoor heat illness prevention.
- Work with departments to ensure their occupational safety and health programs are revised and effective through regular meetings with department risk management staff and analysis of risk management related loss data.

Training and Development of Countywide Risk Management Staff

- Enhance training opportunities at the Health and Safety Coordinator Meetings through a combination of training topics presented by subject matter experts from both inside and outside the County as well as providing discussions on current and upcoming risk management issues and roundtable discussion opportunities.
- Continue to utilize client resources available through County insurance programs to develop and offer risk management-related training videos and other related content for use by County employees.
- Utilize the Health and Safety Coordinator Meetings to provide County risk management personnel with regulatory updates and pending legislation, departmental cost drivers, and County claim frequency and severity performance.

Telework and Ergonomics Compliance

- Provide departments with guidance on the County's responsibilities related to ergonomics and telework assignments.
- Continue enhancement of the CEO-RMB and Joint Labor-Management Committee on Office Ergonomics website to include information on telework, self-assessment evaluation software and training opportunities.

EFFECTIVENESS

EFFICIENCY

SCOPE

The role of RMIG is multi-faceted; first, it is responsible for assisting County departments in the development and approval of Corrective Action Plans (CAPs) and Summary Corrective Action Plans (SCAPs); second, it uses the information from the CAPs and SCAPs to foster liability loss control measures. Finally, RMIG collaborates with departments, CEO Liability Claims Management, and County Counsel to meet the mandates established by the Board of Supervisors (Board). This includes the requirement of all County departments to include a SCAP approved by RMIG as part of any claim settlement over $100,000.

Accordingly, RMIG manages CAPs and SCAPs through the following processes that incorporate all of the elements of loss control, claims management and Board mandates, as follows:

- Weekly review of all liability claims entered in the claims management system to determine early intervention, prevention, and containment efforts.
- Conduct detailed analysis of liability incident reports, claims, significant incidents, and adverse events, including monitoring adverse verdicts and items reported through various sources.
- Consult with departments and assist with their development of remedial corrections, CAPs and SCAPs.
- Pre-approve all CAPs and SCAPs prior to submission to the County Claims Board or Contract Cities Liability Trust Fund Claims Board, and/or the Board to expedite settlement payments.
- Escalate requests for CAP and SCAP information through department management and the Board, as necessary.
- Facilitate in obtaining and providing the CEO, Board, and Board staff with additional information as requested.
- Conduct audits and investigations of liability issues at the direction of the Board, and/or those issues which RMIG deems appropriate.

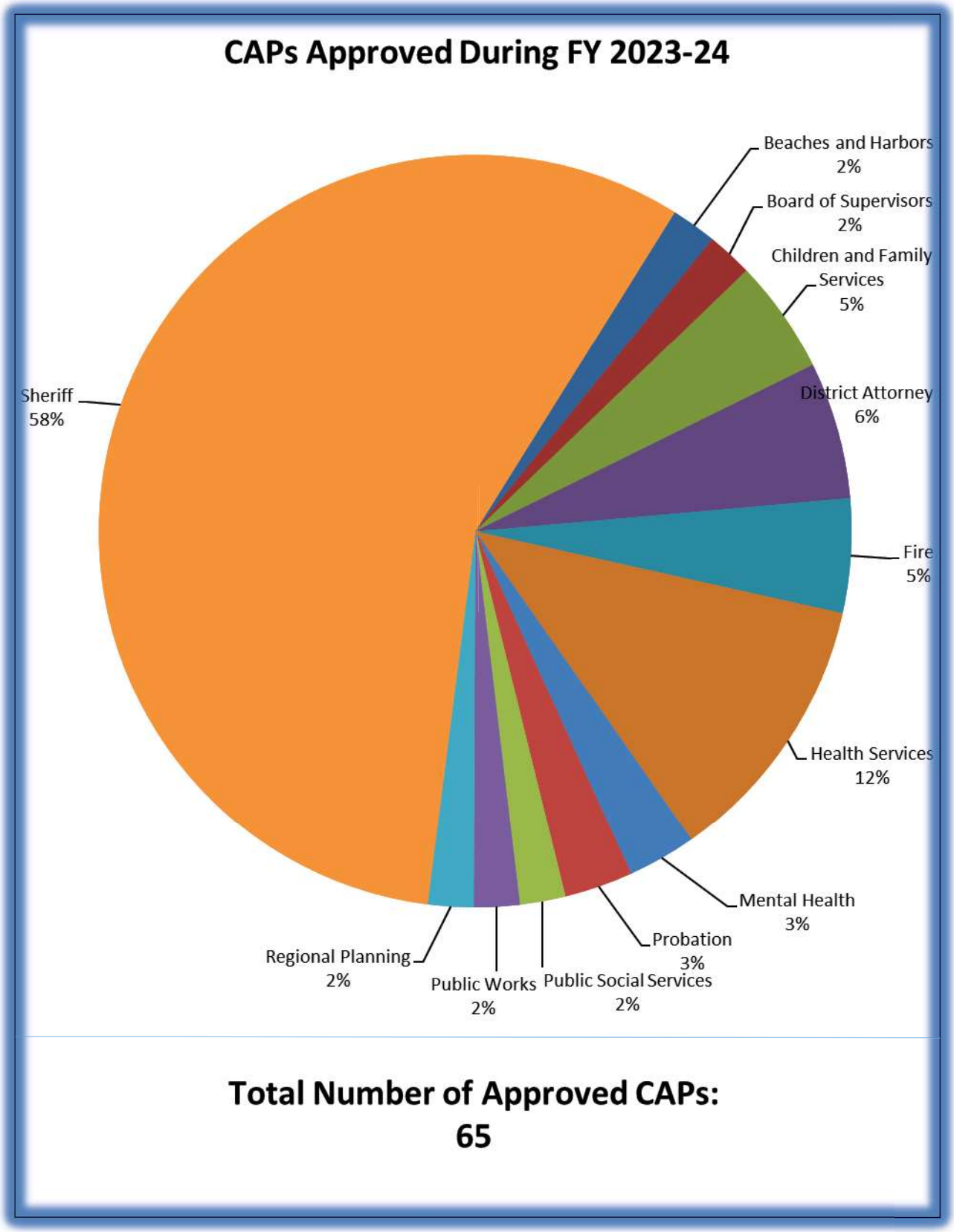
RMIG participates in all cluster meetings (agenda and policy committees) which involve in-depth discussions of CAPs/SCAPs and case facts. These cluster meetings are attended by Board Deputies, departments, County Counsel, and CEO. The purpose of the meetings is to brief the Board Deputies on all relevant information, so they can brief the Board before final Board approval is sought for a case.

The number of CAPs approved by the Board during FY 2023-24 is illustrated on the next page.

AVOIDANCE

ACTIONS

CORRECTIVE


CAPs Approved During FY 2023-24
Beaches and Harbors 2%
Board of Supervisors 2%
Children and Family Services 5%
District Attorney 6%
Fire 5%
Health Services 12%
Mental Health 3%
Probation 3%
Public Social Services 2%
Public Works 2%
Regional Planning 2%
Sheriff 58%
Total Number of Approved CAPs:
65

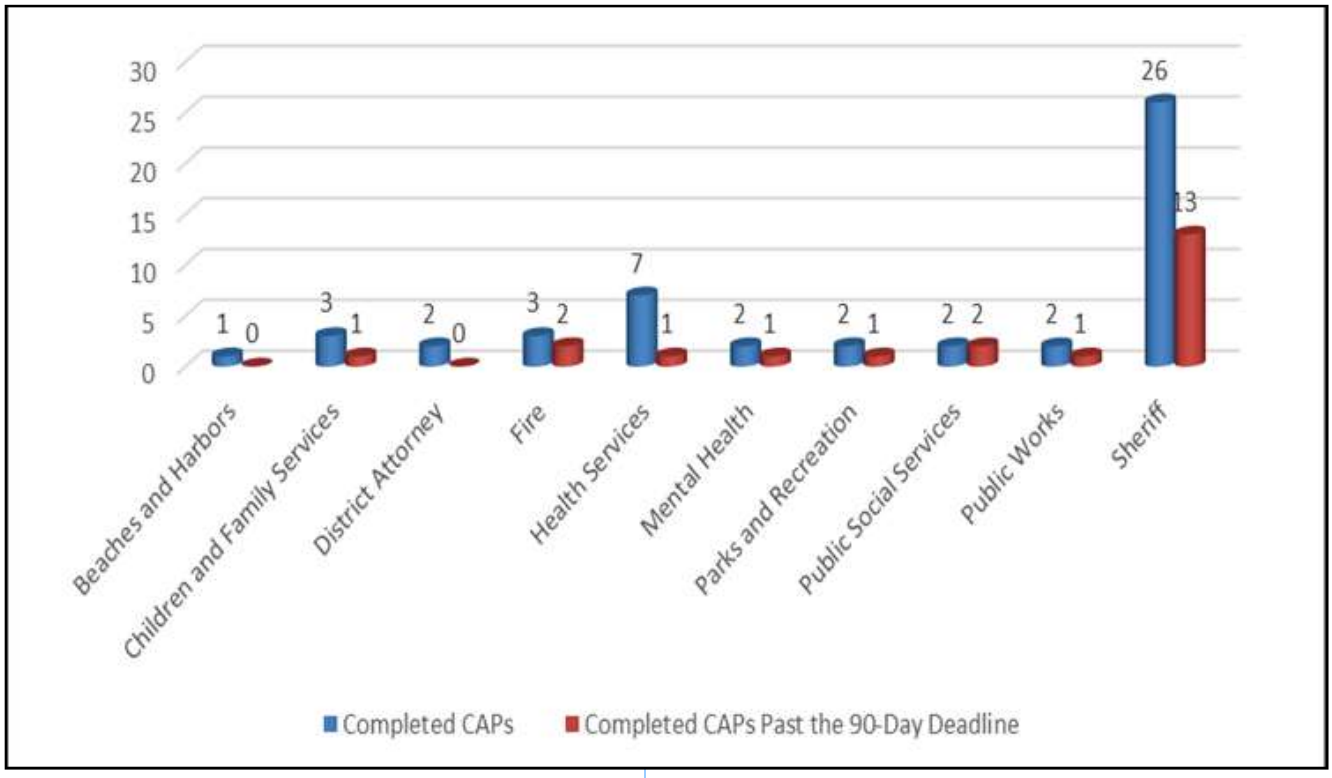
RMIG collaborated with the Board, County Counsel, and various departments to improve the timeliness of CAPs and SCAPs by creating an entirely new CAP and SCAP process which was implemented in 2015. From the date of the notice of settlement, departments have 90 days to submit a final CAP. Since the implementation of the new guidelines, a majority of the departments have met these new deadlines without challenges.

The chart below illustrates the number of CAPs completed within 90 days for FY 2023-24.

ANALYZE

RESOLUTION

Department	Completed CAPs	Completed CAPs Past the 90-Day Deadline
Beaches and Harbors	1	0
Children and Family Services	3	1
District Attorney	2	0
Fire	3	2
Health Services	7	1
Mental Health	2	1
Parks and Recreation	2	1
Public Social Services	2	2
Public Works	2	1
Sheriff	26	13
TOTAL	**50**	**22**



The quality of CAPs has significantly improved since 2015. CAPs now include more robust descriptions, supporting documentation, exhibits, and contain in-depth discussions as to the violations and/or system issues that occurred and how suggested corrective actions will address the problems in the present and into the future.

Open communication among departments reached new heights as departments work together on just culture (an approach to management of unintended outcomes in a humane and fair evaluation that identifies and corrects system contributors and human behaviors), CAPs, best practices, and sharing of information. Communication is key to having a strong and healthy organization and RMIG will strive to continually cultivate these open-door discussions.

Over the past several years, RMIG collaborated on the extensive development and implementation of the new RMIP to integrate the Risk Compliance Management System into applicable claims metrics. RMIG identified methods by which electronic communications with departments' litigation and risk management staff can be incorporated into this new system. The system was successfully implemented by CEO and RMIG is actively tracking and working on corrective actions within the new system.

RMIG completed an audit of the CAPs submitted by the five most risk-vulnerable County departments pursuant to a Board of Supervisors' motion issued on June 6, 2023. RMIG reviewed a total of 215 CAPs submitted by the Sheriff's, Health Services, Children and Family Services, Parks and Recreation, and Registrar-Recorder/County Clerk departments. The results of the audit were submitted to the Board of Supervisors on December 8, 2023.

Increased caseloads and changes in personnel and review processes at the departments have created a backlog of pending CAPs and SCAPs which has impacted the timely completion of CAPs and SCAPs in the past year. In FY 2023-24, 44% of CAPs and SCAPs were submitted after the 90-day deadline. One explanation for the increased caseload is that cases are now settling for higher amounts than they did before. Since Board Policy 8.020 - Procedures For Including Corrective Follow-Up Reports As Part of The Claims Settlements Presented To The Board has a sunset review date of December 10, 2025, RMIG in consultation with County Counsel will explore modification of the CAP and SCAP trigger amount to account for the impact of inflation on settlement amounts.

RMIG along with Loss Control and Prevention will consult and collaborate with the Sheriff's Department in their development of a traffic collision mitigation plan pursuant to a Board Motion issued on July 9, 2024.

RMIG will continue to research and develop additional automation methods to incorporate reminders and routine processes into the software. Overall, the new system allows for the creation and tracking of CAPs and will automatically assign CAPs to relevant business areas and organizational structures. The new system is expected to generate a variety of status reports based on the progress of corrective actions and will further assist in correlating the impact of the CAP to other loss measurements. Additionally, the system provides a single clearinghouse for the storage of all reference documents and exhibits related to the CAP process.

Pursuant to a Board of Supervisors' motion issued on June 6, 2023, RMIG will explore timeline feasibility of implementing system and software upgrades to incorporate a framework of accountability to include auditing, tracking, and compliance elements of all CAPs after Board of Supervisors approval is obtained. CEO will categorize all CAP steps into types, so that this can be reported back to Department heads and/or their Risk Management designee(s) annually.

RMIG continues to focus on liability loss control and incorporating data integration, tracking, and trending this fiscal year. RMIG will focus on proactive liability loss control measures instead of reactive measures which traditionally has been the practice. This will now also include identification and CAP audits of the five most risk-vulnerable County departments using liability claims data, which will be reported every other year beginning in FY 2023-24. For any CAPs that were not timely implemented by the identified risk-vulnerable departments, those departments will be deemed responsible to provide CEO with a written report back once pending corrective action steps and plans have been fully completed and implemented. RMIG will continue to host presentations on topics of interest to departments.

Finally, RMIG will continue to conduct annual reviews of the departments' Risk Management Plans to determine each departments' risk position from a liability claims perspective. RMIG will score departments based on multiple factors and will work with the departments to mitigate potential damages.

Risk Transfer

The Risk Transfer Unit (RTU) is responsible for purchasing commercial insurance Countywide, handling/issuing certificates of self-insurance Countywide, conducting insurance compliance reviews Countywide, and providing indemnification and insurance expertise to all County departments.

The County strives to obtain commercial insurance for multiple risks that could negatively affect the County. Examples of the types of commercial insurance procured are: automobile, aviation, cyber, crime, fiduciary, earthquake, general, and property. The County is constantly analyzing the risks and benefits by which obtaining insurance provides additional financial stability to the County and its constituents. The purchasing of insurance allows the County better protection when conducting day-to-day activities, as well as allowing the County to better serve its constituents by taking more proactive roles in public safety and health initiatives that may be of a higher risk but of a greater public value.

Risk Transfer— Significant Accomplishments FY 2023-24

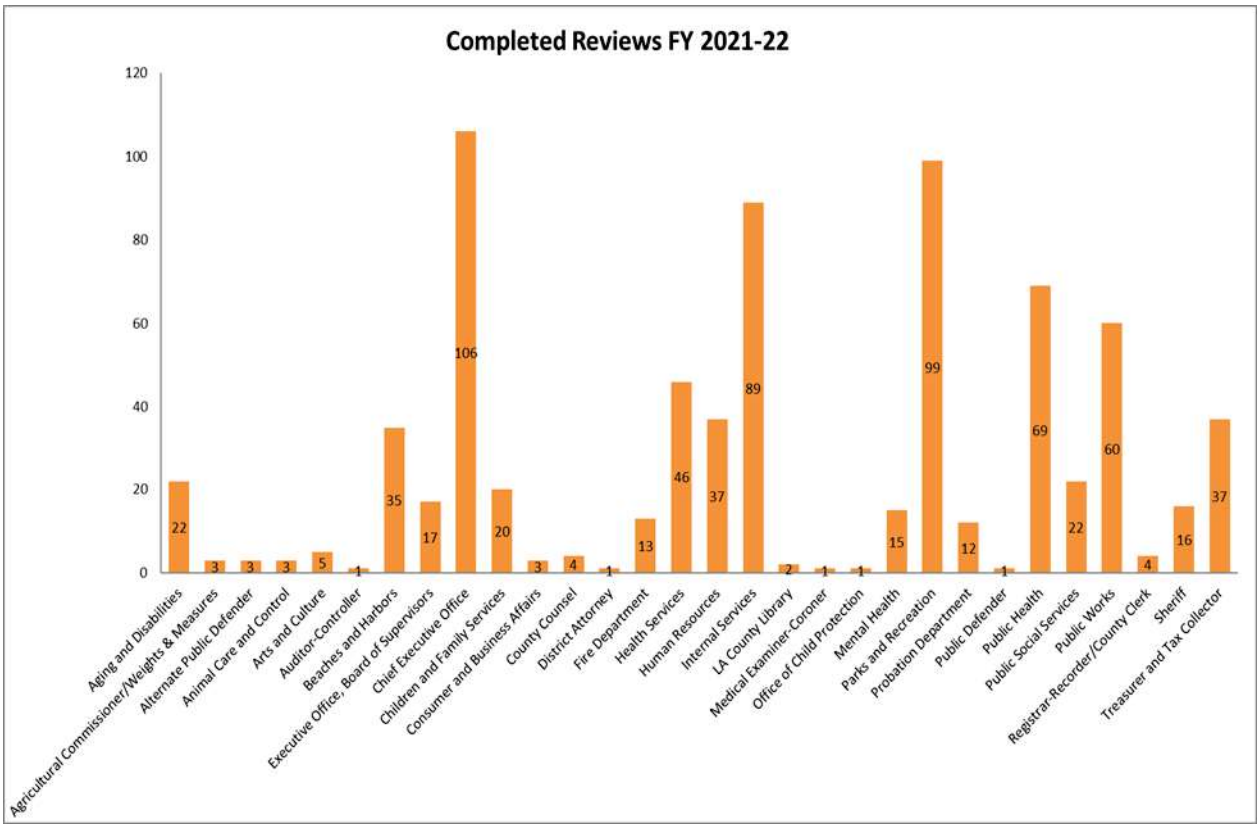
RTU reorganized the various insurance coverages and procured more robust insurance policies to better protect the County from emerging risks and losses caused by catastrophic events. The enhanced policies cover losses emerging from cyber-attacks, fire, flood, earthquake property damage, catastrophic workers' compensation losses, sexual misconduct liability, and general liability.

RTU created a triage system to determine high risk and essential buildings within the County of Los Angeles to assess the need to cover them with commercial insurance. This was accomplished in partnership with County departments, using the Deferred Maintenance Building Condition Assessments and the Asset Management Database. This fiscal year, the RTU, working in conjunction with the Property Insurance broker and underwriters, continued to assess County properties and update building values.

RTU continued to provide Countywide insurance compliance reviews, indemnification and insurance trainings, and advice to all County departments on acceptable risk transfer techniques to protect the County from indemnity and legal costs associated with claims which may arise from the activities of County contractors.

RISK TRANSFER — ACCOMPLISHMENTS FY 2023-24 (CONTINUED)

RTU conducted 778 indemnification and insurance reviews for departments during Fiscal Year 2023-24. Departments were advised on possible risks associated with various projects and were provided recommendations on how to decrease such risks. The graph below illustrates the number of reviews completed per department.



RTU implemented an online Certificate of Self-Insurance system in January 2017. As a result, the operating costs associated with the County Self-Insurance Certificate program decreased. All County departments can now more efficiently produce Certificates of Self-Insurance to meet their respective departmental needs. Departments are often required to provide these certificates to various public and private entities for the County to conduct business on their property and/or for the public's benefit. Currently, all departments have access to the automated system and can produce their own Certificates of Self-Insurance within the requirements established by the County Risk Manager.

This allows certificates to be expedited as needed and creates a more efficient way of conducting business. Tracking of the certificates is fully automated and certificates can be created and sent via e-mail within minutes.

Risk Transfer — Accomplishments FY 2023-24 (Continued)

RTU continues to train departments on the Certificate of Self-Insurance system and provides ongoing technical and administrative support.

The chart below illustrates the number of County Certificates of Self-Insurance completed during Fiscal Year 2023-24. A total of 1,149 certificates were completed by the departments within this timeframe.

Department	Number of Certificates
Aging & Disabilities	9
Agricultural Commissioner/Weights & Measures	1
Animal Care & Control	21
Arts and Culture	2
Assessor	3
Beaches & Harbor	4
Board of Supervisors, Executive Office	25
Chief Executive Office	57
Children & Family Services	59
District Attorney	5
Economic Opportunity	10
Fire	66
Health Services	106
Human Resources	10
Internal Services	9
Justice Care and Opportunities	1
Library	36
Medical Examiner	1
Mental Health	136
Military & Veteran Affairs	2
Parks & Recreation	38
Probation	13
Public Defender	3
Public Health	85
Public Social Services	40
Public Works	95
Regional Planning	6
Registrar-Recorder/County Clerk	199
Sheriff	104
Treasurer and Tax Collector	3
Grand Total	**1149**

During the last fiscal year, RTU participated in two Countywide trainings hosted by the Internal Services Department, with presentations dedicated to insurance and indemnification requirements for County contracts to County departments.

RTU was asked to collaborate with other departments on various projects, including, but not limited to, the following:

- Insurance requirements for Schools Use of Parks Program Memorandum of Agreement for the Department of Parks and Recreation,
- Insurance requirements for Foster Family Agencies for the Department of Children and Family Services, and
- Revisions to Cyber Insurance standard requirements in County contract and solicitation templates.

RTU started drafting a comprehensive Insurance Manual for County Commercial Insurance and collaborating on the implementation of the comprehensive RMIP to integrate insurance policy management and asset management into the system's Loss Prevention module.

COLLABORATION

IDENTIFY

PREDICT

Risk Transfer — Objectives FY 2024-25

RTU will strive to insure as much County liability as is deemed financially responsible to protect County assets from unforeseen disasters. Continuing with this strategy, RTU is now in the process of obtaining higher limits of commercial excess coverage for Sexual Misconduct Liability and Cyber Liability to further reduce risk to the County. RTU will continue to work in partnership with the Claims Unit on assessing the need for Excess Medical Malpractice insurance. RTU will also continue to collaborate with the departments on their department-specific commercial insurance needs and obtain department-specific insurance policies on an as-needed basis.

RTU will continue evaluating properties to determine high risk and essential County buildings. Decisions to add County buildings to the property insurance policy will be made from a risk management perspective and will consider various factors such as location, population, and function of the buildings to ensure that all properties have the necessary coverage.

RTU will continue to conduct live webinars and online training on topics of interest to departments as part of our ongoing training program. The training objective is to provide holistic risk management and risk transfer perspectives to the departments' contract administrator functions with the goal of mitigating the contractual risks for the County.

RTU will continue to collaborate with other departments on various Countywide projects to help assess potential risks and transfer them using diverse risk transfer techniques. RTU will continue building up a partnership with the County Counsel and the Internal Services Department to combine legal, contracting, and risk management expertise to help the County improve its contracting solicitation, administration, and monitoring practices with small, medium, and minority-owned businesses.

RTU will continue to assist in the development of the insurance module of the comprehensive RMIP by integrating County commercial insurance policies into the system. RTU objectives for the system are:

- To retain all County commercial insurance policies in electronic format for easy location, reference, and complete searchability.
- Maintain a complete list of the County properties covered by hazard insurance, including property values and business interruption values, for easy access related to claims.

RTU will revise and update the Insurance Manual for County Contracts with Vendors and will complete the comprehensive Insurance Manual for County Commercial Insurance.

Office of Privacy

The Office of Privacy (OOP) is a division within CEO-RMB and oversees the Countywide Privacy Program and privacy risk management activities among the County's 39 departments. OOP is led by the County's Chief Privacy Officer, who manages the development of the Countywide Privacy Program and ensures protection of the County's data and information from unauthorized access, modification, misuse, or destruction. The mission of OOP is to protect the County's data and information through centralized oversight of privacy and cybersecurity risk mitigation protocols, and focused governance over privacy program operations.

Privacy risk management functions depend on a unique interplay between the distinct objectives of OOP, the Internal Services Department's Cybersecurity Governance & Operations Branch (ISD-CGO), and the Office of the Chief Information Office (OCIO): while the OCIO and ISD-CGO are focused on the security of the County's information technology systems, along with cybersecurity infrastructure and operations, OOP is focused on protection of the County's data and information that is processed and stored within those systems. The respective objectives of both OOP and OCIO provide holistic privacy and cybersecurity risk management functions with the goal of mitigating these risks for the County.

OOP oversees the Countywide HIPAA program, regulatory reporting activities and investigations, and coordinates with the County's HIPAA-covered departments to ensure compliance with applicable laws, regulations, and County policies. OOP also ensures Countywide compliance with federal requirements under the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Health Information Technology for Economic and Clinical Health Act.

Office of Privacy and HIPAA Key Privacy Objectives

OOP manages the Countywide Privacy Program operations, with several key objectives:

- **Privacy and HIPAA Program Development** – Responsible for Countywide privacy policy development and program management. The Countywide Privacy Program policies were adopted by the Board of Supervisors in 2022 to establish unified and minimum standards across County departments for protecting County Information and Personal Information. Since then, OOP commenced an extensive contract solicitation to engage a contractor to assist County departments with the implementation of programmatic requirements and confirm compliance with these policy requirements.
- **Centralized Oversight and Compliance** – Provide streamlined guidance to County departments on privacy-focused and HIPAA-focused initiatives, policies, training, risk assessments, audits, and compliance with applicable laws, regulations, and County policies. Coordinate with the County's Risk Manager to procure cyber-liability insurance coverage for the County. Implementation of the County's HIPAA audit plan via ongoing audits of County department's compliance with HIPAA regulations.
- **Countywide Employee Training** – Deployment of enhanced Countywide Privacy Awareness Training and HIPAA Privacy and Security Training for applicable departments.
- **Privacy Incident and Breach Response** – Ongoing development of incident response and breach response protocols for privacy and/or HIPAA-related cybersecurity and privacy incidents, and consulting with the County's Incident Response Teams for timely response actions, to ensure compliance with applicable laws, regulations and policies, and any breach response obligations, as applicable. Coordination of tabletop exercises to train stakeholders on coordinated incident response protocols for cybersecurity and privacy incidents.

Office of Privacy and HIPAA Key Privacy Objectives (Continued)

- **Third-Party Vendor Management** – Provide technical guidance on the County's contract provisions to ensure the protection of County's data and Protected Health Information, assist with privacy risk assessments of the County's third-party vendors, review Business Associate Agreements, and provide guidance on privacy risk assessments of the County's third-party vendors.

Office of Privacy—Objectives for FY 2024-25

OOP's objectives are centered around the ongoing development of a Countywide Privacy Program that provides a foundation for the appropriate management and protection of County Information, including Personal Information and Protected Health Information. The Countywide Privacy Program is guided by the principles of protection of County Information, ethics regarding the use of Personal Information, transparency about the collection and use of County Information. OOP provides key risk management functions associated with privacy and cybersecurity for the County, and collaborates with individual County departments on addressing their specific privacy needs, while maintaining an enterprise-wide perspective on the County's privacy framework and programs.

Following the Board of Supervisors' recent adoption of a new chapter of Board policies pertaining to Privacy (Chapter 10), in FY 2024-25 OOP will continue overseeing department-wide implementation of these policy requirements. These enterprise-wide protocols include ongoing updates to incident and breach response procedures, deployment of privacy threshold and privacy impact assessment tools, implementation of the HIPAA audit plan, deployment of enhanced privacy awareness training and HIPAA training for employees, coordination of multi-departmental tabletop exercises, and other privacy program initiatives. To ensure compliance with Board Privacy policies and applicable laws and regulations, OOP is also preparing Countywide HIPAA Privacy policies for adoption by the Board of Supervisors. In addition, the County's HIPAA-covered departments continue to undergo HIPAA audits and compliance reviews, in accordance with the County's HIPAA audit plan, to ensure that the necessary controls are in place to safeguard the privacy and security of all health information, as mandated by HIPAA regulations.

Risk Management Finance

The Risk Management Finance Unit (Finance) provides general accounting and internal audit services for various programs within CEO-RMB. General accounting services include managing the Workers' Compensation Budget (EB) and Insurance Budget (IB); monitoring contract expenses; billing all County departments; performing reconciliations; processing vendor requests, warrant service requests, invoice payments, County fund transfers; and providing direct deposit assistance to claimants and vendors.

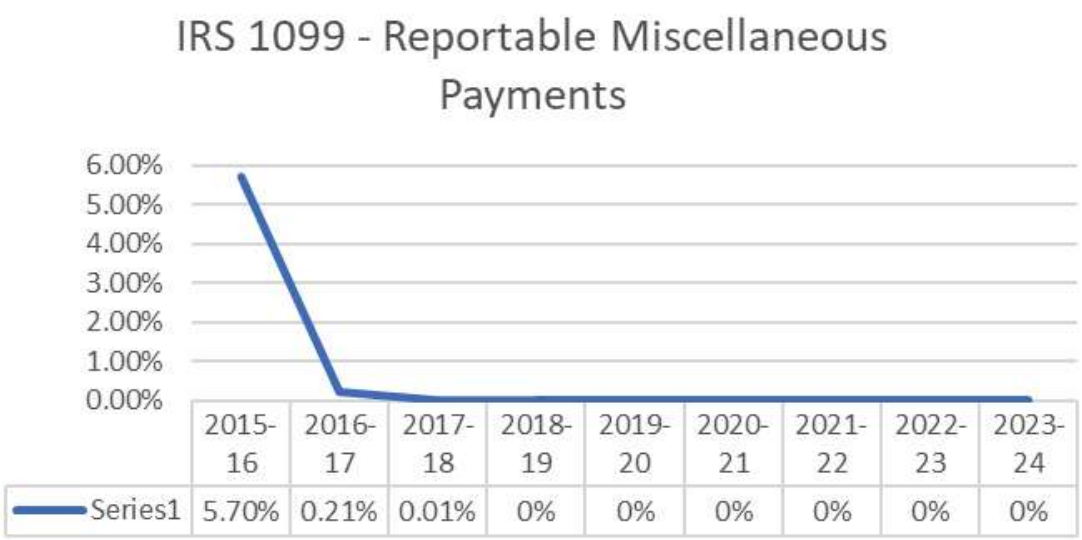
Internal audit services include evaluating financial internal controls, providing recommendations, and performing various fiscal reviews to ensure financial accuracy and safeguarding against financial loss. Additionally, Finance provides accounting services for the County's Disability Management Program, which is overseen by the Department of Human Resources (DHR).

Risk Management Finance — Significant Accomplishments FY 2023-24

In February 2021, the Workers' Compensation module of Claims Enterprise (formerly known as Ventiv Claims Enterprise) was implemented. This module, used by Finance, has a significant improved functionality over the legacy system. Some of the major benefits are as follows:

- Continued low error rate of incorrect vendor data entry. Claims Enterprise interfaces with eCAPS, the County's financial system, which eliminated the previous process of duplicate vendor data entry. This provides a time saving benefit and a lower vendor data entry error rate.
- Continued low number of manual 1099 reporting to the Auditor-Controller. A vast majority of 1099 reporting to the Auditor-Controller is performed in Claims Enterprise. Only a small number of manual 1099 reporting was completed in December 2023.
- Vendor table is continually updated. Claims Enterprise successfully receives vendor post-back files, which automatically activates and deactivates vendors resulting in a vendor table that is regularly updated. A current vendor table decreases the risk of fraud and prevents payments from being rejected due to an inactive eCAPS vendor status.
- In FY 2015-16, payments made to the Workers' Compensation program that were categorized as "miscellaneous" and considered IRS 1099-reportable was 5.70%. Since FY 2016-17, Finance has maintained a low percentage. In FY 2023-24, there was 0% IRS 1099-reportable miscellaneous payments. Maintaining a low percentage decreases the risk of fraudulent payments as miscellaneous payments are made to vendors that are not in eCAPS and therefore have not been screened.

- In collaboration with the Auditor-Controller and CEO-ITS, successfully completed the Fire Department Direct Deposit Pilot Program.
- Resolved an ongoing Sheriff Department billing dispute, which involved collaborating with the Sheriff Department, Liability Claims and Recovery Unit, CEO-ITS, and the TPA. Identified the source of the dispute, created a new and improved workflow, and set up new funding sources in Claims Enterprise to properly reassign claims. This resulted in a reduction of errors and streamlined the processing time.
- Presented the Medicare Interception presentation at the Auditor-Controller's 2024 Fiscal Forum to assist departments in identifying an interception and the process for collecting funds.
- Streamlined the Annual Excess Liability Insurance payment process for Contract Cities Liability Trust Fund.
- Developed processes to update records associated with the Loss Portfolio Transfer.
- Two Self-Insurance Special District Trust Funds (SK1 for auto liability and TJ1 for general liability) sat dormant for decades and were identified to be closed out. RMB Finance completed the depletion for the Fire Protection District and will begin the depletion of the Public Works portion in the next year. The funds are being allocated to current cases as they occur and if they belong to the appropriate category.
- Enhanced the accuracy of the Liability Claims estimates within the Insurance Budget by collaborating with County Counsel to update the projected fiscal year payout in Claims Enterprise.
- In collaboration with the Risk Analytics Unit, created a report for departments, which identifies all liability claims over $100,000 to ensure funding sources are properly assigned for budget and billing purposes. This report is sent to departments three times a year.
- Transitioned the finance responsibilities from Liability Claims and Recovery Unit to Finance.



RISK MANAGEMENT FINANCE — ACCOMPLISHMENTS FY 2023-24 (CONTINUED)

- Processed 1,869 vendor requests (25% increase from previous year).
- Processed 224 retro Temporary Disability (TD) requests.
- Created workflow charts for operations.
- Completed four workers' compensation third party administrator duplicate/ overpayment reviews. No high-priority findings.
- Completed two workers' compensation eCAPS payments internal control plan reviews. No high-priority findings.
- Completed Invoice Payment Reviews for 16 contracts. No high-priority findings.
- Reviewed Claims Enterprise CEO Workers' Compensation Program Staff user access, as well as CEO high-level user access and payment activity reports as part of internal controls.
- Continued reviewing the Provider Suspension List identified by the State of California, Department of Industrial Relations to determine if any of the providers are County vendors.

RISK MANAGEMENT FINANCE — OBJECTIVES FY 2024-25

- Continue to consolidate and reformat the IB accounting schedules.
- Continue to streamline the IB reconciliation and billing process.
- Continue to assist County departments with erroneous Medicare interceptions and develop procedures to reconcile the TK7 trust fund.
- Continue to integrate the Insurance Budget accounting with the Workers' Compensation Budget accounting.
- Continue creating and refining Claims reports for program analysis.
- Cross train new staff.
- Update procedure manuals.
- Drain Public Works Special District Trust Funds

Risk Analytics

The Risk Analytics (Analytics) Unit is responsible for overseeing the County of Los Angeles RMIP, a comprehensive claims management system for workers' compensation claims, liability claims, and protected leaves. The Analytics works closely with Riskonnect, Inc., the contractor that hosts and maintains RMIP for the County, and with CEO-ITS on implementing new customizations and enhancements to RMIP, also referred to as Claims Enterprise. Other Analytics responsibilities include:

- Developing reports in Claims Enterprise or running Structured Query Language (SQL) queries in Microsoft SQL Server to obtain data to address the needs of CEO-RMB, other County departments, including County Counsel, TPAs, or legislative analysts.
- Generating data required for the completion of the annual CEO-RMB Annual Report.
- Compiling and distributing data from six sources about each County department's number of claims and expenses as a reference for their annual RMPs.
- Managing requests to Riskonnect from County and TPA users to add new fields or calculations to improve Ad Hoc reporting capabilities in Claims Enterprise.
- Testing and validating data for reports or after data conversion in Claims Enterprise by comparing data stored in Microsoft SQL Server or from other claims management programs.
- Organizing Claims Enterprise Ad Hoc reports and dashboards online trainings by Riskonnect for new County departmental users.
- Meeting weekly with Riskonnect and CEO-ITS to discuss and resolve service tickets that include requests for customized reports and new reporting fields, and technical issues in the user interface or reporting domain.
- Composing Claims Enterprise reference guides on how to create Ad Hoc reports and updating the data dictionary with new fields in the reporting domain.

Risk Analytics — Significant Accomplishments FY 2023-24

First Loss Portfolio Transfer of Workers' Compensation Claims

- Assisted the Workers' Compensation Claims Unit with the transfer of workers' compensation claims with an opened date of 7/1/1969–9/30/1988 to Swiss Re Group.
- Collaborated between Riskonnect, CEO-ITS, and Finance on how to reconcile incoming financial information for LPT claims in Claims Enterprise.

Disability Management and Compliance System (DMCS)

- Worked with DHR, Riskonnect, and CEO-ITS to launch a new module in Claims Enterprise in September 2023.
- The module was created for Disability Management coordinators to track coordination efforts with employees, conduct interactive process meetings, and document work restrictions and accommodations.

RISK ANALYTICS — ACCOMPLISHMENTS FY 2023-24(CONTINUED)

Enterprise Risk Information Center (ERIC) Dashboards

- Worked with the Riskonnect Analytics team and CEO-RMB Workers' Compensation Claims Unit to test and verify that the dashboards accurately presented data that matched the figures in the CEO-RMB Annual Report.
- Launched the ERIC Dashboards for County departmental user access in August 2023.
- The ERIC Dashboards illustrate open workers' compensation and liability claims data and payments for the past three fiscal years for each County department.
- Reviewed and provided feedback for the ERIC Dashboards online training course and guide designed by Riskonnect.
- Attended four online trainings developed and conducted by Riskonnect and answered questions from departmental managers.

RISK ANALYTICS — OBJECTIVES FY 2024-25

Second Loss Portfolio Transfer of Workers' Compensation Claims

- Continue to assist the Workers' Compensation Unit with the second transfer of workers' compensation claims with an opened date of 10/1/1988–4/15/1993 to Swiss Re Group.
- Work with Riskonnect and CEO-ITS on exporting claim data and modifying existing reports and dashboards to remove these claims.

Future Dashboard Development

- Work with the Workers' Compensation Claims Unit and Riskonnect on developing a dashboard for 4850 and Salary Continuation data.
- Explore new dashboard ideas from DHR and Riskonnect to show data for protected leaves and disability management and compliance records.

Fire Department Return to Work Administration

- Explore the Fire Department's Return to Work Claims Unit request to track their workers' compensation claim activity in Claims Enterprise instead of in their internal Access Database.
- Oversee the enhancement of Claims Enterprise by Riskonnect, which includes data conversion and reconciliation, data analysis and mapping, and loading reference tables from the Fire Department's Access Database and file server systems.
- Assist with configurations to the letter correspondence templates and develop Ad hoc reports in the reporting domain.
- Assist with organizing training with Riskonnect and the Fire Department for new users.

Risk Management Performance Metrics

On March 9, 2021, the Board directed the Chief Executive Officer (CEO), in collaboration with all County Departments, to establish performance metrics to measure departmental risk management performance, including but not limited to, areas of loss prevention, privacy, and workers' compensation/return-to-work programs.

CEO-RMB and DHR convened to establish performance metrics based on several factors to rank departmental risk management performance. Performance metrics included an aggregate score that integrated WC and liability claim performance (weighted 75%) and departmental risk management efforts and activities as identified in departmental Risk Management Plans (RMP)s (weighted 25%), thereby creating a scoring metric that ranked departments through accrued points. Department arduous ratings were also utilized to normalize WC and liability claim performance across all County departments.

Service clusters were also used to group departments, determine departmental performance, and identify the lower performing department (bottom ten percent) for each cluster. The departments listed below ranked in the bottom ten percent for FY 2022-23. CEO RMB and DHR met regularly with these departments to better focus their risk management efforts. Some of those activities undertaken by these departments are also listed below:

Beaches and Harbors (Community and Municipal Services Cluster)

- Developed a Heat Illness Prevention training program and provided training to staff to assist in mitigating potential exposure of heat-related illnesses for both new and existing staff.
- Revised the Department's Vehicle and Beach Driving policies.
- A vehicle driving training PowerPoint was developed for staff which provides information based on preventable vehicle accident data, cost analysis, good driving habits, and vehicle accident scenarios.

Registrar-Recorder/County Clerk (Operations Cluster)

- Reviewed and modified selection criteria for election training sites to improve and ensure selected sites are free from signs of rodent infestation and other environmental/hazardous material concerns. The project included recommendations for facility features such as regular sprinkler maintenance checks to be part of the site evaluation process.
- Train new temporary employees on proper vehicle inspection protocols, information logging and incident reporting.
- Added three modules to the safe driving training program. Newly added topics included towing preparation, box truck and trailer driving and backing up.
- Sent regular communication to all departmental staff informing them of upcoming heat waves and reminded them to take precautions including drinking plenty of fluids, taking regular breaks, and to complete heat-break logs.
- Conducted Job Hazard Analysis for employees in warehouse areas. Some of the areas reviewed included machinery, forklifts, fall hazards (around pallet racks and docking bays), heat-related concerns, and personal protection equipment necessities.

Mental Health (Health and Mental Health Services Cluster)

- Implemented a system to ensure the safety of their clinical staff by treating clients who have a history of significant security incidents and multiple granted temporary restraining orders via tele-health or video conference until it is determined that it is safe for the individual to return to in-person treatment.
- Procured an ergonomic software system to assist in conducting ergonomic evaluations which enabled them to clear their backlog of ergonomic evaluation request.

Children's and Family Services (Children and Family Cluster)

- Updated their "How I am Driving" Bumper Sticker program to include the main telephone number of DCFS' Office of Health and Safety for continuity and ensure follow-up on complaints.
- Revised the ergonomics evaluation process by establishing an automatic email alert system to keep track of the delivery and installation of purchased equipment. It is triggered when a Purchase Order is issued and the recipient is required to submit the packing slip to the Safety Office and their office manager once the equipment is received.
- Provided training to supervisory staff regarding disability management, workers' compensation claim process, and Family Medical Leave Act process.

Sheriff (Public Safety Cluster)

- The Sheriff's Department enhanced their Performance Mentoring Program by Microsoft Power Business Intelligence software. The program is used to identify concerns with professional performance of an individual employee to implement corrective action, if necessary.
- The Department developed the Performance Oversight Information Notification Tracker system that is used in conjunction with the Performance Mentoring Program to identify department members who display a pattern of concerning behavior. The system is a data-driven program used to identify deputies whose behavior may be problematic to provide supervisors with an avenue to give those officers timely avenues of intervention, often in the form of counseling or training.

CEO RMB continues to meet regularly with departments to better focus their risk management efforts in minimizing claim frequency and severity.

In continuance with the Board directive, CEO RMB will continue to measure departmental risk management performance. The departments listed below ranked in the bottom ten percent for FY 2023-24. CEO RMB and DHR will meet regularly with these departments through the FY to better focus their risk management efforts in minimizing claim frequency and severity drivers.

- Sheriff - Public Safety Cluster
- Beaches and Harbors- Community and Municipal Services Cluster
- Registrar-Recorder/County Clerk - Operations Cluster
- Mental Health - Health and Mental Health Services Cluster
- Children and Family Services - Children and Family Cluster

STATISTICS
FY 2021-22 TO FY 2023-24

All Claims Frequency and Expense Summary ....Exhibit A

Workers' Compensation Claim Frequency and Expense Summary..... ...Exhibit B

State of California Labor Code 4850 and Salary Continuation Expense Summary..... ...Exhibit C

Vehicle Liability Claim Frequency and Expense Summary..... ...Exhibit D

General Liability Claim Frequency and Expense Summary..... ...Exhibit E

General Liability/Law Enforcement Liability Claim Frequency and Expense Summary..... Exhibit E-1

General Liability/Employment Practices Liability Claim Frequency and Expense Summary . ...Exhibit E-2

Medical Malpractice Claim Frequency and Expense Summary.....Exhibit F

Cost of Risk Detail.....Exhibit G

EXHIBIT A

All Claims Frequency and Expense Summary

Department	FY 2021-22		FY 2022-23		FY 2023-24	
	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)
Aging and Disabilities	15	$866,640	14	$709,717	20	$919,941
Agricultural Commissioner/Weights and Measures	43	$773,094	26	$775,422	34	$557,725
Alternate Public Defender	5	$532,922	4	$481,072	4	$323,706
Animal Care and Control	122	$1,059,813	111	$1,147,666	155	$1,487,258
Arts and Culture	0	$1,939	0	$1,664	3	$17,627
Assessor	23	$3,456,470	43	$3,271,795	48	$2,863,699
Auditor-Controller	12	$461,775	26	$472,271	12	$715,143
Beaches and Harbors	41	$1,001,341	45	$1,547,063	63	$1,976,621
Board of Supervisors	89	$3,313,006	29	$2,206,033	17	$4,721,776
Chief Executive Office	11	$2,258,273	20	$24,796,894	28	$1,263,769
Child Support Services	96	$4,659,428	88	$4,558,277	92	$4,720,324
Children and Family Services	419	$32,598,552	438	$55,010,610	357	$25,950,037
Consumer and Business Affairs	5	$268,500	54	$616,656	40	$526,467
County Counsel	12	$2,339,877	27	$1,399,447	22	-$3,570,722
Department of Medical Examiner	88	$1,779,700	65	$5,882,881	51	$1,406,737
District Attorney	122	$12,342,156	155	$13,018,392	146	$33,626,504
Economic Opportunity	0	$0	2	$129,468	2	$215,482
Fire	2,203	$189,196,729	1,651	$199,262,724	1,717	$192,143,509
Health Services	2,138	$50,784,135	2,197	$62,798,000	2,116	$69,607,558
Human Resources	8	$948,988	9	$874,699	10	$931,220
Internal Services	88	$6,367,994	117	$8,286,249	113	$6,866,183
Justice, Care and Opportunities	0	$0	0	$0	1	$138,346
LACERA	5	$560,034	10	$436,487	12	$525,691
LA County Library	32	$1,862,483	33	$1,054,017	38	$2,927,218
Mental Health	182	$8,820,456	232	$8,680,725	339	$10,759,676
Military and Veterans Affairs	0	$146,603	2	$174,345	3	$145,648
Museum of Art	2	$242,694	2	$214,853	1	$158,774
Museum of Natural History	3	$47,827	0	$34,663	0	$28,482
Non-Jurisdictional	1,361	$1,025,868	1,975	$3,661	2,209	$1,798,190
Parks and Recreation	230	$4,612,524	218	$5,647,250	230	$5,576,271
Pending Assignment	69	$0	62	$0	279	$23,900
Probation	680	$41,691,924	789	$50,385,712	966	$53,946,645
Public Defender	50	$6,567,804	38	$2,258,151	51	$2,725,890
Public Health	233	$11,679,931	192	$9,884,941	243	$9,164,463
Public Social Services	670	$35,217,131	789	$40,634,770	692	$33,653,028
Public Works	8,897	$13,307,162	12,909	$29,415,099	849	$24,331,594
Regional Planning	20	$558,644	38	$1,139,087	244	$2,360,029
Registrar-Recorder/County Clerk	83	$2,999,672	110	$4,361,538	76	$3,136,280
Sheriff	8,457	$407,587,052	6,417	$430,225,233	5,705	$426,125,520
Superior Court	153	$8,387,938	133	$9,035,014	135	$9,352,725
Treasurer and Tax Collector	25	$1,703,045	47	$1,404,107	37	$1,327,477
Youth Development	0	$0	0	$0	1	$1,125
TOTAL4	**26,019**	**$699,519,896**	**29,117**	**$982,236,652**	**17,161**	**$935,477,534**

1. Amount Paid is the total of the transactions paid by coverage code in the fiscal year, regardless of occurrence date plus amounts paid for Workers' Compensation from the Workers' Compensation Status Report. Amount Paid includes indemnity and legal fees and expenses. Does not include Reported But Not Paid (RBNP) or Incurred But Not Reported (IBNR) reserves. Workers' Compensation paid does not reflect State of California Labor Code 4850 or salary continuation payments. Data does not include unemployment costs.
2. Above information includes pending and non-jurisdictional departments, but does not include associated agencies that are not County departments, i.e., MTA, Foothill Transit. This information does include County Counsel tort files. County Counsel expenditures are also included.
3. Amounts valued as of June 30, 2024. Amount Paid does not include administrative expenses or purchased insurance.
4. The total number of claims does not add up to the sum of claims by department since some claims are allocated to multiple departments; count includes all suffixes. Claim Count includes unassigned claims.

EXHIBIT B

Workers' Compensation Claim Frequency and Expense Summary
FY 2021-22 through FY 2023-24

Department	FY 2021-22		FY 2022-23		FY 2023-24	
	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)
Aging and Disabilities	13	$623,455	11	$460,541	17	$642,615
Agricultural Commissioner/Weights and Measures	30	$720,705	20	$693,143	21	$502,386
Alternate Public Defender	4	$513,458	0	$476,535	4	$319,117
Animal Care and Control	112	$753,798	101	$839,501	130	$1,155,658
Arts and Culture	0	$1,939	0	$1,664	3	$17,627
Assessor	12	$780,716	15	$908,085	16	$827,570
Auditor-Controller	9	$271,125	8	$302,409	4	$328,707
Beaches and Harbors	28	$689,634	28	$759,451	31	$1,107,718
Board of Supervisors	8	$388,668	13	$345,053	7	$368,018
Chief Executive Office	1	$566,953	5	$567,120	3	$482,368
Child Support Services	86	$4,172,020	69	$4,183,640	73	$4,232,979
Children and Family Services	265	$14,219,485	255	$15,085,356	238	$14,900,992
Consumer and Business Affairs	4	$48,849	2	$48,388	2	$49,736
County Counsel	5	$776,293	11	$704,616	9	$709,768
Department of Medical Examiner	72	$778,660	40	$824,935	23	$1,049,786
District Attorney	66	$6,173,303	71	$6,467,487	68	$7,176,336
Economic Opportunity	0	$0	2	$113,760	2	$215,354
Fire	2,047	$103,115,789	1,476	$111,806,474	1,553	$132,326,498
Health Services	1,933	$39,528,618	1,795	$41,735,932	1,810	$49,430,600
Human Resources	8	$747,513	7	$704,390	8	$696,794
Internal Services	67	$4,255,464	86	$4,458,050	78	$4,775,427
Justice, Care and Opportunities	0	$0	0	$0	1	$138,346
LACERA	5	$560,034	10	$436,106	12	$482,456
LA County Library	23	$845,151	27	$777,916	27	$883,791
Mental Health	165	$7,503,491	192	$7,479,924	277	$7,242,180
Military and Veterans Affairs	0	$146,603	2	$174,345	2	$145,648
Museum of Art	1	$242,694	2	$188,443	1	$158,774
Museum of Natural History	0	$47,827	0	$34,663	0	$24,963
Non-Jurisdictional	5	$0	4	$0	1	$0
Parks and Recreation	170	$3,915,292	152	$4,142,664	164	$4,085,246
Pending Assignment	0	$0	3	$0	0	$0
Probation	626	$28,594,943	729	$33,261,254	891	$36,189,495
Public Defender	26	$1,708,330	23	$1,676,891	29	$1,822,409
Public Health	154	$7,361,887	139	$8,285,903	189	$7,447,786
Public Social Services	637	$31,762,587	719	$32,522,432	620	$31,869,885
Public Works	175	$5,400,730	185	$6,374,938	164	$7,213,654
Regional Planning	6	$133,316	2	$157,817	2	$151,071
Registrar-Recorder/County Clerk	58	$2,552,387	53	$2,508,564	52	$1,838,583
Sheriff	6,827	$190,013,562	5,215	$217,586,666	4,485	$256,348,962
Superior Court	153	$7,726,551	132	$8,690,211	135	$8,892,915
Treasurer and Tax Collector	6	$739,557	7	$649,546	11	$336,976
Youth Development	0	$0	0	$0	1	$1,125
TOTAL4	**13,807**	**$468,381,386**	**11,611**	**$516,434,811**	**11,164**	**$586,590,317**

1. Amount Paid is the total of the transactions paid for Workers' Compensation in the fiscal year; amount includes indemnity and legal fees and expenses, regardless of date of occurrence. Does not include RBNP or IBNR reserves. Workers' Compensation paid does not include State of California Labor Code 4850, salary continuation payments, purchased insurance, or Administrative Expenses.
2. Amounts shown as listed on the Workers' Compensation Status Report.
3. Superior Court expenses are billed to the State of California; these expenses are not controllable by the County as these are State of California employees.

EXHIBIT C

State Labor Code 4850 and Salary Continuation Expense Summary
FY 2021-22 through FY 2023-24

Department	FY 2021-22	FY 2022-23	FY 2023-24
	Amount Paid[1]	Amount Paid[1]	Amount Paid[1]
Aging and Disabilities	$62,119	$0	$120,288
Agricultural Commissioner/Weights and Measures	$16,182	$39,512	$29,538
Alternate Public Defender	$0	$0	$2,137
Animal Care and Control	$55,159	$69,055	$45,881
Arts and Culture	$0	$0	$0
Assessor	$0	$78,639	$69,683
Auditor-Controller	$25,528	$12,700	$49,631
Beaches and Harbors	$17,500	$44,875	$89,592
Board of Supervisors	$68,717	$28,243	$2,151
Chief Executive Office	$63,505	$56,001	$10,248
Child Support Services	$50,579	$73,015	$217,640
Children and Family Services	$717,204	$1,168,114	$745,571
Consumer and Business Affairs	$2,772	$0	$835
County Counsel	$0	$0	$24,943
Department of Medical Examiner	$59,119	$25,848	$73,235
District Attorney	$1,415,121	$2,351,428	$1,497,629
Economic Opportunity	$0	$0	$0
Fire	$61,533,452	$59,188,984	$51,100,984
Health Services	$2,442,860	$3,140,095	$2,794,827
Human Resources	$1,938	$5,147	$35,170
Internal Services	$164,888	$296,619	$265,742
Justice, Care and Opportunities	$0	$0	$0
LACERA	$0	$381	$43,235
LA County Library	$6,027	$17,901	$6,988
Mental Health	$243,294	$266,567	$441,239
Military and Veterans Affairs	$0	$0	$0
Museum of Art	$0	$23,202	$0
Museum of Natural History	$0	$0	$0
Parks and Recreation	$197,084	$215,274	$343,132
Pending Assignment	$0	$0	$0
Probation	$8,411,562	$12,571,834	$14,147,593
Public Defender	$235,817	$98,580	$141,234
Public Health	$357,250	$283,416	$405,148
Public Social Services	$782,775	$787,692	$1,439,296
Public Works	$505,755	$572,601	$632,466
Regional Planning	$0	$28,545	$83,461
Registrar-Recorder/County Clerk	$0	$8,116	$5,521
Sheriff	$84,406,722	$87,898,986	$87,918,889
Superior Court	$642,757	$284,801	$425,549
Treasurer and Tax Collector	$24,544	$1,153	$250
Youth Development	$0	$0	$0
TOTAL[4]	**$162,510,229**	**$169,637,324**	**$163,209,727**

1. Amount Paid is as reported by the Auditor-Controller based on the sum of 70% IA, 100% IA, and MegaIA expense.

EXHIBIT D

VEHICLE LIABILITY CLAIM FREQUENCY AND EXPENSE SUMMARY
FY 2021-22 THROUGH FY 2023-24

Department	FY 2021-22		FY 2022-23		FY 2023-24	
	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)
Aging and Disabilities	0	$112,435	1	$53,979	2	$28,248
Agricultural Commissioner/Weights and Measures	9	$21,475	6	$42,768	8	$25,243
Alternate Public Defender	0	$0	1	$0	0	$0
Animal Care and Control	6	$7,359	2	$4,799	2	$7,883
Arts and Culture	0	$0	0	$0	0	$0
Assessor	0	$0	2	$0	0	$110
Auditor-Controller	0	$0	0	$0	0	$0
Beaches and Harbors	5	$230	1	$11,137	3	$17,669
Board of Supervisors	2	$0	4	$25,149	2	$64,654
Chief Executive Office	0	$0	2	$0	2	$0
Child Support Services	0	$0	0	$0	2	$0
Children and Family Services	14	$261,510	24	$356,325	18	$584,228
Consumer and Business Affairs	0	$0	0	$0	0	$0
County Counsel	0	$0	0	$0	0	$0
Department of Medical Examiner	2	$3,909	0	$21,249	0	$237
District Attorney	2	$10,099	13	$157,582	7	$399,463
Economic Opportunity	0	$0	0	$0	0	$0
Fire	79	$16,424,617	115	$955,890	102	$1,588,659
Health Services	4	$65,540	8	$81,030	6	$44,071
Human Resources	0	$0	0	$0	0	$0
Internal Services	9	$235,565	9	$2,502,635	20	$96,623
Justice, Care and Opportunities	0		0	$0	0	$0
LACERA	0	$0	0	$0	0	$0
LA County Library	1	$16,864	4	$7,740	5	$14,851
Mental Health	7	$60,218	5	$42,627	10	$125,970
Military and Veterans Affairs	0	$0	0	$0	0	$0
Museum of Art	0	$0	0	$0	0	$0
Museum of Natural History	0	$0	0	$0	0	$0
Non-Jurisdictional	307	$119,419	418	$1,008	488	$210,690
Parks and Recreation	9	$76,561	17	$210,434	24	$332,556
Pending Assignment	0	$0	2	$0	58	$0
Probation	10	$102,124	7	$119,089	12	$215,202
Public Defender	3	$84,245	1	$79,602	1	$66,019
Public Health	11	$60,175	16	$27,196	10	$140,291
Public Social Services	3	$3,491	3	$5,955	4	$25,000
Public Works	42	$1,307,836	75	$2,130,843	94	$3,417,878
Regional Planning	0	$0	0	$0	3	$4,062
Registrar-Recorder/County Clerk	14	$72,949	34	$224,996	16	$10,469
Sheriff	279	$7,659,853	299	$8,417,716	319	$10,473,076
Superior Court	0	$0	0	$0	0	$0
Treasurer and Tax Collector	1	$333	0	$7,390	0	$0
Youth Development	0	$0	0	$0	0	$0
TOTAL4	**819**	**$26,706,807**	**1,069**	**$15,487,137**	**1,218**	**$17,893,153**

1. Amount Paid is the total of the transactions paid for vehicle liability claims and lawsuits in the fiscal year; amount includes indemnity and legal fees and expenses, regardless of date of occurrence. Does not include RBNP or IBNR reserves.
2. Above information includes pending and non-jurisdictional departments, but does not include associated agencies that are not County departments, i.e., MTA, Foothill Transit. This information includes County Counsel tort files.

EXHIBIT E

General Liability Claim Frequency and Expense Summary
FY 2021-22 through FY 2023-24

Department	FY 2021-22		FY 2022-23		FY 2023-24	
	# New Claims	Amount Paid[1,2.3] (all claims)	# New Claims	Amount Paid[1,2.3] (all claims)	# New Claims	Amount Paid[1,2.3] (all claims)
Aging and Disabilities	0	$0	1	$26,261	1	$85,397
Agricultural Commissioner/Weights and Measures	4	$14,731	0	$0	5	$558
Alternate Public Defender	1	$10,407	1	$1,749	0	$2,022
Animal Care and Control	4	$170,599	7	$119,401	22	$201,441
Arts and Culture	0	$0	0	$0	0	$0
Assessor	10	$1,965,991	24	$1,432,000	30	$1,673,557
Auditor-Controller	3	$127,122	15	$104,923	8	$156,833
Beaches and Harbors	8	$293,978	16	$731,599	27	$754,395
Board of Supervisors	46	$2,662,502	10	$1,398,224	5	$3,838,963
Chief Executive Office	9	$1,244,735	13	$23,675,108	23	$590,072
Child Support Services	8	$284,581	17	$294,388	15	$176,708
Children and Family Services	135	$10,385,254	148	$35,849,464	89	$4,851,048
Consumer and Business Affairs	1	$216,879	52	$568,268	38	$475,897
County Counsel	6	$1,563,584	13	$652,568	8	-$4,436,222
Department of Medical Examiner	14	$554,581	10	$565,100	25	$163,321
District Attorney	34	$2,794,883	31	$1,053,957	22	$3,789,623
Economic Opportunity	0	$0	0	$15,708	0	$129
Fire	51	$4,196,582	34	$690,298	29	$578,308
Health Services	188	$5,123,646	244	$5,713,353	165	$1,216,312
Human Resources	0	$99,769	1	$0	0	$0
Internal Services	12	$1,432,011	22	$932,024	14	$1,633,791
Justice, Care and Opportunities	0	$0	0	$0	0	$0
LACERA	0	$0	0	$0	0	$0
LA County Library	7	$532,955	1	$107,206	6	$18,838
Mental Health	9	$602,807	13	$305,374	31	$886,802
Military and Veterans Affairs	0	$0	0	$0	1	$0
Museum of Art	1	$0	0	$3,208	0	$0
Museum of Natural History	3	$0	0	$0	0	$3,519
Non-Jurisdictional	1,034	$884,130	1,518	$2,653	1,670	$1,523,795
Parks and Recreation	49	$377,822	48	$993,305	41	$670,694
Pending Assignment	59	$0	44	$0	194	$23,900
Probation	33	$2,714,055	25	$1,434,441	15	$1,115,028
Public Defender	15	$4,123,296	8	$96,935	9	$76,683
Public Health	65	$3,565,315	19	$872,723	38	$538,722
Public Social Services	26	$1,504,183	45	$987,437	62	$134,832
Public Works	8,670	$5,680,161	12,645	$19,596,463	588	$12,699,692
Regional Planning	14	$395,869	35	$828,723	239	$1,568,400
Registrar-Recorder/County Clerk	11	$365,226	23	$1,168,609	8	$1,281,706
Sheriff	753	$66,899,781	169	$25,172,210	212	$6,206,960
Superior Court	0	$9,315	1	$0	0	$0
Treasurer and Tax Collector	18	$624,102	39	$343,535	25	$897,174
Youth Development	2	$39,816	0	$0	0	$0
TOTAL4	**11,303**	**$121,460,668**	**15,292**	**$125,737,213**	**3,665**	**$43,398,896**

1. Amount Paid is the total of the transactions paid for liability claims and lawsuits in the fiscal year; amount includes indemnity and legal fees and expenses, regardless of date of occurrence. Does not include RBNP or IBNR reserves.
2. Above information includes pending and non-jurisdictional departments, but does not include associated agencies that are not County departments, i.e., MTA, Foothill Transit. This information includes County Counsel tort files.

EXHIBIT E – 1 (SUBSET OF EXHIBIT E)

General Liability/Law Enforcement Liability Claim Frequency and Expense Summary FY 2021-22 through FY 2023-24

Department	FY 2021-22		FY 2022-23		FY 2023-24	
	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)
Aging and Disabilities	0	$0	0	$0	0	$0
Agricultural Commissioner/Weights and Measures	0	$0	0	$0	0	$0
Alternate Public Defender	0	$0	0	$0	0	$0
Animal Care and Control	0	$0	0	$0	1	$0
Arts and Culture	0	$0	0	$0	0	$0
Assessor	0	$0	0	$0	0	$0
Auditor-Controller	0	$0	0	$0	0	$0
Beaches and Harbors	0	$0	0	$0	0	$0
Board of Supervisors	0	$9,587	1	$0	2	$30,951
Chief Executive Office	0	$99,303	0	$0	0	$0
Child Support Services	0	$0	0	$0	0	$0
Children and Family Services	1	$23,969	0	$9,793	1	$149
Consumer and Business Affairs	0	$0	0	$0	0	$0
County Counsel	0	$0	0	$0	1	$0
Department of Medical Examiner	0	$16,907	9	$2,575	1	$5,646
District Attorney	11	$211,110	28	$1,494,125	41	$18,799,201
Economic Opportunity	0	$0	0	$0	0	$0
Fire	12	$3,087,248	4	$24,260,804	5	$57,896
Health Services	0	$13,190	1	$226	5	$4,655
Human Resources	0	$0	0	$0	0	$0
Internal Services	0	$0	0	$0	0	$0
Justice, Care and Opportunities	0	$0	0	$0	0	$0
LACERA	0	$0	0	$0	0	$0
LA County Library	1	$0	0	$153	0	$0
Mental Health	0	$4,086	1	$21,526	2	$19,950
Military and Veterans Affairs	0	$0	0	$0	0	$0
Museum of Art	0	$0	0	$0	0	$0
Museum of Natural History	0	$0	0	$0	0	$0
Non-Jurisdictional	6	$6,596	3	$0	12	$7,733
Parks and Recreation	0	$0	0	$0	0	$0
Pending Assignment	9	$0	7	$0	4	$0
Probation	4	$207,053	14	$281,025	28	$393,854
Public Defender	4	$142,081	3	$82,550	7	$193,204
Public Health	0	$0	0	$0	0	$0
Public Social Services	0	$0	1	$0	0	$0
Public Works	0	$0	1	$0	0	$0
Regional Planning	0	$0	0	$0	0	$0
Registrar-Recorder/County Clerk	0	$0	0	$0	0	$0
Sheriff	526	$54,252,848	691	$82,283,514	635	$59,769,975
Superior Court	0	$0	0	$0	0	$33,269
Treasurer and Tax Collector	0	$0	0	$0	1	$2,314
Youth Development	0	$0	0	$0	0	$0
TOTAL4	**574**	**$58,073,978**	**764**	**$108,436,291**	**746**	**$79,318,797**

1. Amount Paid is the total of the transactions paid for liability claims and lawsuits in the fiscal year; amount includes indemnity and legal fees and expenses, regardless of date of occurrence. Does not include RBNP or IBNR reserves.
2. Above information includes pending and non-jurisdictional departments, but does not include associated agencies that are not County departments, i.e., MTA, Foothill Transit. This information includes County Counsel tort files.
3. Amounts valued as of June 30, 2024.

EXHIBIT E – 2 (SUBSET OF EXHIBIT E)

General Liability/Employment Practices Liability Claim Frequency and Expense Summary

Department	FY 2021-22		FY 2022-23		FY 2023-24	
	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)
Aging and Disabilities	0	$28,815	1	$168,936	0	$43,393
Agricultural Commissioner/Weights and Measures	0	$0	0	$0	0	$0
Alternate Public Defender	0	$9,058	2	$2,788	0	$431
Animal Care and Control	0	$72,898	1	$114,911	0	$76,395
Arts and Culture	0	$0	0	$0	0	$0
Assessor	1	$709,763	2	$853,071	2	$292,780
Auditor-Controller	0	$38,001	3	$52,240	0	$179,972
Beaches and Harbors	0	$0	0	$0	2	$7,247
Board of Supervisors	33	$183,532	1	$409,364	1	$417,038
Chief Executive Office	1	$283,777	0	$498,666	0	$181,082
Child Support Services	2	$152,247	2	$7,234	2	$92,998
Children and Family Services	4	$6,991,130	11	$2,541,558	11	$4,868,049
Consumer and Business Affairs	0	$0	0	$0	0	$0
County Counsel	1	$0	2	$42,263	0	$130,789
Department of Medical Examiner	0	$366,524	1	$4,442,982	1	$106,658
District Attorney	9	$1,737,640	12	$1,493,812	8	$1,964,251
Economic Opportunity	0	$0	0	$0	0	$0
Fire	14	$839,040	17	$2,257,301	16	$6,209,106
Health Services	13	$3,610,281	35	$3,262,529	39	$9,952,559
Human Resources	0	$99,769	1	$165,162	2	$199,256
Internal Services	0	$280,066	0	$96,920	1	$94,600
Justice, Care and Opportunities	0	$0	0	$0	0	$0
LACERA	0	$0	0	$0	0	$0
LA County Library	0	$461,486	1	$143,101	0	$2,002,750
Mental Health	1	$406,561	9	$514,202	2	$1,963,379
Military and Veterans Affairs	0	$0	0	$0	0	$0
Museum of Art	0	$0	0	$0	0	$0
Museum of Natural History	0	$0	0	$0	0	$0
Non-Jurisdictional	9	$15,723	11	$0	9	$47,850
Parks and Recreation	2	$45,766	1	$85,572	1	$144,642
Pending Assignment	1	$0	3	$0	1	$0
Probation	7	$1,662,187	14	$2,718,069	20	$1,885,473
Public Defender	2	$274,035	3	$223,594	5	$426,340
Public Health	3	$335,303	11	$394,686	3	$578,730
Public Social Services	4	$1,164,095	16	$6,331,254	5	$184,016
Public Works	10	$412,680	2	$740,255	3	$367,904
Regional Planning	0	$29,459	1	$124,002	0	$553,035
Registrar-Recorder/County Clerk	0	$9,110	0	$451,254	0	$0
Sheriff	72	$4,354,287	42	$8,779,808	50	$5,217,505
Superior Court	0	$9,315	0	$60,002	0	$992
Treasurer and Tax Collector	0	$314,509	1	$402,483	0	$90,763
Youth Development	0	$0	0	$0	0	$0
TOTAL4	**189**	**$24,897,057**	**206**	**$37,378,021**	**184**	**$38,279,983**

EXHIBIT F

Medical Malpractice Claim Frequency and Expense Summary

Department	FY 2021-22		FY 2022-23		FY 2023-24	
	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)	# New Claims	Amount Paid[1,2,3] (all claims)
DHS - Administration	0	$0	0	$0	0	$20,257
DHS – Ambulatory Care Network	5	$13,436	7	$299,329	3	$406,764
DHS – Harbor Care South	4	$6,037	31	$4,882,782	33	($381,176)
DHS - High Desert	22	$484,260	6	$0	2	$0
DHS – Integrated Correctional Health Services	0	$0	9	$62,340	2	$9,377
DHS – Juvenile Court Health Services	0	$93,805	0	$859,123	0	$90,526
DHS – Los Angeles General Medical Center	28	$2,524,517	30	$2,057,962	34	$1,056,109
DHS – Not Otherwise Classified	0	$45	14	$0	3	$224
DHS – Olive View-UCLA Medical Center	13	$143,132	8	$686,909	9	$4,918,163
DHS – Rancho Los Amigos	1	$6,980	7	$16,391	3	$44,290
Health Services Subtotal[4]	**73**	**$3,272,212**	**112**	**$8,864,836**	**89**	**$6,164,534**
District Attorney	1	$26	0	$0	0	$0
Fire	3	$30,865	5	$102,973	11	$282,059
Medical Examiner – Coroner	0	$0	4	$191	1	$7,854
Mental Health	1	$34,546	12	$50,504	17	$80,155
Non-Jurisdictional	7	$1,296	19	$0	21	$8,121
Pending Assignment	0	$0	1	$0	1	$0
Probation	0	$18,955	0	$0	0	$0
Public Health	4	$18,051	7	$21,017	3	$53,785
Public Social Services	0	$0	5	$0	0	$0
Sheriff	1	$113,963	0	$86,333	0	$190,153
TOTAL[4]	**90**	**$3,489,914**	**165**	**$9,125,855**	**143**	**$6,786,661**

1. Amount Paid is the total of the transactions paid for medical malpractice claims and lawsuits in the fiscal year; amount includes indemnity and legal fees and expenses, regardless of date of occurrence. Does not include RBNP or IBNR reserves.
2. Above information includes pending and non-jurisdictional departments, but does not include associated agencies that are not County departments, i.e., MTA, Foothill Transit. This information includes County Counsel tort files.
3. Amounts valued as of June 30, 2024.
4. The total number of claims does not add up to the sum of claims by department since some claims are allocated to multiple departments; count includes all suffixes.

EXHIBIT G

COST OF RISK DETAIL

	FY 2021-22	FY 2022-23	FY 2023-24
Workers' Compensation			
Benefit Expense	$338,543,702	$366,340,320	$468,543,756
Loss Expense[1]	$107,064,590	$135,789,000	$118,046,561
Administrative Expense[2]	$17,790,931	$20,541,388	$22,461,647
Purchased Insurance[3]	$4,982,162	$5,547,059	$31,613,636
Workers' Compensation Expense Subtotal	**$468,381,386**	**$516,434,811**	**$640,665,600**
Labor Code 4850 / Salary Continuation	$162,510,229	$169,637,324	$163,209,727
Workers' Compensation Expense Total	**$630,891,614**	**$686,072,135**	**$803,875,327**
Liability[3, 4]			
Vehicle Liability Expense	$26,706,807	$15,487,137	$17,893,153
General Liability Expense	$121,460,668	$271,551,525	$160,997,676
Medical Malpractice Expense	$3,489,914	$9,125,855	$6,786,661
Liability Expense Subtotal	$151,657,389	$296,164,517	$185,677,490
Liability Administrative Expense[5]	$21,984,000	$24,885,000	$22,119,107
Liability Expense Total	**$173,641,389**	**$321,049,517**	**$207,796,597**
Purchased Insurance (premiums and fees)	$28,973,000	$32,312,000	$42,201,681
Cost of Risk[6, 7]	**$804,533,003**	**$1,007,121,652**	**$1,011,671,924**
Total County Operating Budget	$39,576,967,000	$44,642,000,000	$47,102,288,000
Cost of Risk (as percentage of County Operating Budget)	**2.03%**	**2.26%**	**2.15%**
Non-County Agencies			
LACERA	$560,034	$436,487	$482,456
Superior Court	$7,726,551	$8,975,012	$8,892,915
Subtotal (Non-County agencies)	**$8,286,584**	**$9,411,499**	**$9,375,371**
Cost of Risk (excluding non-County agencies)	**$796,246,419**	**$997,710,154**	**$1,002,296,553**
Cost of Risk (Non-County agencies as percentage of County Operating Budget)	**2.01%**	**2.23%**	**2.13%**

1. Loss Expense includes third-party administrator fees, medical management fees, bill review fees, and State User fee.
2. Administrative Expense includes CEO, Auditor-Controller, and County Counsel expenses.
3. Paid claims represent the amount paid for all indemnity (pay type OC) in the fiscal year, regardless of occurrence date and does not include RBNP or IBNR reserves. Legal Expenses are defined in liability files as all fees and expenses paid from the liability claim (pay type SS).
4. Liability claim information included in this report is: (1) claims coded as Vehicle Liability (AL), General Liability (GL), and Medical Malpractice (MM); but, (2) information excludes Metropolitan Transportation Authority, Metrolink, departments not listed in Exhibit A, Children Services dependency cases, and probate funding accounts.
5. Liability Administrative Expense includes third-party administrator fees, consulting and management fees, and CEO expenses.
6. The Cost of Risk is defined as the summation of the items listed but does not include non-insured property claims and property damage to County-owned vehicles.

LIST OF ABBREVIATIONS USED IN THIS REPORT (PAGE 1 OF 2)

Abbreviation	Meaning
ABE	Allocated Benefit Expenses
AED	Automated External Defibrillator
ALAE	Allocated Loss Adjustment Expenses
Board	Board of Supervisors
C&R	Compromise and Release
C&Rs	Compromise and Release Settlements
Cal/OSHA	California Occupational Safety and Health Administration
CAMIS	Countywide Acquisition Management Information System
CAP	Corrective Action Plans
Carl Warren	Carl Warren & Company
CEO	Chief Executive Office
CEO Risk Management	Chief Executive Office - Risk Management Branch
CHSWC	Commission on Health and Safety and Workers' Compensation
County	County of Los Angeles
COVID-19	Coronavirus Disease 2019
CPR	Cardiopulmonary Resuscitation
DHR	County of Los Angeles Department of Human Resources
DHS	County of Los Angeles Department of Health Services
EFT	Electronic Funds Transfer
Finance	Risk Management Finance Unit
FY	Fiscal Year
FYs	Fiscal Years
HIPAA	Health Insurance Portability and Accountability Act
HITECH	Health Information Technology for Economic and Clinical Health
IBNR	Incurred But Not Reported
Intercare	Intercare Holdings, Ltd.
IRS	Internal Revenue Service
ISD	County of Los Angeles Internal Services Department
LASD	County of Los Angeles Sheriff's Department
LC	Labor Code
LCP	Loss Control and Prevention
LERC	Legal Exposure Reduction Committee
MED	Morphine Equivalent Dose
MMCC	Medical Management and Cost Containment
OCIO	Office of Chief Information Office
OOP	Office of Privacy
OSCR	On-Site County Representative
OSCRs	On-Site County Representatives

List of Abbreviations Used in this Report (Page 2 of 2)

Abbreviation	Meaning
PBM	Pharmacy Benefit Management
PHI	Protected Health Information
PPE	Personal Protective Equipment
RBNP	Reported But Not Paid
RMIG	Risk Management Inspector General
RMIP	Risk Management Information Platform
SAWW	State Average Weekly Wage
SB	Senate Bill
SCAPs	Summary Corrective Action Plans
TPA	Third Party Administrator
ULAE	Unallocated Loss Adjustment Expenses
UR	Utilization Review

COUNTY OF LOS ANGELES
CHIEF EXECUTIVE OFFICE
RISK MANAGEMENT BRANCH
COUNTY OF LOS ANGELES HALL OF RECORDS
320 WEST TEMPLE STREET, 7TH FLOOR
LOS ANGELES, CA 90012
(213) 351-5346
CONTACTRISK@CEO.LACOUNTY.GOV

This report is available on the Chief Executive Office, Risk Management Branch website, at:
http://riskmanagement.lacounty.gov/