COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

GAIL FARBER, Director

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March 31, 2009

IN REPLY PLEASE
REFER TO FILE: WM-5

ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

36 March 31, 2009

SACHI A. HAMAI
EXECUTIVE OFFICER

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

Dear Supervisors:

LOS ANGELES COUNTY MULTI-POLLUTANT TOTAL MAXIMUM DAILY LOAD IMPLEMENTATION PLANS
AWARD CONSULTANT SERVICES AGREEMENT
(ALL SUPERVISORIAL DISTRICTS)
(3 VOTES)

SUBJECT

This action is to authorize the Director of Public Works or her designee to award and execute a consultant services agreement with Tetra Tech, Inc., in the amount of $1,388,415 to prepare the Los Angeles River and Ballona Creek Multi-Pollutant Total Maximum Daily Load Implementation Plans and encumber an additional $138,841 for unforeseen project costs.

IT IS RECOMMENDED THAT YOUR BOARD:

1. Find that the proposed project is statutorily exempt from the California Environmental Quality Act Guidelines for the reasons stated in this letter and in the record of the project.

2. Authorize the Director of Public Works or her designee to award and execute a consultant services agreement in the amount of $1,388,415 to prepare Total Maximum Daily Load Implementation Plans for the Los Angeles River and Ballona Creek that address metals, bacteria, toxics, and other pollutants of concern.

3. Authorize the Director of Public Works or her designee to encumber an additional $138,841 for unforeseen project costs.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The purpose of the recommended actions is to find that the project is statutorily exempt from the California Environmental Quality Act (CEQA) Guidelines and allow the Department of Public Works (Public Works) to enter into a consultant services agreement with Tetra Tech, Inc., to perform engineering services to assist the County of Los Angeles (County) in complying with the Los Angeles River and Ballona Creek Metals, Bacteria, Toxics, and future TMDL requirements.

In 2006, the California Regional Water Quality Control Board – Los Angeles Region (Regional Board) adopted a Bacteria Total Maximum Daily Load (TMDL) for Ballona Creek. Subsequently, in 2007 the Regional Board adopted Metals TMDLs for the Los Angeles River and Ballona Creek. The Los Angeles River and Ballona Creek Metals TMDL became effective on October 29, 2008, and the Ballona Creek Bacteria TMDL became effective on April 27, 2007. These TMDLs, pursuant to resolutions adopted by the Regional Board, require all agencies responsible for compliance with the regulations to develop implementation plans for submittal to the Regional Board.

The Scope of Services consists of developing implementation plans detailing a compliance strategy to address compliance with existing and future TMDLs adopted for the Los Angeles River and Ballona Creek. The plans will identify specific structural and nonstructural solutions, costs, operational issues, maintenance, and other requirements needed to comply with these regulations.

Implementation of Strategic Plan Goals

The Countywide Strategic Plan directs the provision of Operational Effectiveness (Goal 1) because the specialized expertise to perform the required services are not currently available within Public Works and with the direct provision of Community and Municipal Services (Goal 3) to improve the quality of life for the residents of the unincorporated areas of the County.

FISCAL IMPACT/FINANCING

This project is for an estimated not-to-exceed cost of $1,527,256. This includes a contract in the amount of $1,388,415 and a $138,841 contingency for unforeseen project costs.

Sufficient funds for this work have been included in the Fiscal Year 2008-09 Flood Control District Budget. When the need arises for services under this contract, financing the required services will be made from the appropriate fund source. If the work is not completed in the current fiscal year, it will be done in subsequent fiscal years provided that adequate funding is available.

Your Board approved reimbursement from the General Fund net County cost to the Flood Control District in Fiscal Year 2008-09 for stormwater and urban runoff quality engineering services related to the County unincorporated areas.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

The contract Scope of Work will include developing implementation plans for the unincorporated County to be implemented in parallel with plans of other agencies.

The contract will be a consultant services agreement in a form approved by County Counsel and will contain provisions requiring the contractor to comply with terms and conditions supporting your Board's ordinances, policies, and programs.

Data regarding the proposers' minority participation are on file with Public Works. The contractor was selected upon the final analysis and consideration without regard to race, creed, gender, or color.

ENVIRONMENTAL DOCUMENTATION

The proposed project is statutorily exempt from the provisions of CEQA Guidelines. The proposed services consist of the development of feasibility and planning studies for possible future actions for the implementation of TMDLs, which address metals, bacteria, toxics, and other pollutants of concern and are, therefore, exempt under Section 15262 of the CEQA Guidelines. Any future project(s) that may be proposed for construction or implementation will undergo the appropriate environmental review.

CONTRACTING PROCESS

On May 16, 2007, Public Works sent out a Request for Proposals to develop a select list of engineering consultants. The proposals were sent to 53 firms and advertised on the County webpage. A total of 14 firms responded to the Request for Proposals.

An evaluation committee comprised of Public Works' staff evaluated the proposals and selected five firms as the best qualified firms for the Select List of Qualified Consultants (SLQC) for watershed management and stormwater-quality-related tasks. The firms

selected were Tetra Tech, Inc., WRC Consulting Services, Inc., Geosyntec Consultants, Inc., RBF Consulting, and MWH Americas. The selection was done without regard to race, creed, color, or gender. As projects develop, Public Works selects consultants in the order of established ranking from the SLQC. Tetra Tech, Inc., was the next firm on the SLQC for this project.

Participation by Community Business Enterprises (CBEs) in the project is encouraged through Public Works' CBE Outreach Program and the requirement that consultants demonstrate their good faith efforts to utilize CBEs. Tetra Tech, Inc., is aware of Public Works' CBE Outreach Program, and its proposed CBE participation is on file with Public Works.

Public Works has evaluated and determined that the Living Wage Program, County Code Chapter 2.201, does not apply to the recommended agreement as this agreement is for non-Proposition A services.

As requested by your Board on February 3, 1998, and to further increase consultant awareness of contracting opportunities with Public Works, this contract opportunity was listed on the County's "Doing Business with Us" website.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

Approval of the recommended actions will have no negative impact on current County services or projects during the performance of the recommended consultant services.

CONCLUSION

Please return two adopted copies of this letter to the Department of Public Works, Watershed Management Division.

Respectfully submitted,

Diego Cadena

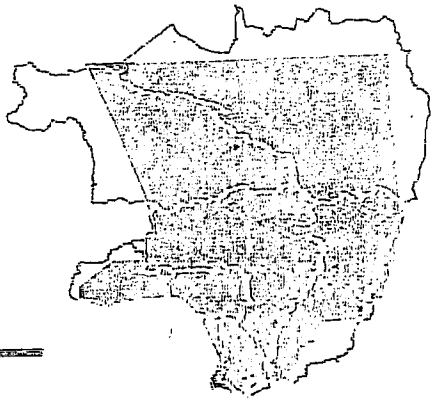
for GAIL FARBER
Director of Public Works

GF:MP:jtz

Attachment

c: Chief Executive Office (Lari Sheehan)
County Counsel

Multi-Pollutant TMDL Implementation Plans for Los Angeles River and Ballona Creek - Scope of Work



Submitted to:

County of Los Angeles
Department of Public Works
Watershed Management Division
900 South Fremont Avenue, 11th Floor
Alhambra, CA 91803-1331

Submitted by:

Tetra Tech, Inc.
3475 East Foothill Blvd.
Pasadena, CA 91107

January 30, 2009

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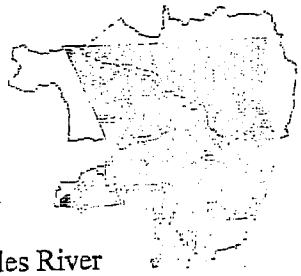
Introduction



The Federal Clean Water Act (CWA) requires the Los Angeles Regional Water Quality Control Board (Regional Board) to develop water quality objectives to protect beneficial uses for each water body found within its region. Comparing water quality data to these objectives resulted in the Regional Board identifying Ballona Creek (BC) and Los Angeles River (LAR) as impaired for several pollutant classes. Based on these impairments and a March 1999 Consent Decree (CD) between the US Environmental Protection Agency (USEPA) and Heal the Bay, Inc. and BayKeeper, Inc., the USEPA and Regional Board were compelled to develop Total Maximum Daily Loads (TMDLs) for the impaired waters within 13 years of the CD. The schedule for development and approved Basin Plan amendments for these TMDLs varies and depends on pollutants and waterbodies addressed. Typically, approved TMDLs include numeric targets for each pollutant for both dry- and wet-weather; an assessment of sources; the assimilative capacity of the system; the wasteload allocations (WLA) (stormwater and treatment plants); and a phased implementation plan. The phased implementation plans for the MS4 permit mark TMDL compliance in prescribed percentages for various jurisdictional groups with a goal of total compliance with WLA to be achieved over a specified period. The Regional Board also intends to reconsider these TMDLs within specified periods based on additional data obtained from special studies.

In 2005, the Regional Board approved TMDLs for LAR and BC, which addressed dry- and wet-weather discharges of copper, lead, zinc, and selenium, and wet-weather discharges of cadmium. These TMDLs went into effect January 11, 2006. On June 8, 2006, the Regional Board also adopted bacteria TMDLs for BC, which became effective April 27, 2007. As a responsible agency identified in the TMDLs, the County of Los Angeles (County) plans to develop separate multi-pollutant TMDL Implementation Plans for each watershed. Although these plans will be specific to County compliance, partnerships may be established with other responsible agencies where feasible to develop regional approaches and implementation plans. For both LAR and BC, draft metals TMDL Implementation Plans are due to the Regional Board January 11, 2010, and final Implementation Plans due July 11, 2010. For BC, a draft bacteria TMDL Implementation Plan is due October 2009. To address the multi-pollutant planning approach pursued by the County, a single TMDL Implementation Plan will be developed for BC that addresses both metals and bacteria. Also both TMDL Implementation Plans for LAR and BC will be structured for consideration of future TMDLs.

Development of TMDL Implementation Plans must include implementation methods, a schedule, and proposed milestones to achieve compliance to TMDL WLAs. This requires identification and selection of best management practices (BMPs) to treat stormwater or reduce metals loads, as well as estimates of benefits in terms of load reductions to meet WLAs. However, BMP selection must consider their cost-effectiveness to provide assurance that plans are practical and implementable. In addition, LAR and BC are facing other TMDLs to address additional pollutants such as nutrients, bacteria, and organics. Therefore, development of Implementation Plans should include integrated approaches that consider BMPs that can address multiple pollutants in a cost-effective manner. Additional benefits of BMPs, such as water storage/recharge and reuse, provision of recreation space, improved natural habitat, etc. should also be considered in Implementation Plan development.

As part of a separate project of the County, Tetra Tech is presently developing comprehensive decision support systems for LAR and BC that will assist in cost-effective planning and evaluation of load reductions resulting from alternative plans for BMP implementation. This system, which links computer models of the watersheds, locally derived BMP cost functions, and a system optimization tool, supports decision making by providing evaluation of thousands of alternative BMP plans and ultimate selection of the most cost-effective solution to achieve WLAs. This tool, partially funded by USEPA, is quickly gaining support from the Regional Board and cities within the County. It represents the state-of-the-practice in technology to support watershed planning and BMP selection, and will be used to support development of the LAR and BC TMDL implementation plans. Tetra Tech will leverage this other project as much as possible to prevent duplicative efforts, and provide an overall cost saving to the County. This project will be reference repeatedly throughout this Work Plan as the County BMP Decision Support System.

Objective

The objective of this project is to develop multi-pollutant implementation plans which address all approved TMDLs for the LAR and BC, with input from the County. At a minimum, the County has specified that the TMDL Implementation Plans should:

1. Describe an achievable program to enable the County to meet the TMDL requirements or demonstrate that they are not causing or contributing to exceedences;
2. Identify sources of pollution that originate in Cities and flow into County Unincorporated areas;
3. Utilize an integrated water resources approach to watershed improvement that presents the most effective means to improve and maintain acceptable water quality levels that sustain beneficial uses of the LAR, BC, and tributaries (e.g., programs to protect and develop sustainable water resources, targeted environmental education, and development of parks and structural treatment solutions);
4. Include a method for identifying, developing, designing, implementing, purchasing, installing, monitoring, evaluating, and maintaining the most appropriate "source control" and "treatment control" solutions.

The role of Tetra Tech will be:

1. To develop Implementation Plans for the County to be implemented in parallel with plans of other responsible agencies;
2. To prepare detailed and integrated Implementation Plans to address the compliance requirement of the LAR and BC metals TMDLs, the BC bacteria TMDL, and future TMDLs;
3. To identify specific nonstructural and structural solutions, costs, operational issues, maintenance, and other requirements to fully execute the Implementation Plans. This scope of services excludes the actual construction of any recommended structural solution.

The following sections provide detailed discussion of the tasks required to complete these goals.

Scope of Work

Task 1 – Pollutant Source Characterization and Prioritization

Accurate characterization of pollutant sources is critical to identifying and prioritizing the most cost effective approach to properly control or treat pollutant loads to receiving waters. In developing the metals TMDLs, the Regional Board and USEPA identified several potential pollutant sources in the LAR and BC watersheds, which differ during wet and dry conditions. Although useful and required for inclusion in the TMDL, these characterizations do not provide the detailed information necessary to guide County efforts to identify appropriate solutions, in terms of BMPs, to address these sources. For instance during wet weather, the primary source of metals identified in the LAR and BC TMDLs are storm water flows discharging from the municipal separate storm sewer system (MS4). This is sufficient for relative comparisons and gross scale planning, however to cost-effectively identify methods to reduce the metals loads from MS4s, significant additional detail is needed. Upstream of the MS4 and within the watersheds, key sources of metals can be identified including, but not limited to:

- Surface runoff conveyed by storm drains/facilities and natural creeks
- Illegal connections and illegal discharges to the storm drain system

- Infiltration and inflow from the sanitary sewage collection system
- Leaking/clogging of sanitary sewage collection systems and treatment plants
- Copper from brake pads accumulated on road surfaces
- Composite roof material
- The automotive industry
- Industrial plants
- Aerial deposition

The locations or density of these sources within the watersheds are keys to understanding where BMPs should be focused. Also, the relative significance of loads from these sources, as well as the ability and amount of storm water to convey these pollutants, is critical to understanding the types of treatment that can be used. In summary, more effort is needed to properly characterize the sources of pollutants in order to develop appropriate and effective TMDL Implementation Plans.

Also important for watershed planning and TMDL implementation is consideration of all pollutants of concern, especially those considered for future TMDLs. Besides metals and bacteria, both LAR and BC are facing TMDLs for additional pollutants such as toxics, organics and nutrients. Any plan for BMP implementation to address TMDL WLAs should consider all pollutants of concern to provide future potential savings and reduced redundancy. For instance, structural BMPs that reduce metals loads through storage and settling of suspended particles can potentially provide reduction of organics and nutrients that are also attached to those particles.

The following subtasks outline the steps Tetra Tech will take to provide the preliminary data review and source characterizations necessary to inform the TMDL implementation planning process.

Task 1.1 – Data Compilation and Preliminary Data Review

Tetra Tech will compile and provide a preliminary review of monitoring data and special studies performed in the BC and LAR watersheds that can support pollutant source characterizations. Tetra Tech will work closely with the County and identify potential datasets or studies that are available. Much of the monitoring data have already been compiled by Tetra Tech to support the County BMP Decision Support System, however these datasets are limited mostly to County and SCCWRP data, and do not include data collected by other entities. For example, the City of Los Angeles has collected data for LAR and BC that can be used for source characterization, especially dry-weather data that was not considered in the County BMP Decision Support System, which is focused on wet weather. Tetra Tech will provide the County a list of known studies and monitoring datasets available for LAR and BC, and inform the County which datasets or study results will need to be requested by the County from other entities. This report will provide the County review and approval to ensure that all sources of information are considered. Once all data has been provided, Tetra Tech will compile all water quality monitoring datasets and add to an existing inventory (Microsoft Access database) developed to support the County BMP Decision Support System. A Data Summary Report will be provided that summarizes the studies and data compiled, and provides a preliminary review regarding how this information can support pollutant source characterizations. This report will also present unincorporated areas within each subbasin of LAR and BC that will be addressed in the TMDL Implementation Plans.

Deliverables:

- Technical Memorandum summarizing a list of studies and monitoring datasets available in LAR and BC to support pollutant source characterizations
- Updated water quality monitoring inventory (Microsoft Access database)
- Draft Data Summary Report (two-week period for County review and comment)
- Final Data Summary Report, incorporating County comments (two weeks following receipt of County comments)

Task 1.2 – Work Plan for Pollutant Source Characterizations and Prioritization

Prior to initation of pollutant source characterizations and prioritizations, it is important to outline a Work Plan that can be reviewed by the County to ensure that proposed methodoligies are acceptable and that all information will be translated appropriately. This is especially true since TMDLs have not been established for all pollutants of concern, or are in the process of development, and results of source characterizations performed for this study can have implications on other TMDL development efforts. Also, methods for source characterizations may include the use of models that are consistent with those used by USEPA and the Regional Board for TMDL development, requiring the County's full understanding and approval. For example, Tetra Tech and SCCWRP developed models of the LAR and BC watersheds, based on the Loading Simulation Program C++, to support USEPA in development of metals TMDLs for wet weather. These models are currently being modified by Tetra Tech to support development of the County BMP Decision Support System. These models can be used to further investigate wet-weather sources of metals, bacteria, nutrients, and organics, with more emphasis on the analyses of specific sources (not limited to MS4 discharge), conditions that affect their loading potential (e.g., hydrologic conditions or storm size), or spatial analyses of areas within the watershed that are high priority. Model results can be combined with results of literature reviews and wet-weather data anlsyses (studies and data compiled in Task 1.1) to provide comprehensive characterizations of pollutant sources and prioritizations that will impact the TMDL implementation planning decisions.

For dry weather conditions, pollutant source characterizations are typically based on analyses of water quality monitoring data. Models have been developed for BC and LAR for dry conditions, however they were used primarily for assessment of the assimilative capacity of the waterbodies—not for characterication of dry-weather pollutant sources. Based on the data compiled in Task 1.1, Tetra Tech will develop an approach for characterization and prioritization of dry-weather pollutant sources based on data analyses and review of literature.

Tetra Tech will develop a Work Plan that outlines methods to identify, investigate, evaluate, and prioritize potential sources of metals, organics, nutrients, and bacteria. This Work Plan will include approaches for assessment of both wet and dry conditions, with separate pollutant source characterizations and prioritizations developed for each condition. Preliminary analyses of monitoring data is expected to test the validity of assumptions in the Work Plan and the feasibility of proposed methodologies.

Deliverables:

- Draft Work Plan (two-week period for County review and comment)
- Final Work Plan, incorporating County comments (two weeks following receipt of County comments)

Task 1.3 – Implementation of Pollutant Source Characterizations and Prioritization

Upon final agreement on the approaches outlined in the Work Plan delivered in Task 1.2, Tetra Tech will initiate the implementation of the Work Plan by developing a draft report summarizing the research and prioritization of the potential sources of toxic metals, bacteria, toxics and other pollutants associated with future TMDLs in the BC, LAR, and their tributaries. A single report will be provided for both the LAR and BC, with separate sections providing independent discussions for each watershed, including independent maps and results of data analyses and model simulations. The report will indicate the location of potential pollutant sources for the purpose of better characterizing the origins of pollution in the study area's receiving waters, environmental conditions that impact pollutant loadings, and other characteristics of pollutant sources or methods of transport that will assist in TMDL implementation (e.g., factors influencing BMP selection). With separate TMDLs developed for dry and wet conditions, and sources of pollutants varying greatly between these conditions, the report will address dry and wet conditions separately, as well as characterizations of potential pollutant sources.

Deliverables:

- Draft report (two-week period for County review and comment)
- Final report, incorporating County comments (two weeks following receipt of County comments)

Task 2 – Identification of Water Resources and Other Opportunities

Storage and reuse of storm runoff is a major component of an integrated water resources approach. Development of the Implementation Plans will include an examination of the region's current beneficial uses, water supply, water use and reuse scenarios, plans for maintaining or enhancing regional water supplies, and the impact or benefit of those practices on water quality. Many of these strategies that retain/detain, store, or reuse wet- or dry-weather flows can serve the dual purpose of storing water volumes associated with transporting pollutants to LAR and BC, and therefore provide an opportunity to contribute to an overall strategy for TMDL implementation. Tetra Tech will perform a study of the sources of the region's water supply and any benefits of groundwater recharge or storage and reuse in the region, and will assess the amount of runoff to be treated in accordance with the TMDL and the corresponding amount that could be stored and reused within the unincorporated county. This information would support strategy development and planning of meaningful and quantifiable improvements in the region's water resources management.

Tetra Tech will work closely with the Los Angeles County Department of Public Works and other related departments to obtain the information needed for assessment. Much information on the region's hydrogeology and groundwater aquifer characteristics are available through Public Works. Other studies, such as integrated water resources plans performed by the City of Los Angeles or the Integrated Regional Water Management Plan (IRWMP) performed by the County, can provide essential information regarding planned projects that may be opportunities to provide water quality benefits, or other regional land, climate, or water resources charteristics that may influence or inhibit specific strategies and decisions for integrated planning efforts. Tetra Tech will identify potential sources of information available from multiple County departments (including departments outside of Public Works) and other agencies to support this study, prepare a memo that will list the available information to assist in the study, and provide the County an opportunity to review and ensure that all relevant information is included.

Structural solutions for TMDL implementation, as identified in Task 4, will have benefits in terms of potential water reuse and groundwater recharge. The County BMP Decision Support System currently under development by Tetra Tech will provide watershed-wide optimization of both centralized and distributed structural BMPs that will promote storage and infiltration of storm water. The amount of water stored and infiltrated will be assessed for this task, and evaluated in terms of potential for reuse and groundwater recharge. In this way, estimates of benefits to water resources management will be quantified and consistent with plans for structural BMP implementation, and can even be considered in Task 4 as a decision variable for optimization and selection of the best plan for implementation of structural BMPs in the BC and LAR watersheds. Tetra Tech will take advantage of the separate parallel study for development of the County BMP Decision Support System to apply the most effective method for linkage of structural BMP selection with quantification of benefits for water resources.

Tetra Tech will develop a draft report that will identify/quantify current water resource activities and provide additional "areas" of opportunities for both distributed and centralized structural BMPs. The report will be organized with independent sections for BC and LAR watersheds, with separate associated maps and results of data analyses and model simulations. Following review and comment by the County, Tetra Tech will incorporate comments into a final report.

Deliverables:

- Technical memo summarizing information and reports available to support the task
- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 3 – Development of Nonstructural Solutions

An important strategy to pollution control are nonstructural solutions that seek to address pollutant sources through many existing County programs and policies that do not require expensive design and construction elements. Under the County of Los Angeles MS4 Permit, many of these programs and policies also meet specific criteria that are consistent between this permit and the stormwater plans being implemented in accordance with this permit. To the extent possible, these existing programs and policies should be prioritized due to their cost-effectiveness, but consideration must be given to feasibility, practicality, coordination with other programs/policies, cooperation of other municipalities that are impacted, etc. In addition to existing efforts, other potential changes in ordinances, codes, policies, laws, and enforcement may provide additional benefit to pollutant source control. Although many of these programs and initiatives have regional goals and benefits, all assessments performed for this task will specifically address TMDL implementation requirements for unincorporated County areas of LAR and BC.

Task 3.1 – Public Information and Participation Program and Industrial/Commercial Facilities Control Program

A potential source of pollutants is the mishandling or improper practices that lead to unintended discharge of pollutants, which are then transported to BC or LAR. Many of these sources can be minimized or avoided with improved education of the public, through access to educational information or participation in outreach programs. Tetra Tech will evaluate existing County public information and participation programs and industrial/commercial facilities control programs and assess their effectiveness at addressing priority pollutants, as well as their contribution to overall TMDL implementation efforts. Based on this review, Tetra Tech will determine if improvements or new programs are necessary to address TMDL implementation, and propose new programs that focus on education and outreach activities. These activities may target audiences such as residents, industrial facility operators, commercial businesses, students, and public agency employees to positively impact or protect water quality in relationship to BC or LAR TMDLs. Programs may be developed to provide immediate outreach, site visits to businesses and industries, and TMDL education strategies. Source identification of specific TMDL pollutants as described in Task 1 will play a key role in establishing these education and outreach strategies.

The first step to evaluation of existing County programs is for Tetra Tech to communicate with relevant Public Works divisions and County departments who work with programs that can support TMDL implementation, and discuss the programs' original intent, strategy, audiences, educational material, and future plans. Tetra Tech will provide the County a summary of programs that will be reviewed to ensure that all relevant programs are included in the evaluation. Once identified and verified with the County, Tetra Tech will then work with the County to compile all material and reports used for each program, which will then be reviewed and evaluated. Material to be assessed may include public outreach pamphlets, documentation on public education events, public participation protocols, or other documents outlining County activities or protocols for business and industry site visits and resulting reports.

Tetra Tech will provide a review of these programs based on our national expertise and experience. Tetra Tech is the primary author of EPA's *Getting In Step: A Guide for Conducting Watershed Outreach Campaigns*, which provides an overall framework for developing and implementing public outreach and tools to evaluate and maximize the effectiveness of outreach efforts. Tetra Tech also compiled information from some of the most notable storm water programs in the U.S. through the Water Environment Research Federation's (WERF) *Using Rainwater to Grow Sustainable Cities – Sustainable Best Management Practices* (http://www.werf.org/livablecommunities/), which provides examples of how to leverage political, organizational, technical, educational, and other resources to move forward with implementation of effective tools for education on benefits of stormwater BMPs. With this knowledge base, combined with Tetra Tech's intimate understanding

of the local environment and regulations, a thorough evaluation of the County's programs will be provided, with recommendations for improvement based on experience with methods found to work effectively.

Tetra Tech will develop a draft report that summarizes the County's public information and participation programs and industrial/commercial facilities control programs and outline an approach to increasing or improving public, business, or industry awareness on the importance of their involvement in achieving TMDL compliance. This report will focus on county-wide programs, and therefore will not provide independent discussions for LAR and BC. However, should specific programs be identified or recommended for an individual watershed to address specific TMDL requirements, separate sections of the report will be provided for each watershed as needed. Following review and comment by the County, Tetra Tech will incorporate comments into a final report for submittal to the County.

Deliverables:

- Technical memo summarizing programs to be evaluated for this task
- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 3.2 – Development Planning Program and Development Construction Program

It is important to establish guidelines or strategies to ensure TMDL compliance measures are integrated into the planning, permitting, and construction of private development projects. These measures may take form as County wide guidelines for BMPs and Standard Urban Stormwater Mitigation Plan (SUSMP) checklists for development and redevelopment projects that may affect TMDL compliance of the impaired waterbodies. Other measures may include development of TMDL compliance guidelines during the preparation and reviewing of California Environmental Quality Act (CEQA) documents and/or providing guidance to developers about stormwater management for pollution control.

Tetra Tech will research, evaluate, and develop plans for integrating solutions into the planning, permitting, and construction of private development projects within the unincorporated County. This will include the review of County strategies associated with emerging approaches such as Low Impact Development (LID) techniques, including related design manuals, ordinances, or design tools. Tetra Tech will outline plans for LID programs to integrate solutions that can reduce pollutant loads, improve water quality, and hence address TMDL implementation. The resulting plans will provide integration of TMDL implementation requirements with other similar County initiatives for LID, and ensure that these separate programs are consistent and focused to effectively address the multiple environmental and regulatory pressures facing the County. The resulting review and recommendations will be provided in a draft report for County review and comment. Tetra Tech will incorporate County comments into a final report to the County.

Tetra Tech will also coordinate with the Watershed Management Division to work closely with project participants located within the jurisdictional areas of BC and LAR to obtain support and secure endorsement of targeted strategies. Tetra Tech will attend up to three meetings with these participants and County divisions to facilitate discussions and presentation of recommendations, and provide meeting materials and power point presentations as needed at the request of County staff.

Deliverables:

- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)
- Up to three meetings with project participants within the jurisdictional areas of BC and LAR (agendas prepared by Tetra Tech at least two weeks in advance)

Task 3.3 – Public Agency Activities Program

The County currently implements program measures that address storm water pollution from public agency activities. These nonstructural and institutional BMPs at existing facilities require evaluation to determine their sufficiency at addressing current and future TMDL implementation requirements. Tetra Tech will communicate with the County Project Manager and other relevent County staff to determine which specific program measures are in place to address storm water pollution from public agency activities, and what areas or types of land uses these activities apply. Tetra Tech will provide the County a summary list of these program measures for County review and approval. Once approved, Tetra Tech will perform an evaluation of the control measures and provide recommendations for improvement to address TMDL implementation.

An important consideration in the evaluation of public angency activities is the relative contribution of these activities on the overall loadings to BC and LAR. If the activities can be attributed to specific land uses corresponding to County land ownership parcel designations, then an assessment can be performed to evaluate the relative area of BC and LAR that are impacted. Tetra Tech will work closely with the County to determine what types of spatial analysis, either using GIS or products available through development of the County BMP Decision Support System, can support the overall assessment of the impact of public agency activities on BC and LAR. Tetra Tech will provide a technical memo summarizing proposed approaches for analyses and quantification of pollutant loads from public agency activities. If approved by the County, Tetra Tech will perform the analyses and incorporate results in the draft and final reports.

Tetra Tech will develop a draft report summarizing the review and recommendations for nonstructural and institutional BMPs at existing public facilities within LAR and BC. For those BMPs that are programmatic and not specific to an individual watershed, the report will be organized with a single discussion representative of both watersheds. However, for BMPs that are site specific, additional independent sections will be provided for LAR and BC. In addition, should the County approve an approach for analyses and quantification of pollutant loads from public agency activities as described above, results will be reported independently for each watershed. This will assist in the transfer of findings to independent TMDL implementation plans for BC and LAR in Task 10. Following County review and comment, Tetra Tech will provide a final report incorporating comments.

Deliverables:

- Technical memo summarizing public agency program measures to be evaluated for this task, including associated reports and sources of information
- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 3.4 – Evaluation of Nonstructural BMPs

In addition to those BMPs discussed in Tasks 3.1 through 3.3, Tetra Tech will evaluate potential nonstructural BMP options and programs for wet- and dry weather runoff. Whenever possible, Tetra Tech will evaluate the nonstructural BMPs outlined in the various municipal NPDES Permit stormwater management plans for potential modification to create an improvement in water quality.

Task 3.4.1 – Work Plan for Evaluation of Nonstructural BMPs

Tetra Tech will first meet with the County to discuss and identify current activities and existing and future plans for BC and LAR that incorporate nonstructural BMPs, including available study results and reports. Tetra Tech will summarize this list of County activities and nonstructural BMP plans in a technical memo for County review and approval to ensure that all information has been identified and will be included in the evaluation. This memo will also summarize the specific nonstructural BMPs to be evaluated for BC and LAR.

Once the list of nonstructural BMP options are identified, Tetra Tech will develop a draft Work Plan that will outline methods proposed to quantify benefits, risks, and costs for evaluation purposes. Options available for assessment include the County BMP Decision Support System, assumptions based on literature, and other GIS

analyses. The methods used for assessment will not be consistent for all BMPs, and will depend greatly on the type of BMP, the information available, and the scale of implementation. Benefits, in terms of reductions in loads from potential pollutants, will be investigated and tested for those activities that are determined quantifiable given the current information available for those activities (e.g., effectiveness of pollutant load reduction or level of implementation). For some activities that can be linked spatially to specific land use activities (e.g., street sweeping), the County BMP Decision Support System or other GIS analyses techniques can assist in assessment of the impact of pollutant load reductions. Methods for cost estimates proposed for evaluation will be consistent with the specificity of the management programs and the associated risk assessment. Following review and comment of the Work Plan by the County, Tetra Tech will prepare a final Work Plan incorporating County comments.

Deliverables:

- Technical memo summarizing the list of nonstructural BMPs to be evaluated
- Draft Work Plan (two-week period for County review and comment)
- Final Work Plan (two weeks following receipt of County comments)

Task 3.4.2 – Perform Evaluation of Nonstructural BMPs

Based on methods outlined in the Task 3.4.1 and approved by the County, Tetra Tech will perform evaluations of the benefits, risks, and costs of alternative nonstructural BMP options proposed within BC and LAR. Tetra Tech will also meet with the County to provide a presentation of the preliminary results to facilitate discussion and input from the County prior to development of the draft report.

Tetra Tech will provide a draft report for County review and incorporate comments in a final report summarizing the nonstructural BMP options and programs and their potential benefits (i.e., load reduction potential) and impacts (i.e. financial and existing operations). Results will be reported for LAR and BC in independent discussions/sections to facilitate transfer of discussions to separate TMDL Implementation Plans in Task 10. For all methods used to assess BMP benefits, risks, and costs, all assumptions will be documented and discussed in the report.

Deliverables:

- Meeting with County staff to present preliminary results (meeting may be combined with monthly progress meeting; agenda prepared by Tetra Tech at least two weeks in advance)
- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 4 – Development of Structural Solutions

Compliance with existing and future TMDL WLAs cannot be accomplished through implementation of nonstructural BMPs alone. The County has requested a proposal for potential structural projects throughout unincorporated areas of the Los Angeles River and Ballona Creek that will provide alternative treatment options. It is important to research and evaluate the effectiveness and the feasibility of implementing end-of-pipe, in-line, and off-line treatment methods. Scale is also an important consideration in selecting structural BMPs. Centralized structural BMPs are regional facilities that receive flows from neighborhoods or larger areas, which often serve dual purposes for flood control or groundwater recharge. These BMPs are oftentimes located in public spaces and can be co-located within park or green space. Alternatively, distributed (sometimes called "decentralized") structural BMPs are built within the landscape at the site-scale, which often requires retrofit of site designs to accommodate the re-routing and positioning of BMPs onsite. Examples of distributed BMPs include porous pavement parking lots, grassed swales, rain barrels, bioretention basins, etc. Both centralized and distributed BMPs serve important purposes and should be considered in combination to determine the optimal level of implementation at each scale to meet TMDL WLAs. Opportunities for incorporating recreational open

space should be identified and considered in implementing an integrated water resource approach to meet TMDL compliance.

Task 4.1 – Assessment of Opportunities for Distributed Structural BMPs

Because distributed BMPs are located at the site-scale and the majority of developed sites in the County unincorporated areas are on privately owned land, the effectiveness of distributed BMPs must be assessed to guide decisions regarding how and to what degree BMPs are implemented on privately owned property. First, how will private landowners be incentivized or required to implement BMPs on their properties? But perhaps more importantly, what level of implementation of distributed BMPs will be required and how much will it cost? Will it be required for all land uses, including residential, commercial, and industrial? What is the impact if distributed BMPs are only implemented on publicly owned facilities? How much water should be stored/treated by a single distributed BMP and what is the unit cost? Before any decisions are made, it is important to quantify a range of possible scenarios to provide a full understanding of the options, decision variables, benefits, and costs. The County BMP Decision Support System currently under development by Tetra Tech is specifically designed to investigate these issues. However, additional data is needed for assessment of the feasibility of distributed BMPs within local communities in the unincorporated portions of the Los Angeles River and Ballona Creek. The following subtasks outline the steps needed for data collection and assessment using the County BMP Decision Support System to evaluate the options for distributed BMP implementation.

Task 4.1.1 – Work Plan for Field Investigations of Distributed Structural BMPs

The understanding of water quality treatment processes for structural BMPs is a high priority research topic in southern California. Well-known treatment processes for distributed BMPs such as grass swales, bioretention, and other BMPs requiring establishment and maintenance of vegetation is a growing concern due to the water supply challenges of the region. Although native vegetation is an alternative, it is still unclear if such techniques are cost-effective given other BMP alternatives that focus less on vegetation. The separate study to develop the County BMP Decision Support System will evaluate distributed BMP alternatives, but key information is needed before this tool can be used for TMDL implementation planning. Specifically, data collection efforts are needed to better understand key BMP processes related to infiltration and potential removal of pollutants through soil filtration. Once this information is collected, assumptions can be developed for regional distributed BMP implementation and evaluation of potential pollutant load reductions for all County watersheds.

Tetra Tech will provide a draft Work Plan for BMP testing and collection of information to address data gaps regarding the effectiveness of BMP processes. This Work Plan will outline the site considerations for field investigations, the types of tests performed, and the ultimate use of the information for the County BMP Decision Support System and extrapolation of results for TMDL implementation plan development. Once comments on the draft Work Plan are received from the County, Tetra Tech will incorporate these comments into a final Work Plan.

Deliverables:

- Draft Work Plan (two-week period for County review and comment)
- Final Work Plan (two weeks following receipt of County comments)

Task 4.1.2 – Perform Field Investigations of Distributed Structural BMPs

Tetra Tech will implement the Work Plan and perform required field investigations of distributed BMP functionality within the Los Angeles River and Ballona Creek watersheds. Results of field investigations will be summarized in a draft report for County review and comment, and a final report incorporating County comments.

Deliverables:

- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 4.1.3 – Evaluation of Options for Distributed Structural BMP Implementation

In the separate study to develop the County BMP Decision Support System, Tetra Tech will evaluate different levels of distributed BMP implementation for specific land management categories (categories based on imperviousness, soil type, slope, and other characteristics that influence BMP selection). The management levels of BMP implementation, defined by the types, combinations, and sizes of BMPs used, impacts the cost. The County BMP Decision Support System will assist in assessing the optimal distributed BMP implementation plan, or most cost-effective solution, for pre-defined scenarios. These scenarios may consider the expected participation of private landowners, limitation of implementation of BMPs to a select group of land uses or management categories, or consideration of a specific design storm for BMP sizing.

Key Definitions

Management Category: Representative areas within a watershed that have similar physical characteristics, BMP applicability, loading effects, or similar features with management implications.

Management Levels (Levels): These are groups of BMPs that can be applied to representative landscape areas and demonstrate the broad spectrum of potential pollutant load reduction and treatment costs.

Although the full evaluation of options for distributed BMP implementation (multiple management categories and levels) will be performed by Tetra Tech as part of the separate study, it is important that results are interpreted specifically for County unincorporated areas of BC and LAR relevant to TMDL implementation considerations. Tetra Tech will provide a draft technical memo summarizing and interpreting these results for this study and will incorporate County comments into a final technical memo. Results will provide information on costs of levels of distributed BMP implementation for different management categories. However, ultimate selection of the levels of distributed BMP implementation cannot be determined without watershed optimization of distributed BMPs in combination with centralized BMPs. This watershed optimization will also be performed by the County BMP Decision Support System at a later stage, with results summarized in Task 4.2.3 of this study.

Deliverables:

- Draft technical memo (two-week period for County review and comment)
- Final technical memo (two weeks following receipt of County comments)

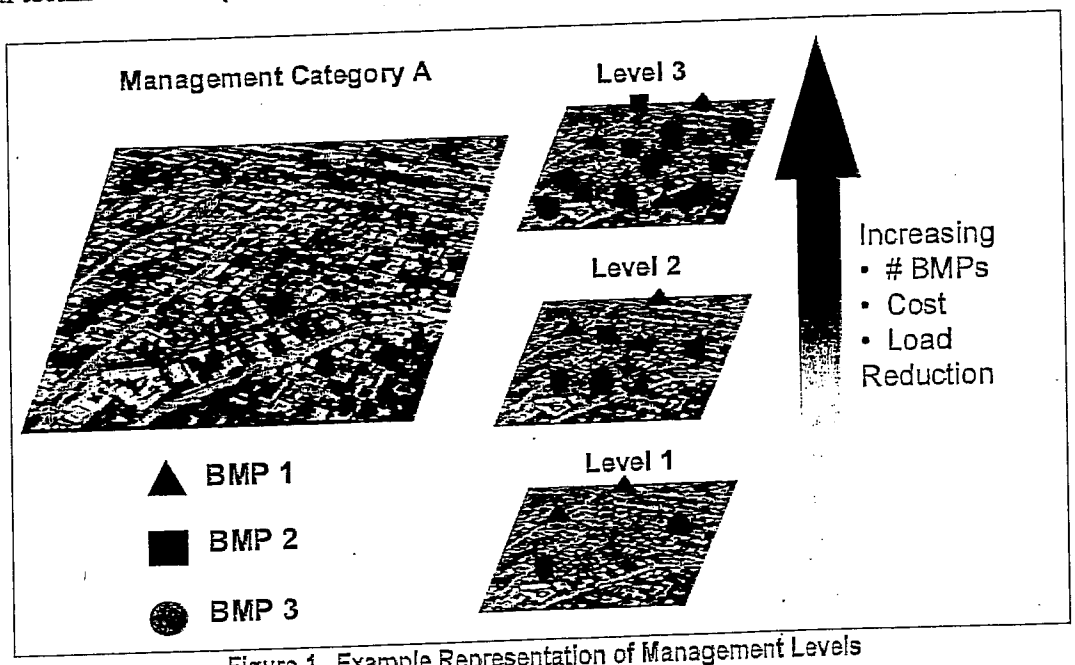


Figure 1. Example Representation of Management Levels

Task 4.2 – Assessment of Opportunities for Centralized Structural BMPs

Based on preliminary analyses performed using the County BMP Decision Support System, it is apparent that neither distributed or centralized structural BMPs can alone achieve the load reductions to meet TMDL wasteload allocations. The optimal combination of distributed and centralized BMPs will be a function of cost and practicality. These results will inform the TMDL implementation process, but additional work is needed for identification of specific sites for centralized BMPs and opportunities for multiple uses such as recreational/park/green space or water storage and reuse.

Task 4.2.1 – Work Plan for Site Investigations for Centralized Structural BMPs

For the County unincorporated areas of BC and LAR, an investigation will be performed to identify and assess potential sites for the placement of centralized BMPs. Priority locations of centralized BMPs will be publicly owned properties to reduce the need for land acquisition. Tetra Tech will develop a Work Plan outlining the process for site investigations, which will be reviewed and approved by the County prior to implementation. At a minimum, the process for site investigation will include the following steps:

1. Site screening based on GIS analysis of land ownership parcels and site characteristics such as soil type, slope, and proximity within the watershed and near urban areas;
2. Development of a list of potential locations for centralized BMPs, with priority based on publicly owned properties, and consideration of sites already planned for public facilities (e.g., parks, flood control, water storage and reuse);
3. Field investigation of potential locations for centralized BMPs, including documentation of site characteristics that can impact or prevent BMP design or construction;
4. Evaluation of opportunities for incorporation of multi-use features at potential locations investigated, promoting an integrated approach to BMP selection and planning.

Deliverables:

- Draft Work Plan (two-week period for County review and comment)
- Final Work Plan (two weeks following receipt of County comments)

Task 4.2.2 – Perform Site Investigations for Centralized Structural BMPs

Tetra Tech will implement the Work Plan and perform required GIS analyses and site investigations to identify and assess potential sites for design and construction of centralized BMPs. Results of site investigations will be summarized in a draft report for County review and comment, and a final report incorporating County comments.

Deliverables:

- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 4.2.3 – Evaluation of Options for Centralized Structural BMP Implementation

As part of a separate study, watershed-wide optimization scenarios will be evaluated to assist in identification of the most cost-effective and practical combination of distributed and centralized BMPs necessary to meet TMDL WLAs. Results of these analyses for BC and LAR will include estimation of the total combined centralized BMP capacities (volume or surface area) necessary for hundreds of subbasins in order to meet metals TMDL WLAs for each watershed. These will include several subbasins containing County unincorporated areas within each watershed. These results can be compared with potential sites and options for centralized BMPs identified in Task 4.2.2 for selection of the best options for implementation.

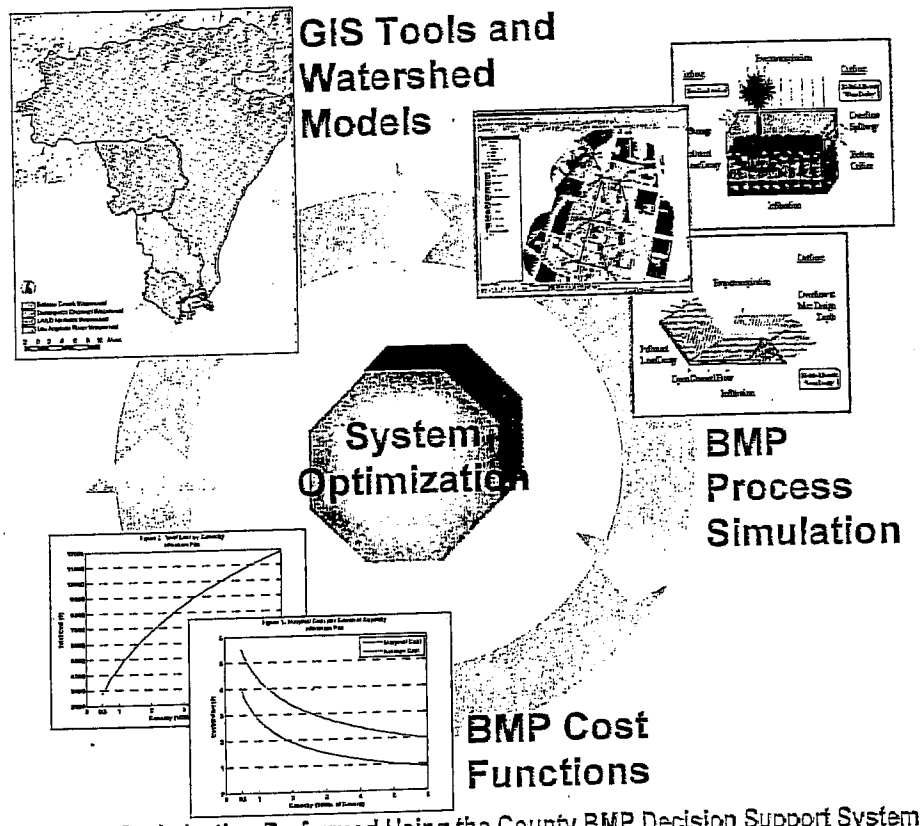


Figure 2. Optimization Performed Using the County BMP Decision Support System

Tetra Tech will summarize results of watershed-wide optimizations and focus discussions relevant to the County unincorporated areas of BC and LAR. The results will contribute to the TMDL Implementation Plans developed in Task 10, as well as assist in formulation of a methodology for evaluation of proposed sites and BMP options identified in Task 4.2.2. This summary will be provided to the County in a draft technical memo for review, with County comments incorporated into a final technical memo. Tetra Tech will also meet with the County and provide a presentation of the methodology and results and receive input from the County.

Based on the proposed sites identified and assessed in Task 4.2.2, Tetra Tech will perform an evaluation for prioritization of the ideal centralized BMPs to meet capacity requirements determined using the County BMP Decision Support System. A draft report will be provided to the County for review of the process for prioritization, and the resulting prioritized list of centralized BMPs. The report will include independent sections for BC and LAR to provide easy transfer of discussions to the TMDL Implementation Reports developed in Task 10. Tetra Tech will also meet with the County and provide a presentation of the evaluation and prioritization process and receive input from the County.

Deliverables:

- Draft Technical Memo summarizing results of watershed-wide optimizations and results for County Unincorporated areas (two-week period for County review and comment)
- Meeting with the County to present results of watershed-wide optimizations (within week of Draft Technical Memo; agenda prepared by Tetra Tech at least two weeks in advance)
- Final Technical Memo (two weeks following receipt of County comments)
- Draft report on centralized BMP evaluation and prioritization (two-week period for County review and comment)
- Meeting with the County to present results of BMP evaluation and prioritization (within week of Draft Technical Memo; agenda prepared by Tetra Tech at least two weeks in advance)

- Final report on centralized BMP evaluation and prioritization (two weeks following receipt of County comments)

Task 5 – Regulatory Requirements and Environmental Permits

Understanding and considering regulatory and permitting requirements will ensure the development of an implementable and successful plan. The following subtasks will provide a thorough review and outlook of the regulatory requirements and environmental permits required to implement the plan in addition to any related environmental considerations.

Task 5.1 – Review of Regulatory Requirements

For the County unincorporated areas of BC and LAR, Tetra Tech will conduct a review of all regulatory issues and requirements that should be considered in the planning process. These issues and requirements will relate to and include the California Coastal Commission; State resource agencies, such as the California Department of Fish and Game, State Health Department and State Lands Commission; and Federal agencies, such as the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Services, National Marine Fisheries Service; and other relevant local, State, and Federal regulations. The review will focus on current regulations that will affect the Implementation Plan options, including those alternatives developed in this study. Results of the review will be summarized in a draft report for County review and comments, with a final report incorporating County comments. This report will summarize regulatory requirements and provide supporting documentation, site references, and maps of the regulator's jurisdictional boundaries. Results will be presented in the reports in independent sections for BC and LAR to provide easy transfer of discussions to separate TMDL Implementation Plans in Task 10.

Deliverables:

- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 5.2 – Review of Environmental Permits

Tetra Tech will assess the necessary regulatory and environmental permits, including CEQA requirements, specific to the alternatives and strategies identified in Tasks 3 and 4. For those strategies that are determined prohibitive or challenged given necessary permitting requirements, Tetra Tech will re-evaluate recommendations in Tasks 3 and 4 for structural and nonstructural BMPs. Results and recommendations from this assessment will be summarized in a draft report for County review and comment, and a final report incorporating County comments. Results will be presented in the reports in independent sections for BC and LAR to provide easy transfer of discussions to separate TMDL Implementation Plans in Task 10.

Deliverables:

- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 6 – Cost Estimates

Tetra Tech will perform a cost analysis for each of the proposed projects and programs identified in Tasks 3 and 4. Although Task 4 provides basic estimates of costs of centralized BMPs for optimization purposes, Task 6 will provide significantly more detail necessary for planning purposes and overall strategy development. The cost analysis will include any necessary planning, design, permits, construction, operation and maintenance, energy, waste removal, postconstruction monitoring, and an evaluation of the economic impacts the proposed projects and

programs may have on the community. Cost estimates of each project/program will be organized in a consistent format to provide meaningful analysis of implementation alternatives in Task 7. Results from these cost analyses will be summarized in a draft report for County review and comment, and a final report incorporating County comments. Results will be presented in the reports in independent sections for BC and LAR to provide easy transfer of information to analysis of implementation alternatives in Task 7.

Deliverables:

- Draft report (two-week period for County review and comment)
- Final report (two weeks following receipt of County comments)

Task 7 – Analysis of Implementation Alternatives

Tetra Tech will utilize and analyze the source characteristics and technical, regulatory, and cost information gathered from Tasks 1 through 6 to develop alternatives that could be implemented over the required implementation periods to meet the TMDL WLAs for BC and LAR. Critical to this task is County approval of the methodologies and decision criteria to be used in the alternative evaluation process. Tetra Tech will work closely with the County to develop an appropriate approach for evaluation, as well as a strategy for planning implementation throughout the TMDL compliance periods. It is important that intermediate goals and milestones are set that are consistent with the phased implementation targets over time, since these targets are important objectives that have significant implications on costs of BMPs selected.

Task 7.1 – Work Plan for Analysis of Implementation Alternatives

As mentioned, a critical component to plan development is County approval of the methodologies and decision criteria used in analysis and selection of alternatives for implementation. First, Tetra Tech will meet with the County to discuss options for an approach that considers both structural and nonstructural BMP strategies, which may vary over different phases of the implementation period, as well as considerations for development of evaluation and decision criteria. The evaluation criteria will incorporate the goals of the integrated resources approach and address the practicality of treating multiple pollutants, provide multiple benefits, and considering wastewater and recycled water systems in a holistic planning process.

Tetra Tech will develop a draft Work Plan that summarizes outcomes from the meeting and comments received from the County into a draft approach for comprehensive analysis of implementation alternatives for BC and LAR. The resulting methodology and decision criteria should be consistent for both watersheds, however any differences preferred by the County for the two watersheds will be noted clearly in the Work Plan. At a minimum, the Work Plan will outline a methodology for analysis of implementation alternatives that will provide an optimization of the most cost-effective and practical combination of alternatives for different phases of implementation. Since different phases of implementation have different goals in terms of necessary pollutant load reductions (or area to be treated) to meet TMDL WLAs, these different goals will affect the cumulative optimization of alternatives over time. For example, an optimization and resulting selection of implementation alternatives for Phase I will be performed to meet a specific load reduction target. This would be followed by a subsequent optimization for Phase 2 which will include alternatives from Phase I, but will include additional options to address a greater load reduction target than Phase I. This will ensure that less expensive alternatives are selected early in the implementation period and are active throughout the implementation period, with more expensive options added over time to achieve the more stringent requirements. Following review and comment of the Work Plan by the County, Tetra Tech will provide a final Work Plan incorporating County comments.

Deliverables:

- Meeting with County to discuss options for analysis of implementation alternatives (agenda prepared by Tetra Tech at least two weeks in advance)

- Draft Work Plan proposing and approach for analysis of implementation alternatives (two-week period for County review and comment)
- Final Work Plan proposing and approach for analysis of implementation alternatives

Task 7.2 – Perform Analyses of Implementation Alternatives

Based on the methodology and evaluation criteria established in the Work Plan in Task 7.1, Tetra Tech will perform analyses of implementation alternatives for phased implementation of BC and LAR TMDLs. These analyses will consider all projects and programs identified in Tasks 3 and 4, and corresponding regulatory and permitting reviews and cost estimates performed in Tasks 5 and 6. Separate analyses of alternatives will be performed for LAR and BC, including production of associated maps, tables, and other results of analysis. Tetra Tech will provide a draft report summarizing the results of analyses, with separate discussions/sections provided for independent presentation of results for BC and LAR. Following County review and comment, Tetra Tech will prepare a final report incorporating County comments.

Deliverables:

- Draft report (two-week period for County review and comment)
- Meeting with County to present results of draft report (within one week of delivery of Draft report; agenda prepared by Tetra Tech at least two weeks in advance)
- Final report (two weeks following receipt of County comments)

Task 8 – Development of Implementation Schedules

Tetra Tech will prepare schedules for each of the proposed centralized structural BMP projects based on the complete TMDL implementation schedules established in Task 7.2. The project schedules will include planning, design, permits, construction, operation and maintenance, energy, waste removal, and post-construction monitoring. Tetra Tech will develop realistic construction durations for each proposed project including pre-construction activities such as bid, award, notice to proceed, move-in, construction subactivities depending on the scope of work, construction completion, post-construction monitoring, etc.

Tetra Tech will also prepare detailed schedules for nonstructural solutions, policy additions and revisions, and programs based on TMDL implementation schedules established in Task 7.2. Tetra Tech will determine the optimal time frame to initiate the projects, nonstructural solutions, policy additions and revisions, and programs during the compliance timeframe. Implementation schedules will be developed using Primavera Project Planner (P3), a project scheduling tool.

Tetra Tech will provide hard copies of schedules, as well as electronic files, for each project, structural solutions, nonstructural solutions, policy additions and revisions, and programs. Tetra Tech will also, provide draft for review and incorporate comments in final hard copies, as well as electronic files, of an overall implementation schedule showing how all the various structural solutions, nonstructural solutions, policy additions and revisions, and programs will be implemented throughout the compliance timeframe.

Deliverables:

- Draft project schedules, electronic files (two-week period for County review and comment)
- Final project schedules, hard copies and electronic files (two weeks following receipt of County comments)
- Draft individual overall implementation schedules for BC and LAR, electronic file (two-week period for County review and comment)
- Final individual overall implementation schedules for BC and LAR, hard copy and electronic file (two weeks following receipt of County comments)

Task 9 – Facilitate Exchange of Information and Periodic Updates

Communication and open exchange of information between the County and Tetra Tech is essential to project success. The following tasks will be performed facilitate this communication.

Task 9.1 – Provide Electronic Method of Information Exchange

Tetra Tech will provide an electronic method for sharing information between Tetra Tech, Public Works and stakeholders. This will include a secure website with restricted access to documents so that deliverables can be exchanged, comments can be uploaded, etc.

Deliverable:

- Establishment of method for electronic sharing

Task 9.2 – Provide Monthly Updates

Tetra Tech will schedule monthly meetings with Watershed Management Division to discuss Implementation Plan development and progress. Tetra Tech will provide a schedule of meeting dates and times, agendas and meeting minutes. Agendas will be provided to County within 5 working days of meetings and minutes will be provided within 3 working days of meetings.

Deliverables:

- Schedule of montly meetings with the County
- Monthly meetings with the County, including agendas and meeting minutes (agendas prepared by Tetra Tech at least two weeks in advance)

Task 10 – Prepare TMDL Implementation Plans

Based on the results from Tasks 1 through 8, Tetra Tech will prepare two drafts for review and incorporate comments in final versions of the TMDL Implementation Plans for the County and the District. Separate draft and final TMDL Implementation Plans will be developed for BC and LAR. The plans will reference the Integrated Water Resources Approach and guiding principles from the regulatory agencies and indicate how implementation of the principles and specific aspects of the Integrated Resources Facilities Plan, along with other facilities, will result in compliance with the TMDL over a period of up to 18 years. Conceptual facilities plans for all major components (conveyance, storage, diversion, treatment and reuse) needed to meet the TMDL requirements will be included in the plan. The plan will also identify implementation requirements for specific projects (detailed plans, design, environmental clearance, land acquisition, permitting, and construction) including nonstructural BMP programs, and will include an implementation schedule, cost estimates, and a cash-flow analysis. Tetra Tech will provide the County with a draft outline and format for the implementation plans and will receive approval prior to development of the first draft.

Task 10.1 – Draft Multi-Pollutant TMDL Implementation Plans I

Deliverable:

- Draft Multi-Pollutant TMDL Implementation Plans for BC for review and comments by the County by September 1, 2009
- Presentation of Draft Multi-Pollutant TMDL Implementation Plans for BC to the County

- Draft Multi-Pollutant TMDL Implementation Plans for LAR for review and comments by the County by November 15, 2009
- Presentation of Draft Multi-Pollutant TMDL Implementation Plans for LAR to the County

Task 10.2 – Final Draft Multi-Pollutant TMDL Implementation Plans I

Deliverable:
- Final Draft Multi-Pollutant TMDL Implementation Plans for BC, incorporating comments provided by the County, no later than October 1, 2009.
- Final Draft Multi-Pollutant TMDL Implementation Plans for LAR, incorporating comments provided by the County, no later than December 15, 2009.

Task 10.3 – Final Draft Multi-Pollutant TMDL Implementation Plans II

Deliverable:
- Final Draft Multi-Pollutant TMDL Implementation Plans for BC and LAR, incorporating comments provided by the Regional Board to the County for review, no later than May 31, 2010.

Task 10.4 – Final Draft Multi-Pollutant TMDL Implementation Plans III

Deliverable:
- Final Multi-Pollutant TMDL Implementation Plans for BC and LAR, incorporating comments provided by the County, no later than June 15, 2010.

Task 10.5 – Option Task: As-Needed Presentations

At the request of the County, Tetra Tech will prepare and/or provide unforeseen presentations to administration, the Regional Board, Supervisors, etc. These presentations may be specific to any task deliverables, or final TMDL Implementation Plans.

Deliverable:
- As-needed presentation materials, meetings, or presentations.

Detailed Project Schedule

Tetra Tech's ability to perform services in a timely manner is the result of the assignment of qualified staff, effective communication among the project team and with clients, and extensive practical experience in completely similar projects. By identifying the most appropriate and most qualified team based on each project's goals and tasks, Tetra Tech eliminates any learning curve and is able to immediately begin project tasks. This allows us to ensure delivery of the highest-quality products to our clients in an efficient, cost-effective manner—products that meet legal requirements, are accepted by stakeholders and the public, and meet established deadlines and budgets. Under past and current contracts, Tetra Tech has been tasked to complete multiple assignments simultaneously and respond to very stringent deadlines, many driven by court-ordered Consent Decrees. Tetra Tech, with its experienced staff, has always been responsive, as demonstrated by continuous company growth and renewal of our contracts. Many of our watershed- and water quality-related contracts have involved the successful completion of multiple concurrent work assignments ranging in levels of effort from 100 hours to thousands of hours. While our staff is large enough to support multiple projects of varying size, we select a project team that is dedicated to select projects, providing consistent, prioritized support to projects such as TMDL implementation plan development for the County. Given our past history and the qualifications and experience of our watershed modeling and planning support staff, Tetra Tech has the capacity to provide the necessary support to the County for the successful, timely completion of the TMDL Implementation Plans developed for BC and LAR.

To assist DPW in project planning, schedules for task of study are presented in the following table.

Phase I Schedule

Task	Objective	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
1	**Pollutant Source Characterization and Prioritization**																
1.1	Data Compilation and Preliminary Data Review	ι	ι	ι	ι												
1.2	Work Plan for Pollutant Source Characterizations and Prioritization		ι	ι													
1.3	Implementation of Pollutant Source Characterizations and Prioritization					ι	ι										
2	**Identification of Water Resources and Other Opportunities**		ι	ι	ι												
3	**Development of Nonstructural Solutions**																
3.1	Public Information and Participation Program and Industrial/Commercial Facilities Control Program		ι	ι	ι												
3.2	Development Planning Program and Development Construction Program		ι	ι	ι												
3.3	Public Agency Activities Program			ι	ι	ι											
3.4	Evaluation of Nonstructural BMPs		ι	ι	ι	ι	ι										
4	**Development of Structural Solutions**																
4.1	Assessment of Opportunities for Distributed Structural BMPs	ι	ι		ι	ι											
4.2	Assessment of Opportunities for Centralized Structural BMPs	ι	ι	ι	ι	ι	ι										
5	**Regulatory Requirements and Environmental Permits**																
5.1	Review of Regulatory Requirements			ι	ι												
5.2	Review of Environmental Permits				ι		ι										
6	**Cost Estimates**						ι	ι									
7	**Analysis of Implementation Alternatives**																
7.1	Work Plan for Analysis of Implementation Alternatives			●	ι	ι											
7.2	Perform Analyses of Implementation Alternatives						ι	ι									
8	**Development of**						ι	ι									

Task	Objective	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
	Implementation Schedules																
9	Facilitate Exchange of Information and Periodic Updates																
9.1	Provide Electronic Method of Information Exchange	ι															
9.2	Provide Monthly Updates	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10	Prepare TMDL Implementation Plans																
10.1	Draft Metals TMDL Implementation Plans I							ι		ι							
10.2	Final Draft Metals TMDL Implementation Plans I								ι		ι						
10.3	Final Draft Metals TMDL Implementation Plans II															ι	
10.4	Final Draft Metals TMDL Implementation Plans III																ι
10.5	Optional Task: As-needed Presentations																

● = meeting
ι = deliverable

Labor Hours and Proposed Fee

Task	Task Description	Program Manager	Project Manager	Sr. Modeler	Sr. Engineer	Sr. Scientist	Staff Engineer/Sci.	Sr. Programmer	Staff Programmer	GIS Specialist	Technician	Total
		$210	$175	$150	$125	$115	$95	$135	$85	$75	$50	
1	**Pollutant Source Characterization and Prioritization**											
1.1	Data Compilation and Preliminary Data Review	2	40	20	60	40	40	0	0	20	0	$27,820
1.2	Work Plan for Pollutant Source Characterizations and Prioritization	2	40	20	40	40	0	0	0	30	0	$22,270
1.3	Implementation of Pollutant Source Characterizations and Prioritization	6	60	100	140	160	200	0	0	140	40	$94,160
2	**Identify Water Resources and Other Opportunities**	8	80	80	170	0	120	0	0	80	0	$66,330
3	**Development of Nonstructural Solutions**											
3.1	Public Information and Participation Program and Industrial/Commercial Facilities Control Program	8	30	0	80	120	120	0	0	0	0	$42,130
3.2	Development Planning Program and Development Construction Program	2	30	80	80	0	60	0	0	40	0	$36,370
3.3	Public Agency Activities Program	8	60	0	130	120	120	0	0	0	0	$53,630
3.4	Evaluation of Nonstructural BMPs											
	3.4.1. Work Plan for Evaluation of Nonstructural BMPs	2	20	60	80	0	30	0	0	0	0	$25,770
	3.4.2. Perform Evaluation of Nonstructural BMPs	8	60	120	180	100	200	40	40	80	0	$97,980
4	**Development of Structural Solutions**											
4.1	Assessment of Opportunities for Distributed Structural BMPs											
	4.1.1. Work Plan for Field Investigations of Distributed Structural BMPs	2	20	0	45	0	20	0	0	0	0	$11,445
	4.1.2. Perform Field Investigations of Distributed Structural BMPs	2	20	0	100	60	260	0	0	0	40	$50,020

Task	Task Description	Program Manager	Project Manager	Sr. Modeler	Sr. Engineer	Sr. Scientist	Staff Engineer/Sci.	Sr. Programmer	Staff Programmer	GIS Specialist	Technician	Total
		$210	$175	$150	$125	$115	$95	$135	$85	$75	$50	
	4.1.3. Evaluation of Options for Distributed Structural BMP Implementation	2	20	100	100	0	0	40	0	0	0	$36,820
4.2	Assessment of Opportunities for Centralized Structural BMPs											
	4.2.1. Work Plan for Site Investigations for Centralized Structural BMPs	2	20	20	40	0	10	0	0	20	0	$14,370
	4.2.2. Perform Site Investigations for Centralized Structural BMPs	8	60	60	320	120	440	0	0	100	200	$134,280
	4.2.3. Evaluation of Options for Centralized Structural BMP Implementation	4	40	80	80	100	100	40	0	100	80	$67,740
5	**Regulatory Requirements and Environmental Permits**											
5.1	Review Regulatory Requirements	8	40	0	80	100	120	0	0	40	0	$44,580
5.2	Regulatory and Environmental Permits	8	40	0	100	120	120	0	0	40	20	$50,380
6	**Cost Estimates**	4	40	40	140	60	120	0	0	0	0	$49,640
7	**Analysis of Implementation Alternatives**											
7.1	Work Plan for Analysis of Implementation Alternatives	2	6	0	60	120	50	0	0	0	0	$27,520
7.2	Perform Analyses of Implementation Alternatives	8	40	0	100	140	160	0	0	0	0	$52,480
8	**Development of Schedules**	10	40	0	100	40	120	0	0	0	0	$37,600
9	**Facilitate Exchange of Information and Periodic Updates**											
9.1	Provide Electronic Method of Information Exchange	0	8	0	0	0	0	20	80	0	20	$11,900
9.2	Provide Monthly Updates[1]	0	12	0	0	0	0	0	0	0	0	$2,100
10	**Prepare TMDL Implementation Plans**											
10.1	Draft Implementation Plans for review and comments by DPW and other stakeholders	2	180	0	240	220	280	0	0	200	120	$134,820

[1] Unit cost of one monthly meeting. Total cost of all tasks assumes 16 monthly meetings.

Task	Task Description	Program Manager	Project Manager	Sr. Modeler	Sr. Engineer	Sr. Scientist	Staff Engineer/Sci.	Sr. Programmer	Staff Programmer	GIS Specialist	Technician	Total
		$210	$175	$150	$125	$115	$95	$135	$85	$75	$50	
10.2	Revised draft Implementation Plans to be submitted to the Regional Board	2	100	0	130	100	160	0	0	90	50	$70,120
10.3	Final Implementation Plans incorporating comments provided by the Regional Board	2	80	0	80	80	160	0	0	50	50	$55,070
10.4	Final Implementation Plans incorporating comments provided by the County	2	60	0	60	60	100	0	0	30	50	$39,570
10.5	Option Task: As-Needed Presentations[2]	1	24	0	0	0	0	0	0	0	0	$3,710
	TOTAL	130	1572	660	2575	1680	3030	120	120	1020	620	$1,388,415

[2] Cost not included in total cost of all tasks.

Fee Breakdown

Task	Objective	Deliverables	Fee
1	**Pollutant Source Characterization and Prioritization**		
1.1	Data Compilation and Preliminary Data Review	• Technical Memorandum summarizing a list of studies and monitoring datasets • Updated water quality monitoring inventory (Microsoft Access database) • Draft Data Summary Report • Final Data Summary Report	$27,820
1.2	Work Plan for Pollutant Source Characterizations and Prioritization	• Draft Work Plan • Final Work Plan	$22,270
1.3	Implementation of Pollutant Source Characterizations and Prioritization	• Draft report • Final report	$94,160
2	**Identify Water Resources and Other Opportunities**	• Technical memo summarizing information and reports available • Draft report • Final report	$66,330
3	**Development of Nonstructural Solutions**		
3.1	Public Information and Participation Program and Industrial/Commercial Facilities Control Program	• Technical memo summarizing programs to be evaluated • Draft report • Final report	$42,130
3.2	Development Planning Program and Development Construction Program	• Technical memo summarizing guidelines and strategies to be evaluated • Draft report • Final report • Up to three meetings with project participants	$36,370

Task	Objective	Deliverables	Fee
3.3	Public Agency Activities Program	• Technical memo summarizing public agency program measures to be evaluated • Draft report • Final report	$53,630
3.4	Evaluation of Nonstructural BMPs		
	3.4.1. Work Plan for Evaluation of Nonstructural BMPs	• Draft Work Plan • Final Work Plan	$25,770
	3.4.2. Perform Evaluation of Nonstructural BMPs	• Draft report • Final report	$97,980
4	**Development of Structural Solutions**		
4.1	Assessment of Opportunities for Distributed Structural BMPs		
	4.1.1. Work Plan for Field Investigations of Distributed Structural BMPs	• Draft Work Plan • Final Work Plan	$11,445
	4.1.2. Perform Field Investigations of Distributed Structural BMPs	• Draft report • Final report	$50,020
	4.1.3. Evaluation of Options for Distributed Structural BMP Implementation	• Draft technical memo • Final technical memo	$36,820
4.2	Assessment of Opportunities for Centralized Structural BMPs		
	4.2.1. Work Plan for Site Investigations for Centralized Structural BMPs	• Draft Work Plan • Final Work Plan	$14,370
	4.2.2. Perform Site Investigations for Centralized Structural BMPs	• Draft report • Final report	$134,280
	4.2.3. Evaluation of Options for Centralized Structural BMP Implementation	• Draft Technical Memo summarizing results of watershed-wide optimizations and results for County Unincorporated areas	$67,740

Task	Objective	Deliverables	Fee
		• Meeting with the County to present results • Final Technical Memo • Draft report on centralized BMP evaluation and prioritization • Meeting with the County to present results of BMP evaluation and prioritization • Final report	
5	**Regulatory Requirements and Environmental Permits**		
5.1	Review Regulatory Requirements	• Draft report • Final report	$44,580
5.2	Regulatory and Environmental Permits	• Draft report • Final report	$50,380
6	**Cost Estimates**	• Draft report • Final report	$49,640
7	**Analysis of Implementation Alternatives**		
7.1	Work Plan for Analysis of Implementation Alternatives	• Meeting with County • Draft Work Plan • Final Work Plan	$27,520
7.2	Perform Analyses of Implementation Alternatives	• Draft report • Meeting with County • Final report	$52,480
8	**Development of Schedules**	• Draft project schedules, electronic files • Final project schedules, hard copies and electronic files • Draft overall implementation schedules, electronic file	$37,600

Task	Objective	Deliverables	Fee
		• Final overall implementation schedules, hard copy and electronic file	
9	**Facilitate Exchange of Information and Periodic Updates**		
9.1	Provide Electronic Method of Information Exchange	• Establishment of method for electronic sharing	$11,900
9.2	Provide Monthly Updates[3]	• Schedule of montly meetings with the County • Monthly meetings with the County	$2,100
10	**Prepare TMDL Implementation Plans**		
10.1	Draft Implementation Plans for review and comment by DPW	• Draft Metals TMDL Implementation Plans for BC and LAR	$134,820
10.2	Final Implementation Plans incorporating DPW comments	• Final Draft Metals TMDL Implementation Plans for BC and LAR, incorporating comments provided by the County and other responsible agencies	$70,120
10.3	Final Implementation Plans incorporating comments provided by the Regional Board	• Final Draft Metals TMDL Implementation Plans for BC and LAR, incorporating comments provided by the Regional Board to the County for review	$55,070
10.4	Final Implementation Plans incorporating comments provided by the County	• Final Metals TMDL Implementation Plans for BC and LAR, incorporating comments provided by the County	$39,570
10.5	Optional Task: As-Needed Presentations[4]	• Presentation materials • Meetings	$3,710

[3] Unit cost of one monthly meeting. Total cost of all tasks assumes 16 monthly meetings.

Task	Objective	Deliverables	Fee
		• Presentation	
	Total		$1,388,415

[4] Cost not included in total cost of all tasks.

REVIEWED BY: Watershed Management Division		SHEET: ___ OF ___
Task #	Comments	Action
General		
(a)	Focus on unincorporated county areas only throughout the work plan.	Scope of Work was modified to address comment
(b)	Adjust schedule to include submittal of draft Ballona Creek Bacteria TMDL Implementation Plan on October 1, 2009 and final March 2010.	Schedule, tasks, and deliverables were modified to include the Ballona Creek Bacteria TMDL Implementation Plan. It should be noted that this resulted in an increase in costs for specific tasks to address the additional analyses and reporting. This was especially true for efforts focused on BMP and load reduction analyses, which required consideration of additional BMPs, and different methods for quantifying benefits (e.g., reduction of exceedance days verses load reductions).
(c)	Plan development seems to be heavily reliant on modeling efforts (decision support tool). Scope should reflect more emphasis and detail on other analysis being performed.	It should be noted that the County BMP Decision Support System is actually a collection of numerous tools developed specifically to support TMDL implementation planning. Tools include methods for evaluation of BMP performance (e.g., resulting load or concentration reductions), BMP costs (necessary for recommendation of cost-effective strategies), and assessment of TMDL compliance (e.g., long-term loading analyses, exceedance day analyses, design storm analyses, spatial or land use analyses, or evaluation of concentrations within the receiving water). Most analyses of BMPs and TMDL compliance will therefore focus on products of this system, hence the need for heavy discussion in the Scope of Work. Since development of this system is a significant investment by the County, it was assumed that its use should be highlighted in this Scope of Work. However, additional discussion was added to elaborate on other analyses.
(d)	If the model is not completed in time to incorporate into the development of the Implementation Plans, how will plans be completed by established deadlines?	The completed modeling system will not be available for use this project. Although not complete, early versions of the system and other work products will provide very useful tools for structural and nonstructural BMP assessments, as well as determination of cost-effective TMDL implementation plans. As a result, an intermediate version of the system will be used for

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		this project, including strategies regarding how to address issues unresolved in the current versions available. This requires the need for the County and Tetra Tech to work closely to determine strategies for use of the system. These strategies and associated technical assumptions will be documented in the Work Plans provided in Tasks 1.2, 3.4.1, and 7.1, for County approval.
(e)	Although Tetra Tech specifies a lot of regional assessment, implementation plan should be tailored to specific unincorporated county needs. It is understood that regional assessments are performed to narrow to this level.	Comment noted. Many of the County programs to be evaluated for this study are understood to be regional, especially nonstructural solutions investigated under Task 3. However, assessments will be performed to provide specific information tailored to address TMDL implementation plans for unincorporated County areas of LAR and BC. An additional sentence was added to the introduction paragraph for Task 3 to specifically address this concern.
(f)	Agendas for meetings should be prepared by Tetra Tech at least 2 weeks in advance to ensure that appropriate County staff departments are available.	All meetings mentioned as task deliverables were edited to include agendas delivered at least two weeks in advance of meetings.
(g)	Scope does not reflect that initial work is being done by Tetra Tech. It appears that Tetra Tech begins all tasks with a meeting for county input and information. All effort is dependent on the amount/level of input provided by the County. Scope should reflect Tetra Tech's preliminary work for all tasks.	Meetings were reduced as deliverables, and monthly meetings will be utilized as much as possible to consolidate discussions with County staff. These meetings will be replaced with close coordination with the County Project Manager and conference calls with key County staff or departments, as needed, to provide information and direction to Tetra Tech. When meetings are needed, Tetra Tech will work closely with the County Project Manager to determine the agenda for each meeting and which County staff and departments will be needed to provide the necessary input on ongoing tasks. Due to the challenging schedule to meet implementation plan deadlines, this alternative is preferred to ensure that meetings are focused to providing information needed to Tetra Tech, as well as reporting of intermediate results to County staff.
(h)	Throughout the scope please provide a general idea of the types of	Some general discussion was added to provide a description of

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	documents/ or preliminary list of documents that Tetra Tech feels DPW will have to provide as part of the tasks.	types of documents needed. However, initial efforts for Tasks 1.1, 2, 3.1, and 3.3 are for Tetra Tech to talk with key County staff to determine the documents that are available. Following these discussions, Tetra Tech will summarize the list of documents available for County review to ensure that all relevant documents were identified. Prior to these discussions, Tetra Tech is not fully aware of all reports and documents the County has to support these tasks, and therefore cannot provide lists that we feel are complete enough for inclusion in the Scope of Work.
(i)	All review periods should be incorporated into schedule to ensure final deliverable of implementation plans by regulatory compliance date.	Comment noted. These review periods were considered to ensure that the compliance dates are met. The schedules for Task 10 were modified to account for the BC Bacteria TMDL Implementation Plan that has an earlier due date.
(j)	Scope of Work should reflect the need for submittal of an Implementation Plan to meet the Ballona Creek Bacteria TMDL regulatory requirements.	Scope of Work was modified to address comment
Objectives		
(a)	Objective of plan is also to identify sources of pollution that originate in Cities and flow into County Unincorporated areas.	Objectives were modified to address comment
(b)	The objective of this project is to develop multi-pollutant implementation plans which address all TMDLs in the Los Angeles River and Ballona Creek	Objectives were modified to address comment
1.1		
(a)	Does proposed work plan include identification of County unincorporated areas and overlay subwatersheds that drain to the area?	This work has already been performed as part of the separate modeling study, so there is no need to include this step in task 1.1.
(b)	Does data collected need to be in specific format (i.e. GIS shape files)? Is additional conversion needed and by whom?	As long as data are in electronic format, Tetra Tech can perform any necessary data conversions. However, this task does not include conversion of hardcopy data to electronic format.
(c)	Will Tetra Tech create new data sets from applicable completed studies	No new data sets will be created, however data will be

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	either done by County, cities or other entities?	compiled into a single Microsoft Access database for transfer to the County upon completion of the study. This database is a deliverable for this task.
(d)	Do the "data sets" include various Master/Management Plans that have been completed?	Relevant data from Master/Management Plans may be considered, but these data are more relevant for latter tasks. Recall that task 1.1 is supporting development of the Pollutant Source Characterization and Prioritization. Later tasks will focus on research of water resources issues, BMPs, etc.
(e)	Proposed schedule shows 5 months to collect and compile data; will this process take that long?	Most of the effort will be completed as early as possible to inform remaining tasks. However, delays in receiving data from separate entities or stakeholders are not uncommon, so the schedule should remain flexible to prevent delay of other tasks. Also, recall that this task includes development of a draft and final Data Summary Report that includes preliminary data review. Sufficient time must be provided for this data review, report development, review and comment by the County, and finalization of the report incorporating comments.
1.2		
(a)	Why is a work plan necessary? Seems like characterizations and sources should be stated by Tetra Tech and be discussed in monthly meeting.	Note that the Work Plan was originally proposed by the County in the original scope of work developed by the County. Tetra Tech also viewed this Work Plan as an ideal opportunity for the County to review proposed methods before they are implemented, which can potentially save time and effort later if the County decides that approaches used were incorrect or insufficient. To address the comment, Tetra Tech removed the meeting specified as a deliverable under this task, and will instead utilize the monthly meeting for this discussion with the County.
2		
(a)	Tetra Tech will research and consider data from all necessary County departments outside of Public Works.	Task 2 was modified to address comment
(b)	Final report (deliverable) will identify/quantify current water resource	Task 2 was modified to address comment

	activities and provide additional "areas" of opportunities for both distributed and centralized structural BMPs.	
3.1		
(a)	Tetra Tech is proposing to assess the effectiveness of all PIPP programs currently implemented by the County. Although a determination of programs to implement will be necessary, it should be noted that the intent is not to evaluate the MS4 permit- only efforts needed to comply with TMDL.	Comment noted. The Task as written focuses efforts on evaluation of programs relative to TMDL requirements. However, many programs specific to the MS4 permit will have relevance for TMDL implementation, so there may require evaluation of programs that also address MS4 permit requirements. The meeting with the County, specified as a deliverable under this task, will provide the County an opportunity to guide Tetra Tech regarding concerns of relevancy to the MS4 permit.
	Cost and duration seem excessive. Justification of cost and duration or reflection of actual effort is needed.	A re-evaluation of costs resulted in reduction of the previously estimated effort to provide information to inform development of the metals TMDL implementation plans for LAR and BC. However, with the addition of the BC Bacteria TMDL Implementation Plan, and the need to provide additional focus on nonstructural BMPs to address bacteria, the estimated effort was increased again.
3.2		
(a)	County of Los Angeles has recently completed LID Manual to be implemented in unincorporated county areas of Ballona Creek and Los Angeles River Watersheds. Plan should incorporate use of manual and measures contained within, but no additional recommendations. Can Tetra Tech provide analysis of possible results if measures are implemented? If so, what is the cost of this effort? Current scope does not reflect this level of effort.	Scope of work was modified to focus attention on the County LID Manual and associated guidance, design criteria, and design tools. This resulted in a reduction of effort that is reflected in the cost. It should be noted that LID is categorized as a distributed (site-scale) BMP, and therefore will be included in the analysis provided in Task 4.1.
3.3		
(a)	Although a meeting may be necessary, Tetra Tech should evaluate current county facilities and then meet with the county to determine which methods are in place to address stormwater runoff.	Tetra Tech removed this meeting as a deliverable, which can be covered by a regularly schedule monthly meeting. The technical memo summarizing the list of county facilities will provide the discussion regarding the methods that are in place,

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		which can be reviewed by the County prior to evaluation to ensure that all measures are included in the assessment.
3.4		
	Cost and duration seem excessive. Please clarify necessity of cost and duration or adjust to reflect actual effort.	Benefits of nonstructural BMPs, in terms of resulting impact on pollutant load reductions, is the least understood of all BMPs. Structural BMP processes, which are represented in the County BMP Decision Support System, are straightforward and current study is focused on how to quantify benefits to support decision making. Currently assumptions for nonstructural BMPs are not included in this system. However, the system can be used to represent nonstructural BMPs, which would be considered in combination with structural BMPs to determine the most cost-effective solution to pollutant load reductions. This is why a Work Plan for Task 3.4.1 is critical, to be sure that the County is okay with methods and assumptions proposed for representing nonstructural BMPs and potential load reductions from activities. Bacteria was not included in the original Scope of Work commented on by the County. In separate comments, the County has decided to add BC bacteria TMDL implementation plan development to the Scope of Work. Since most bacteria BMPs will likely focus on nonstructural BMPs, which are often not in common with activities to address metals, additional effort was added to this task.
4		
(a)	Change next to last sentence from "Both centralized and structural..." to "Both centralized and distributed..."	Correction to text made. Thanks.
(b)	Task 4 dependent on Tasks 1 and 2 yet they are scheduled to be completed simultaneously.	Reports for Tasks 1 and 2 will prolong completion of these tasks. Due to the challenging schedule, Task 4 cannot wait for these reports to be completed. However, Task 4 does not need reports to be completed to obtain the information needed.
(c)	Does County do "Distributed Structural BMPs" or is that only for private property owners/land developers? If yes, work plan (deliverable) should be	The County does not do all distributed structural BMPs. Some

	similar to "Centralized Structural BMPs" deliverable?	participation from private land owners/developers would need to be considered.
(d)	Need to include review of effectiveness of existing structural solutions?	From our understanding, there is no County monitoring being performed on the effectiveness of existing structural solutions. If such data is available, this can be added to the task. Please inform us if this revision is necessary.
(e)	What additional data is needed? Do field investigations include all necessary testing?	The additional data needed and tests to be performed are to be determined in the separate scope for the County BMP Decision Support System (Tasks 1.2 and 1.3 of Phase II of separate scope). Although the timing on these tasks are scheduled for completion in November 2009, this effort can be expedited to provide early guidance regarding the tests needed for this task. Field investigations will focus on priority testing, but it is not certain if this task and budget will include all testing determined necessary by the separate study, which could be quite costly and may need to be implemented over time when funding becomes available.
(f)	Evaluations will be based on County BMP Decision Support System (model) – are there other methods available? Will the model be completed in time for use for this Work Plan?	Other models/tools are available in the public domain, but none have the ability to evaluate cost-effective solutions, specificity to LA County, and stakeholder and regulatory buy-in, as the County BMP Decision Support System. The final version of the model will not be available for this study, however, intermediate versions of the model and associated analysis tools will be available. The version of the model at its current state is still far superior to other tools available. The Work Plan will be an ideal opportunity to define how the intermediate model version will be used, the assumptions required, and the decision variables needed for TMDL implementation (e.g., the target for TMDL compliance, and how and under what periods that target is quantified).
(g)	Bulk of the work is for this task – ultimately, the deliverable needs to identify/recommend structural projects at specific locations. Need to review and adjust resource allocations and schedule	For Task 4.1, it is impossible to identify/recommend distributed structural projects at specific locations. For Task 4.2, specific locations will be identified. It is unclear what is meant by the

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		need to review and adjust resource allocations and schedule. Based on our understanding of the project and effort, most of the effort will need to be focused on Task 4. Please discuss with us if you believe Tetra Tech is way off base with the effort considered necessary for this project.
4.1.1		
(a)	Work Plan seems to add limited value to this task. Why is it necessary?	As noted in the response to Comment 4(e) above, field investigations will be based on recommendations provided by the separate project developing the County BMP Decision Support System, which focuses on identifying data gaps for distributed BMPs. The Work Plan for Task 4.1.1 will define the types of tests to be performed to address priority distributed BMP data gaps. This Work Plan provides the County an opportunity to review recommendations and proposed methods before the work is performed. This Work Plan can be viewed as an equivalent to a monitoring plan, which is required prior to implementation of most monitoring efforts to ensure that the study methods and products are sufficient to achieve the objectives.
4.1.2		
(a)	What will the field investigations entail for distributed BMPs?	The Work Plan developed in Task 4.1.1 will define the field investigations to be performed. This will depend on the recommendations from the separate project, as noted above, which will define the data gaps needed to be addressed for distributed BMPs. Field investigations may include monitoring or soil tests performed in the field.
4.1.3		
(a)	At what level (i.e. intersection, parcel) will the evaluation be performed?	Evaluations will be performed within management categories, with multiple levels evaluated to determine the necessary level required. In summary, the level is what is determined.
4.2.1		

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(a)	Site investigation for centralized structural BMPs that incorporate infiltration must include verification that soil characteristics are appropriate. Soil maps are not adequate for the specific project recommendations that are required.	Comment noted. The Work Plan will define both site investigations and GIS analyses that will be performed, which will be reviewable by the County prior to implementation in Task 4.2.2.
(b)	Although public land should be considered primarily, Tetra Tech should consider privately owned available parcels in their assessment of centralized BMPs.	Comment noted. The current text states that "Development of a list of potential locations for centralized BMPs, with priority based on publicly owned properties, and consideration of sites already planned for public facilities," which does not exclude privately owned parcels, but simply prioritizes publicly owned properties. Therefore, no change was made to the text.
4.2.3		
(a)	The Implementations plans need to address all TMDLs, not just metals.	The Implementation Plans developed for this Scope of Work will include metals for LAR and BC, and bacteria for BC. However, the approach and reports will be capable of adding other pollutants in the future to address additional TMDL implementation requirements.
5		
(a)	Fees associated with regulatory review are excessive. Staff time necessary to assess needs of unincorporated County due to common land uses in both watersheds should be considered. Attention should especially be paid toward individual assessment of regulatory requirements for individual projects.	Fees are re-evaluated and some reduction was provided. However, it should be noted that the individual assessment of regulatory requirements of individual projects is the factor considered to result in the amount of hours estimated.
5.2		
(a)	Permits needed for potential projects – dependent on completion of Task 4.	The schedule was edited to address comment.
6		
(a)	Hours allocated to Senior Engineer, Staff Engineer/Scientist and Senior Modeler appear excessive. In addition, what role does the Senior Scientist play in estimating costs?	Some reduction in hours was provided for Senior Modeler, however the remaining hours were determined necessary. Our senior scientists have experience with many of the programs to be evaluated, that are not limited to structural solutions typically evaluated by engineers.

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7.1		
(a)	Assessment of this particular task has established that a meeting with Public Works is sufficient in the determination of a work plan for analysis of implementation alternatives.	The workshop was removed as a deliverable under this task, and only the meeting with Public Works was included. The fee for Task 7.1 was also reduced to reflect the elimination of this workshop.
(b)	Tech memo and work plan seem redundant. Approach should be through the use of one or the other.	The Tech memo was removed as a Task 7.1 deliverable. The fee for Task 7.1 was further reduced to reflect elimination of this tech memo and review of County comments.
7.2		
(a)	Cost seems excessive for Project Manager and Senior Engineer	Hours were reduced for Project Manager and Senior Engineer. However, Senior and Staff Scientist costs were increased to address additional considerations for BC bacteria TMDL implementation, which will influence analysis of implementation alternatives.
8		
(a)	Implementation schedules should be provided for each watershed individually.	Task 8 deliverables were edited to address comment.
9.1		
(a)	Please provide detail on type of electronic information exchange system to be provided; i.e. e-room, ftp site, etc.	This can include a secure ftp or website, or both, depending on preference of the County. The task was amended to indicate this.
9.2		
(a)	In view of the fact that each of the tasks have an associated meeting with our department, monthly updates should be done on an as-needed basis. Please modify cost to reflect a per-meeting fee.	Cost for task was modified to address comment
10		
(a)	All dates reflected in Task 10 should show that a Final Ballona Creek Multi-Pollutant Implementation Plan will be ready for submittal to the Regional Board by October 1, 2009 and that a final Los Angeles River Multi-Pollutant Implementation Plan will be ready for submittal to the Regional Board by	Task 10 deliverables were modified to address comment. However, to accommodate the Ballona Creek deadline, we propose removing the Task 10.2 Draft TMDL Implementation

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	December 15, 2009.	Plan II reports. This will result in one draft for County and stakeholder review (due September 1 for BC, and November 15 for LAR), a final draft to be submitted to the Regional Board incorporating County and stakeholder comments (due October 1 for BC, and December 15 for LAR), and final drafts II and III delivered in May and June, depending on when comments are received from the Regional Board. Removing Task 10.2 results in a cost saving of over $60,000 (note that this cost is not consistent with the original scope since bacteria was added).
(b)	Deliverables should include a presentation of each Implementation Plan to County and/or Stakeholders	Presentations were added to Task 10.1.
Cost Estimate		
(a)	Labor Hours for tasks 1.2, 3.4.2, Task 5, and 7.2 seem excessive. Please clarify need for staff and hours allocated or reflect actual effort.	Hours revisited and adjusted, with modification to tasks as needed to better reflect the effort.
(b)	Revise 3.2 based on sole use of LID Manual.	Cost of Task 3.2 was revised to address comment.
Additional Comments		
Introduction		
(a)	Introduction focuses on Metals TMDL. Second paragraph should reflect focus on all existing and future TMDLs.	The introduction was modified to address comment.
Objectives	Delete "2. Account for other water quality impairments including...and organics."	Objectives modified to address comment.
1.1		
(a)	Although this step is not needed in task 1.1, identification of County unincorporated areas and overlay subwatersheds that drain to the area should be included in the report.	Task 1.1 was modified to address comment.
9.1		
	Please note: We would like the electronic exchange of information to be in the form of an e-room (website) where deliverables can be exchanged,	Task 9.1 was modified to address comment.

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	comments can be uploaded, etc.	
	Please add an optional task and unit cost for the preparation of unforeseen presentations to administration, regional board, supervisors, etc.	Task 10.5 added as optional task.
Cost estimate: 9.2	Does total cost incorporate the 16 meetings? According to this chart only 1 meeting is accounted for in the project total cost. Please clarify.	Total cost of all tasks includes 16 meetings. As stated in the footnote, the amount specified for the task is a unit cost, as requested in a previous County comment.