

- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.
- (d) Non-point source pollution reduction, management, and monitoring.
- (e) Groundwater recharge and management projects.
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.
- (g) Water banking, exchange, reclamation, and improvement of water quality.
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.
- (i) Watershed management planning and implementation.
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.

Consistent with Sections 79561(a) and (g), the program is an eligible project type because it implements water reclamation, and can be considered a water supply reliability and water use efficiency project. Coupled with its partner project, the El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2, it also falls within 79561(e) as it incorporates groundwater recharge and management.

Work Tasks

Task 4A. Direct Project Administration

Subtask 4A.1 – Project Management and Quarterly Report Preparation: This subtask includes overseeing the implementation of all major aspects of the project including preparation of monthly progress reports and invoices, reviewing change orders and coordination with the consulting and project teams. Other areas of oversight will be for environmental, engineering, public involvement, legal and financial issues.

Task 4B. Land Purchase/Easement

Not applicable

Task 4C. Planning/Design/Engineering/Environmental Documentation

Subtask 4C.1 – Design: This subtask includes preliminary design and final design of expansion of the existing plant from 2 MGD to 4 MGD as recommended in the Local Investigations and Studies Assistance (LISA) grant project to produce Title 22 quality water (through tertiary treatment and disinfection).

Subtask 4C.2 – Mitigated Negative Declaration (MND): This subtask includes preparation of the necessary California Environmental Quality Act/National Environmental Policy Act (CEQA/NEPA) documentation as well as permit application(s) and coordination with agencies. Preparation of an MND is envisioned for this subtask. This subtask also includes preparation of mitigation and monitoring reporting plans, and preparation of necessary reporting documentation during and after construction is complete.

Subtask 4C.3 – NPDES Permit Revision: This subtask involves preparation of necessary documentation to obtain a revised National Pollutant Discharge Elimination System (NPDES) permit from the RWQCB to increase the discharge of the Santee WRF from 2 MGD to 4 MGD.

Task 4D. Construction/Implementation

Subtask 4D.1 – Facilities Expansion: This subtask includes the construction of the following facilities to expand the existing plant from 2 to 4 MGD. A membrane bioreactor may be constructed in lieu of the secondary clarifier and tertiary filter based on the results of a preliminary Local Investigations and Study Assistance (LISA) grant study.

Specific wastewater treatment plant components include:

- Influent Pump Station

- Headworks
- Fermentation Tank
- Aeration Basin Modification
- Membrane Bioreactor
- Chlorine Contact Basin
- Chemical Facilities
- Electrical, Instrumentation, and Controls

Task 4E. Environmental Compliance/Mitigation/Enhancement

Not applicable (included in Subtask 4C.2)

Task 4F. Construction Administration

Subtask 4F.1 – Construction Administration: This subtask includes the construction management of the expansion of the existing plant from 2.0 MGD to 4.0 MGD to produce Title 22 quality water. This subtask also includes processing payments and change orders, analyzing claims and dispute resolution, inspection, and engineering services during construction including responding to contractor requests for information. This subtask also includes providing technical assistance during construction and preparation of record drawings.

Task 4G. Other Costs

Subtask 4G.1 – Preparation of QAPP: This subtask includes the preparation of a quality assurance project plan.

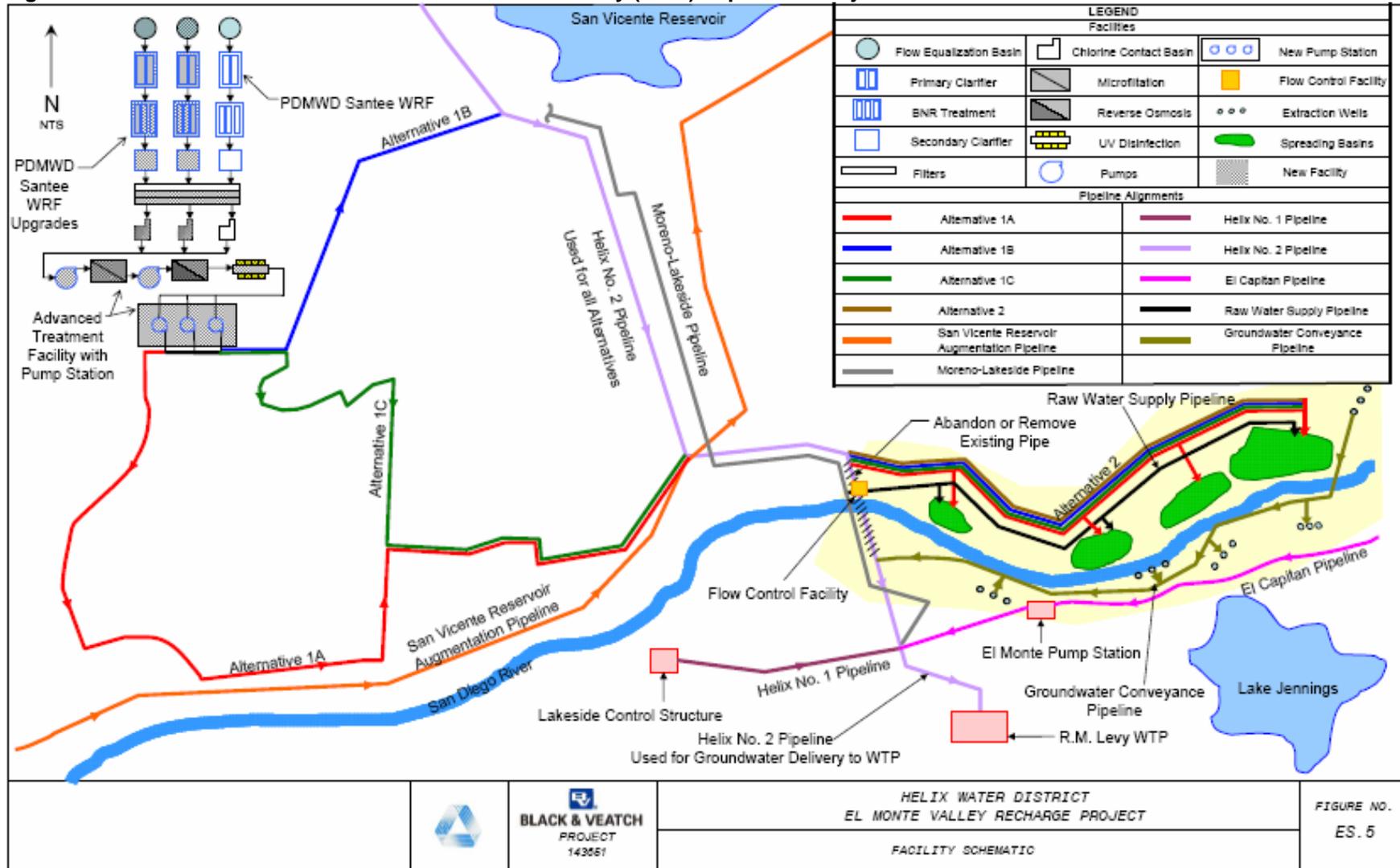
Subtask 4G.2 – Preparation of PAEP: This subtask includes preparation of a PAEP, monitoring and assessment of project implementation, overall project administration, and preparation of quarterly status reports and a final status report.

Subtask 4G.3 – Effectiveness Monitoring: This subtask includes work required to implement the recommendations made to determine project performance.

Project Maps

Figure 4.1 presents the location of the Santee Water Reclamation Facility Expansion Project.

Figure 4.1 Location of Santee Water Reclamation Facility (WRF) Expansion Project



Project Standards

Standard specifications normally employed for construction of Public Facilities will be used in the construction documents for the treatment plant expansion. The contractor will be required to follow all regulations for safety as required by the Occupational Safety and Health Administration (OSHA).

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 4G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting. A QAPP will also be prepared (Subtask 4.G.1).

Land Acquisition & Rights-of-Way

No land acquisition is needed for the expansion of the WRF.

Project Building Materials or Computational Methods

Standard specifications normally employed for construction of public facilities will be used in the construction documents for the treatment plant expansion. The contractor will be required to follow all regulations for safety as required by OSHA.

The use of membrane bioreactors for the expansion will reduce the footprint of the ultimate 10 MGD treatment plant such that the 10 MGD facility will be contained within the existing District property boundary. This will limit the environmental impact to the surrounding area. All materials utilized for the expansion project will be of the highest quality obtainable by competitive bidding practices. All equipment proposed for the expansion is commonly used in wastewater treatment projects, thus ensuring the success of the treatment process to meet project water quality goals.

Project Permits

Table 4.1 displays the necessary permits and status of securing these permits.

Table 4.1: Permitting Requirements for the Santee Water Reclamation Facility Expansion Project

PERMIT	SCHEDULE
City of Santee Conditional Use Permit (CUP) ¹	June 2008
RWQCB NPDES Permit ²	June 2008

Notes:

1. The Water Reclamation Facility (WRF) currently operates under a City of Santee Conditional Use Permit (CUP). Padre Dam MWD plans to submit an application for amendment for expansion of the WRF to accommodate a 4 million gallon per day treatment facility.
2. RWQCB NPDES Permit #CA0107492 – Padre Dam plans to submit a formal application for a new NPDES permit for the expansion of WRF to a 4 million gallon per day treatment facility which will include an increase in allowance for discharge to the Sycamore Creek.

Environmental Compliance

Design and construction of the WRF expansion and the operation of the expanded plant will be in full compliance with Title 22 and Title 17 of the California Water Code, and the water quality and discharge requirements of Padre Dam MWD's NPDES permit. Expanding the WRF from 2 to 4 MGD under Phase 2 will require a revised NPDES permit along with preparation of the appropriate environmental documents that will meet NEPA and CEQA requirements. The application for the revised NPDES permit and completion of environmental documents for Phase 2 construction work is planned for June 2008.

Phase 3 construction will require a revised NPDES permit to expand the WRF from 4 to 10 MGD along with preparation of the appropriate environmental documents that will meet NEPA and CEQA

requirements. The approval of the revised NPDES permit and environmental documents for Phase 3 construction work is planned for December 2009.

Compliance with local, county, State, and federal permitting requirements will be accomplished through direct application for construction permits with local and county agencies, and NEPA/CEQA documentation. This project is currently in the planning stage. The environmental documentation process will begin in January 2008, and a MND will be completed by June 2008. Table 4.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements.

Table 4.2: Environmental Compliance Requirements for the Santee Water Reclamation Facility Expansion Project

PROCESS	SCHEDULE
CEQA Initial Study/MND	Jan 2008 – June 2008
NEPA Requirements	Jan 2008 – June 2008

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 4.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 4.3: Project Submittals for the Santee Water Reclamation Facility Expansion Project

No.	SUBMITTAL	SCHEDULE
4-1	Progress Reports (Design)	Quarterly
4-2	LISA Grant Study for Expansion to 4.0 and 10.0 MGD	March 2008
4-3	Environmental Documentation (MND)	June 2008
4-4	Design Plans for 4.0 MGD Expansion	December 2008
4-5	Award of Construction Contract	February 2009
4-6	Progress Reports (Construction)	Quarterly
4-7	Notice of Completion for 4.0 MGD Construction Contract	December 2010

Other

Not applicable

Plans & Specifications References

Plans and specifications to be followed during project implementation include:

- Preliminary Design and Final Design plans and specifications will be developed

Completed Work

Work completed to date is summarized in the table below.

Table 4.4: Work Completed on the Santee WRF Expansion Project as of December, 2008

WORK ELEMENT	COMPLETION DATE
Feasibility study for increasing WRF treatment capacity from 2 MGD to 4 MGD.	March 2006
Feasibility study to increase WRF treatment capacity to 10 MGD, and configure 4 MGD and 10 MGD expansions to accommodate advanced treatment upgrade.	March 2008

Work Item #5: Recycled Water Retrofit Assistance Program

Implementing Agency

San Diego County Water Authority

Project Description

The Recycled Water Retrofit Assistance Program will provide direct financial assistance to homeowners’ associations, public agencies, and other customer types to facilitate the conversion from potable to recycled water for landscape irrigation and other uses. The project will reimburse all or a portion of the reasonable costs incurred by customers for retrofit work reviewed and approved by member agencies. The project will target approximately 40 sites throughout the Water Authority service area which will allow approximately 2,000 AFY of additional recycled water to be used. The Water Authority’s ultimate goal is to promote the development and use of recycled water capable of supplying 5% of the Region’s water demand by 2011.



Recycled Water Pipeline

Grant amounts will be determined as \$2,500 per irrigated acre (not to exceed \$50,000 per retrofit site/20 irrigated acres maximum per site). Once approval for customer retrofit has been given, the Water Authority, in conjunction with the member agency representative, will authorize an initial grant payment to the member agency for the Water Authority’s share of the retrofit costs. At the discretion of the member agency, their portion of the initial retrofit costs will also be issued, via issuance of a check to the participating customer. It is estimated that approximately 40 individual sites located throughout San Diego County will be retrofitted. Over 50 willing customers have been identified for the program. These sites consist of parks, residential areas, homeowner’s associations (HOAs), highway medians and a power plant. Participants would include cities, school districts, Caltrans, botanical gardens, University of California San Diego and golf courses.

Customer participation in the retrofit assistance program will be guided by the following factors:

- Ability of potential project participants to provide at least 25% in matching funds per retrofit site
- Projected savings per retrofit site
- Submittal of comprehensive written cost estimates

Member (or participating) Agency responsibilities include:

- Identify customer sites that are ready to proceed with retrofit work based on completed retrofit plans and/or obtainment of regulatory approvals.
- Provide at least 25% in matching funds per retrofit site (in-kind services will not count towards the required 25% match). A participating agency may elect to cover the customer’s portion of the project costs.
- Issue the initial and final check directly to the customer once Water Authority approval and funding has been issued and authorized.

- Conduct inspections of retrofit work to ensure it was completed in accordance with plans and specifications.

Water Authority responsibilities include:

- Provide overall project coordination and grant funding management.
- Assist in the selection of potential project participants.
- Award up to 50% in grant funding per retrofit site (construction), not to exceed \$50,000 per retrofit site.
- Reimburse customer 50% of the grant funding award (up to \$25,000) upon plan completion, and remaining 50% upon project completion (up to \$25,000).

Working in conjunction with its member agencies, the Water Authority will serve as the Project Manager as it relates to the operation of the Project. At least eight of the Water Authority's member agencies have expressed interest in participating in this Project. This cooperation among the project participants will result in a fully integrated, regional project that minimizes operation costs and staffing requirements.

Providing customer retrofit assistance is included in many of the member agencies' regional recycled Water Master Plans and is referenced in the Water Authority's 2010 Business Plan and the Water Authority's 2005 Urban Water Management Plan as a Management Strategy to "Develop new Water Authority funding mechanisms to maximize recycling programs".

Need for the Project

Customer on-site retrofits represent the final implementation barrier to customer use of recycled water. Facilitating the implementation of retrofits offers immediate benefits as recycled water can then be used immediately following completion and connection to recycled water distribution lines. Retrofits may represent a small fraction of the overall infrastructure cost for treatment and delivery of recycled water, but are the main cost borne by the customer. Customer financial barriers presented by retrofitting a site can thus effectively prohibit the delivery of recycled water. Retrofits involve installing necessary equipment and conducting tests to minimize the chances for the unintended use and contact with recycled water. The cost of an average retrofit can vary widely from \$10,000 to \$100,000 per site. Because of these high costs, many potential recycled customers that would welcome the use of recycled water find the initial retrofit costs too prohibitive to make the initial investment worthwhile. Although 16 of the Water Authority's 24 member agencies are currently involved in some level of water recycling and have mandatory use ordinances, the issue still remains that if potential customers are unable to connect to a recycled water system due to cost considerations, the production and distribution costs associated with recycled water will be wasted.

Eligibility

The Recycled Water Retrofit Assistance Program is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*

- (i) *Watershed management planning and implementation.*
- (j) *Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Sections 79561(a) and (g), the program is an eligible project type because it implements water reclamation, and can be considered a water supply reliability and water use efficiency project.

Work Tasks

Task 5A. Direct Project Administration

Subtask 5A.1 – Project Administration: Provide overall project coordination and grant funding management. Participating agencies will be responsible for Identifying customer sites that are ready to proceed with retrofit work based on completed retrofit plans and/or obtainment of regulatory approvals.

Task 5B. Land Purchase/Easement

Not applicable

Task 5C. Planning/Design/Engineering/Environmental Documentation

Subtask 5C.1 – Assist in Identification and Selection of Potential Project Participants: This subtask involves providing assistance to member agencies in selecting the project participants. Member agencies have already identified 50 potential recycle water retrofit customers based on considerations of acreage, readiness and proximity to recycled water distribution lines. Member agencies are expected to conduct additional research to refine the list, contact customers, obtain additional information and select the participants.

Task 5D. Construction/Implementation

Subtask 5D.1 – Retrofit Reimbursements: This subtask consists of the agreements with participating member agencies to award selected customers up to \$2,500 per irrigated acre (not to exceed \$50,000 per retrofit site/20 irrigated acres maximum per site). Member agencies will be responsible for ensuring that the retrofit work is done in accordance with required standards necessary to deliver recycled water. Retrofit work that will be reimbursed can include, but is not limited to: preparation of as-built drawings of the irrigation system, replacement of hose bibs by quick couplers, erection of signage indicating recycled water use, tagging and labeling of irrigation control equipment and valves. For residential customers that have dual-plumbed systems, the installation of backflow prevention devices will be necessary. Irrigation systems may require modifications, including the use of timers to reduce overspray and runoff.

Task 5E. Environmental Compliance/Mitigation/Enhancement

Not applicable

Task 5F. Construction Administration

Not applicable

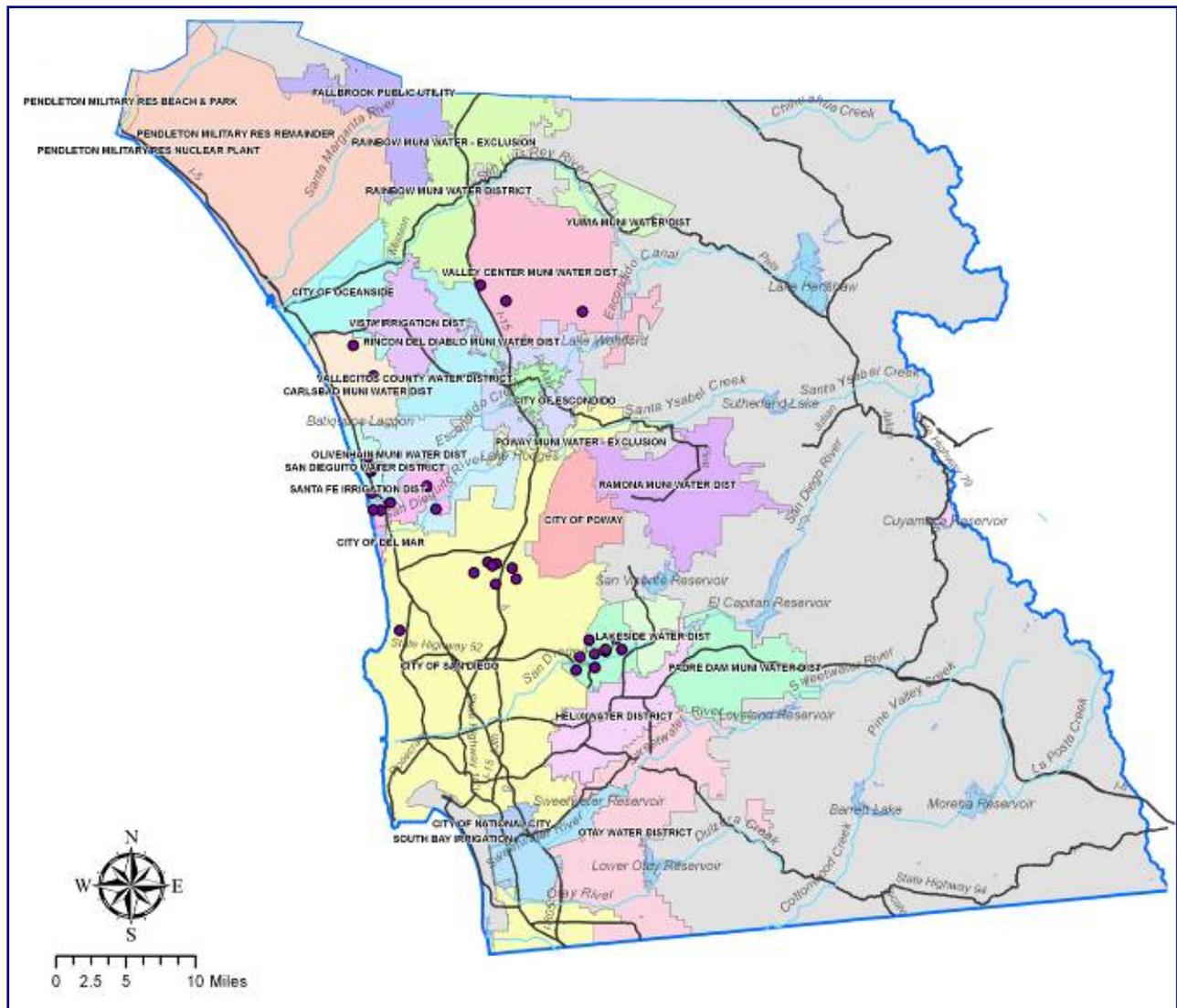
Task 5G. Other Costs

Subtask 5G.1 – Preparation of PAEP: This subtask includes preparation of a PAEP, monitoring and assessment of project implementation, overall project administration, and preparation of quarterly status reports and a final status report.

Project Maps

This project will be implemented throughout the Water Authority's service area. Figure 5.1 presents a map of the Water Authority's member agencies and provides the locations of potential participants in the program.

Figure 5.1 Location of Recycled Water Retrofit Assistance Program



Project Standards

Standards that apply to retrofitting sites for the delivery of recycled water include the use of purple pipe and markings, proper tagging of valves, appropriate signage, cross-connection testing, and maintaining adequate separation or barriers between potable and non-potable use areas. Participating member agencies will conduct inspections or retrofit work to ensure that it was completed in accordance with plans and specifications and that all proper checks and testing has been conducted.

All other applicable and appropriate water quality, building, laboratory analysis, and construction standards will be used in implementing the project. These standards will be initially identified in the preliminary design phase, and further documented during final design in the construction plans and specifications for each retrofit site. The construction contract documents will contain a detailed description of all applicable standards. The specific standards, construction standards, health and safety standards, laboratory analysis, and accepted classifications methods to be used in implementation will be contained in the contract drawings and specifications developed for the retrofit sites.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 5G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Typical materials that are installed to retrofit sites include quick couplers which are used to replace hose bibs, tags for labeling of valve boxes and irrigation control equipment, barriers to separate potable and non-potable use areas, backflow prevention devices and automated time clocks to prevent overspray and runoff.

Project Permits

Table 5.1 displays the necessary permits and status of securing these permits.

Table 5.1: Permitting Requirements for the Recycled Water Retrofit Assistance Program

PERMIT	DATE REQUIRED
Municipal Discharge permit	To be issued prior to the initiation of retrofit work at each site begins.
Dept. of Environmental Health Plan Check Approval	Issued immediately before retrofit work at each site commences.
On-site Cross Connection Control Inspection	Conducted immediately after retrofit work at each site is completed.

Environmental Compliance

It is anticipated that all project participants will comply with all applicable regulatory mandates required to accept and use recycled water.

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 5.2 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 5.2: Project Submittals for the Recycled Water Retrofit Assistance Program

No.	SUBMITTAL	SCHEDULE
5-1	Construction progress reports will be required to be submitted and will be forwarded.	Bi-monthly
5-2	Quarterly progress reports will be submitted on the progress of the project. Quarterly progress reports will include a listing of new sites that will be retrofitted and status updates for sites that have already begun the retrofit progress.	Quarterly
5-3	Final Report. A final report will be submitted upon project completion which will provide a list of all sites retrofitted as well as an assessment of project success and evaluation of future potential for a similar program.	At the end of the project

Other

Not applicable

Plans & Specifications References

Not applicable

Completed Work

Work completed to date is summarized in Table 5.3 below.

Table 5.3: Work Completed on the Recycled Water Retrofit Assistance Program as of July, 2008

WORK ELEMENT	COMPLETION DATE
Issue Letters of Intent for Use of Reclaimed Water to potential customers	February 2008
Conduct stakeholder outreach and confirm customer commitment to project.	February 2008
Identify and begin to collect site-specific customer information.	December 2007
Collect and review irrigation system schematics (if none are available, begin to conduct on-site surveys involving irrigation system checks and mapping).	April 2007

Work Item #6: City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation Project

Implementing Agency

City of San Diego

Project Description

The City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation project is a three-part effort. Part 1 will install 18,000 feet of new recycled water pipe to distribute 1,500 AFY of recycled water to irrigate community open spaces, medians, slopes, and the State Route 56 (SR-56) freeway - all located in the northern portion of the City of San Diego. Part 2 will extend the existing recycled water distribution system to selected City



of San Diego parklands and retrofit irrigation systems at these parklands to use recycled water, creating an additional 209 AFY recycled water demand. The City has committed to beneficially reuse 50% of the flows from its North City Water Reclamation Plant by 2010. By distributing recycled water and creating demand, this project moves the City substantially toward that goal. Using recycled water reduces imported water demand and increases local water supply, and results in less wastewater to be treated and the discharged into the ocean. Part 3 of the project will project will implement Phase 2 of a three-phase indirect potable reuse and reservoir augmentation (IPR/RA) program that – on completion of Phase 3 - will create 12,000 acre-feet per year (AFY) of new potable water supply for the City of San Diego (City) from tertiary treated wastewater. Phase 2 of the project, which will be completed as part of this project, will include building, operating, and testing a 0.3 million gallons per day (mgd) demonstration-scale advanced water treatment plant (D-AWT) at the North City Water Reclamation Plant (NCWRP); conducting a limnology study of San Vicente Reservoir (Reservoir) to assure adequate hydraulic characteristics; and defining the regulatory requirements for IPR/RA.

Since 1963, the City of San Diego (City) has treated its wastewater at the Point Loma Wastewater Treatment Plant, which provides advanced primary treatment before disposal in an ocean outfall. In 1972, the federal Clean Water Act (CWA) was adopted requiring that wastewater plants provide a minimum of secondary treatment. The City applied for a waiver from this federal requirement, and as part of this waiver, committed to implement a water reclamation program that would create a system capacity of 45 MGD by 2010. With assistance of a grant from the EPA, the City constructed the North City Water Reclamation Plant (NCWRP). As a condition of this grant, the City committed to beneficially reuse 50% of the flows treated at the NCWRP by December 2010.

In order to meet the EPA goal and maximize the utilization of recycled water produced at the NCWRP, the City developed a Recycled Water Master Plan. The Master Plan is divided into three phases: Phase I consists of retrofits to parklands and construction of transmission mains for parks in close proximity to existing recycled water lines and will increase recycled water usage to a maximum of 0.8 MGD. Phase II has begun construction (with portions completed through developer and Caltrans participation agreements) and although the area is rapidly being developed, conditions have been imposed requiring recycled water be used for landscaping (all infrastructure needs to be funded by the developer). With more than 16,000 feet of pipeline already in the ground, the City needs to construct the remaining portions of Phase II in order to supply water to the new development and to Caltrans; Phase III is in planning phase.

This project will implement portions of Phase I and Phase II. Part 1 of this project would install 18,000 linear feet of 8-inch to 24-inch diameter pipe to allow connection with the already constructed distribution system to allow the delivery of recycled water to the new developments and other sites that include parks, community areas, roadway medians, slopes and the SR-56 freeway. Part 2 of this project will implement

the on-site infrastructure portion of Phase I that includes constructing the necessary retrofits to irrigation systems at parks located north of Miramar Reservoir to allow the delivery of recycled water.

Need for the Project

Recycled water and its distribution can provide significant benefits to the San Diego Region. Using recycled water offsets potable water usage, reducing reliance on imported water and increasing local water supply through an alternative water source for meeting non-potable water demands. In addition to adding a critical water supply, wastewater management is an important benefit. Expanding recycled water use reduces the amount of wastewater treated at the Point Loma Wastewater Treatment Plant and eventually discharged into the ocean. In addition to the overall project benefit of increased water supply and decreased dependence on imported water, this project will provide a concrete plan to implement delivery of recycled water. The City of San Diego has been conditioning developers to include recycled water pipelines for irrigation purposes. In addition, a segment of these pipelines is the core of the distribution system which will deliver recycled water to SR-56 and developed areas.

Eligibility

The City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation Project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Sections 79561(a) and (g), the program is an eligible project type because it implements water reclamation, and can be considered a water supply reliability and water use efficiency project. Through development of the D-AWT, it also meets the criteria for 79561(j) by demonstrating the efficacy of new drinking water treatment methods.

Work Tasks

Task 6A. Direct Project Administration

Subtask 6A.1 – Project Administration: This subtask includes administration of the D-AWT implementation project and limnology study, consultant selection, and contract management.

Task 6B. Land Purchase/Easement

Not applicable

Task 6C. Planning/Design/Engineering/Environmental Documentation

Subtask 6C.1 – Advanced Water Treatment Demonstration Plant Design: This subtask includes design of the D-AWT, development of a testing program for the AWT process [program for sampling schedule, analyses, data management and reporting.

Subtask 6C.2 –Limnology Study: This subtask involves:

- Establishing a five-member Limnology Technical Advisory Committee [LimnoTAC] consisting of one staff and four limnologist from other water agencies or academia;
- Conducting up to four meetings of the the LimnoTAC [kickoff, model conditions, draft report, final report];
- Developing and calibrating a three-dimensional hydrodynamic physical model using ELCOM for temperature, salinity, and hypothetical tracer; calibrate with five year data set from San Vicente Reservoir;
- Developing and calibrating a three-dimensional hydrodynamic biochemical model using CAEDYM for nitrogen, phosphorous, TOC, algal productivity and calibrating with five year data set from San Vicente Reservoir;
- Establishing assumptions and conditions for twelve modeling runs, based on guidance of Limnology TAC;
- Performing twelve model runs of linkked ELCOM / CAEDYM models;
- Preparing a draft limnology report and circulating for comments;
- Incorporating comments and preparing final limnology report

Subtask 6C.3 –Conveyance Pipeline: This task will involve the conceptual design and layout of the conveyance pipeline from the AWT to San Vicente Reervoir, determining the location of discharge at San Vicente Reservoir; and determining the residence time and decay of disinfectant residual along the pipeline.

Subtask 6C.4 –Regulatory Coordination: This task includes the following work items:

- Refine Overall Regulatory Strategy (including source control, multiple barriers, operational strategies, monitoring/response plan)
- Conduct Source Control Assessment (review NCWRP influent/effluent data and industrial source database; develop preliminary source control plan)
- Organize/facilitate meetings with Regulators (includes presentations and materials preparation)
- Prepare supporting documentation (complementary IPR studies/research results)
- Organize Independent Advisory Panel (industry experts acceptable to DPH, RWQCB) and conduct Independent Advisory Panel workshop
- Refine Monitoring/Response Plan (NCWRP, AWT, conveyance pipeline outlet)
- Conveyance System Disinfection Analysis (refine disinfection strategies and associated disinfection credit)

Task 6D. Construction/Implementation

Subtask 6D.1 – General Items: This subtask includes contractor cost to get equipment on and off site area, trailer rentals, and temporary connection to utilities such as water and electricity, dust control cost, site cleanup and street sweeping. Field orders are also included here,

Subtask 6D.2 – Miscellaneous Sitework: Items included under this subtask are: demolition of pavement, walks, ramps and curves, sawcut, construction debris disposal, slurry seal, erosion control, hydroseed, potholing, borings, and traffic control.

Subtask 6D.3 – Pipeline and Accessories: This subtask includes excavation for the 24 inch and 8 inch pipe, trench shoring, pipe bedding, trench backfill and compaction, 24 inch and 8 inch polyvinyl chloride (PVC) pipeline, 24inch butterfly valves with bypass, pipe bends, blind flanges, end caps, blow offs, air

release valves, manhole frames and concrete bases, precast concrete manholes and testing and disinfection to name a few.

Subtask 6D.4 – Design Build for Retrofit Projects: Retrofit at the parklands sites will be accomplished on a design-build basis through a qualified contractor who will perform design and subsequent construction. The design-build approach is efficient and will expedite the completion of retrofit work to allow sites to receive recycled water. The selected contractor will retrofit the projects based on City of San Diego, County of San Diego and California Department of Public Health (DPH) recycled water guidelines. This subtask includes inspection and required testing by City and County of San Diego staff.

Subtask 6D.5 – AWT Demonstration Plant Construction & Operation: Procure, fabricate, and install AWT Demonstration Plant equipment, including site preparation. Operate the AWT Demonstration Plant for twelve months, including labor, energy, and expendables. Conduct monitoring and testing of AWT Demonstration Plant, including sample collection, laboratory analyses, data management and reporting, and data archiving. Prepare draft AWT Demonstration Plant report, circulate for comments, incorporate comments and prepare final AWT Demonstration Plant report.

Task 6E. Environmental Compliance/Mitigation/Enhancement

A programmatic EIR was completed for North City Distribution on November 12, 2002.

Task 6F. Construction Administration

Subtask 6F.1 – Construction Management: This subtask includes oversight of construction.

Subtask 6F.2 – Construction Engineering In-House: This subtask includes all engineering necessary for construction that will be conducted by City of San Diego staff.

Task 6G. Other Costs

Subtask 6G.1 – Payments and Performance Bonds: This represents the cost of maintaining a payment/performance bond which is based on City of San Diego standard specifications for every project. A payment/performance bond will be secured for not less than fifty percent of the contract price to satisfy claims of material suppliers, mechanics and laborers employed on the Project. The bond is maintained by the contractor in full force and effect until the work is accepted by the City of San Diego and all claims for materials and labor are paid, and otherwise comply with the Government Code and Public Contract Code

Subtask 6G.2 – Preparation of PAEP: This subtask includes preparation of a PAEP, monitoring and assessment of project implementation, overall project administration, and preparation of quarterly status reports and a final status report.

Subtask 6G.3 – Effectiveness Monitoring: This subtask includes the short term monitoring of the recycled water retrofit sites to ensure that components are working correctly.

Subtask 6G.4 – Final IPR / RA Project Report: This subtask includes the includes technical writing and editing, graphics, review, and publication of the final IPR / RA project report.

Project Maps

Figures 6.1 and 6.2 present the location of Parts 1 and 2, respectively, of the City of San Diego Recycled Water Distribution System Expansion and Parklands Retrofit Project.

Figure 6.1 Location of City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation project

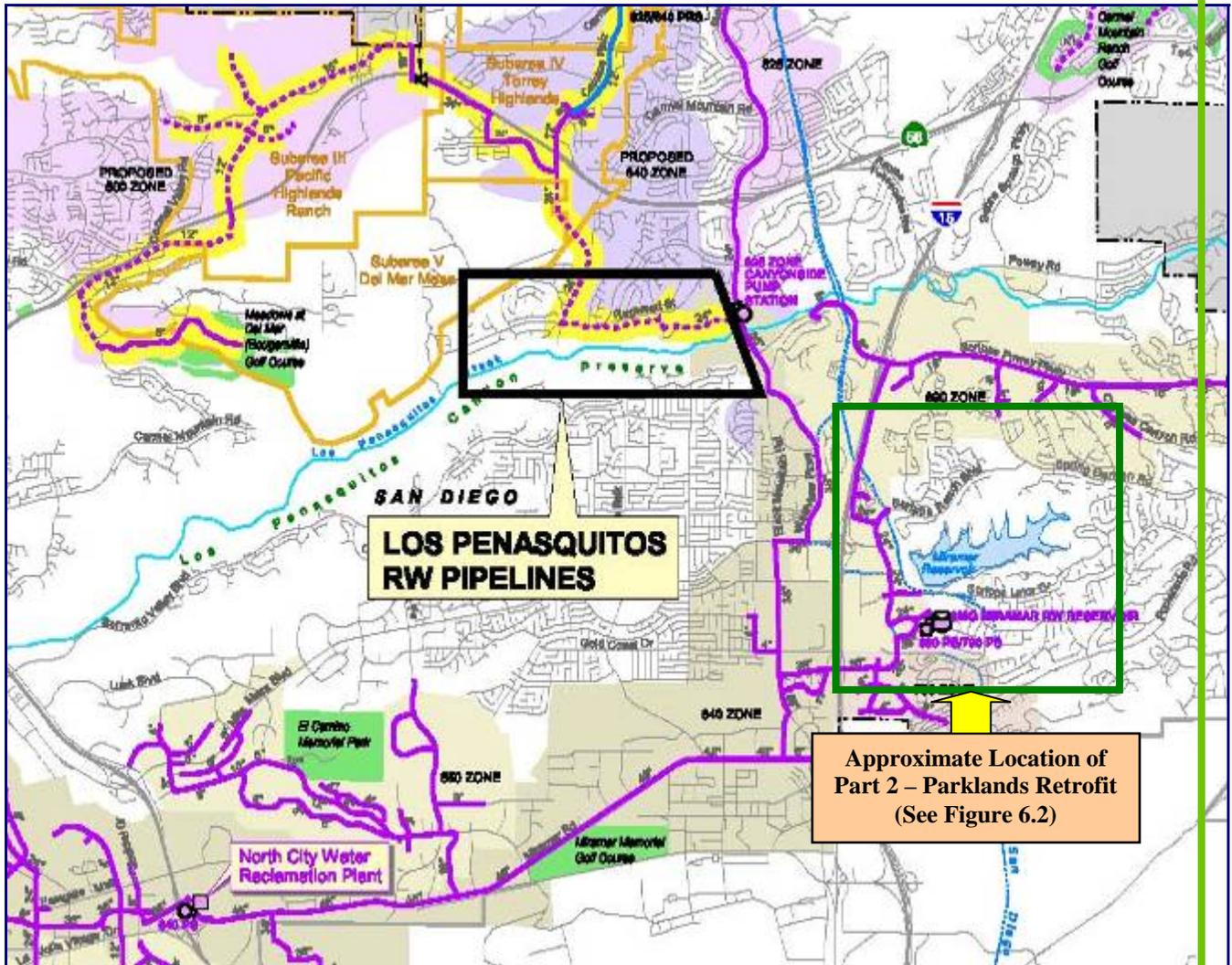
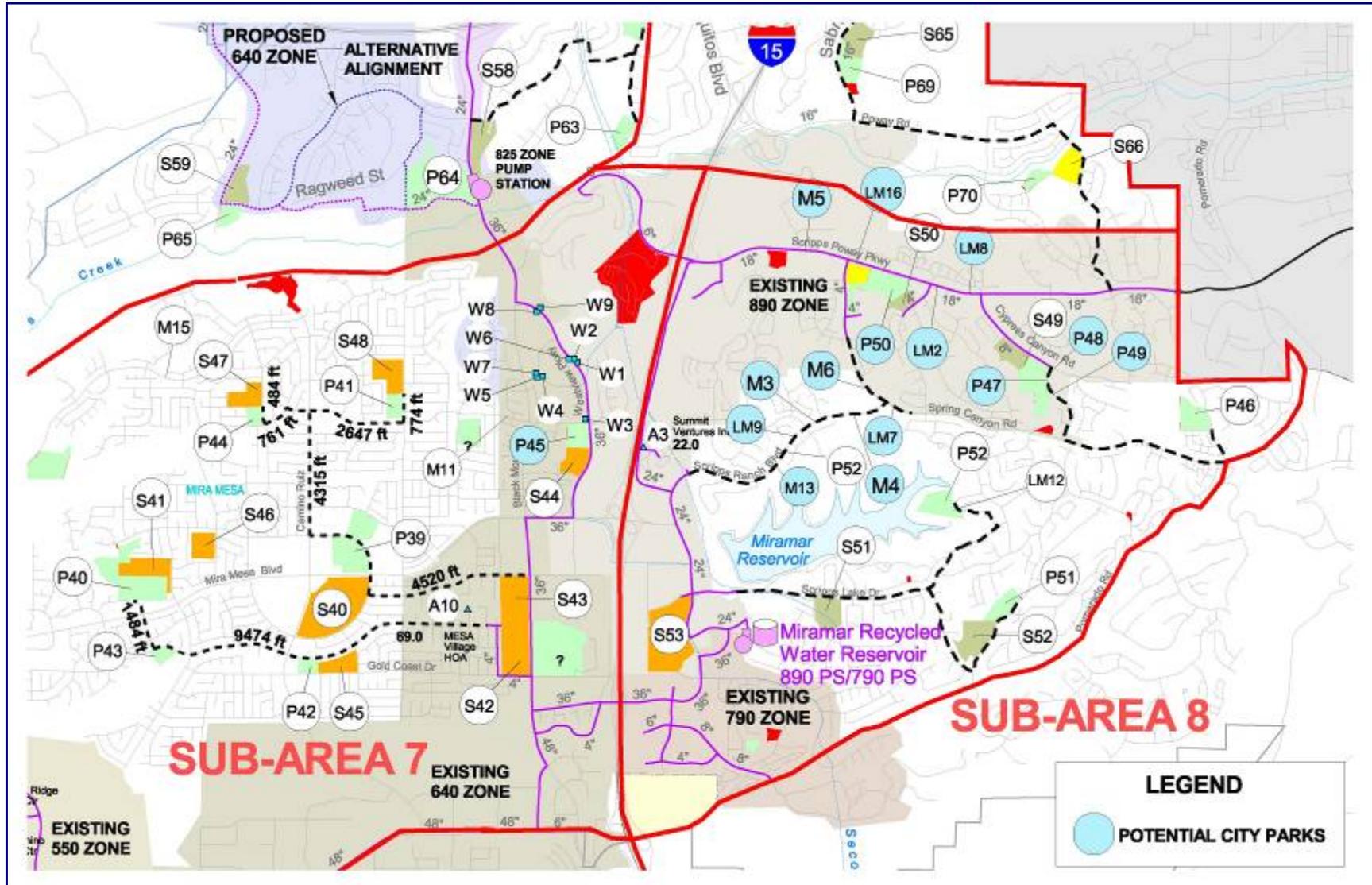


Figure 6.2 Location of City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation project



Project Standards

All applicable and appropriate water quality, building, and construction standards have been and will be used in implementing the project. These standards are initially identified in the preliminary design phase, and further documented during final design in the construction plans and specifications. The construction contract documents contain a detailed description of all applicable standards. The specific standards, construction standards, health and safety standards, laboratory analysis, and accepted classifications methods to be used in implementation can be found in the attached contract drawings and specifications.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 4G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Standard specifications normally employed for construction of public facilities were used in developing the project plans and specifications.

Project Permits

Table 6.1: Permitting Requirements for the City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation project

PERMIT	DATE REQUIRED
Municipal Discharge permit	Prior to construction /implementation
On-site Cross Connection Control Inspection	Prior to full-scale delivery of recycled water at the site

Environmental Compliance

The Programmatic EIR was completed for North City Distribution on November 12, 2002. This document is provided in Appendix 3 (Disc 2 [DVD]).

Table 6.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements.

Table 6.2: Environmental Compliance Requirements for the City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation project

PROCESS	SCHEDULE
Programmatic EIR	Completed November 2002

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 6.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 6.3: Project Submittals for the City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation project

No.	SUBMITTAL	SCHEDULE
6-1	USBR Reports	Quarterly
6-2	Final Progress Report	December 2011
6-3	AWT Demonstration Plant draft report	9/30/10
6-4	AWT Demonstration Plant final report	12/31/10
6-5	Limnology Study draft report	10/31/09
6-6	Limnology Study final report	11/30/09
6-7	Final IPR / RA project report	12/31/10

Other

Not applicable

Plans & Specifications References

Plans and specifications to be followed during project implementation include:

- 100% Design Plans and Specs for the North City RW Distribution System Expansion are provided separately in hard copy.

Completed Work

Work completed to-date is summarized in Table 6.4 below.

Table 6.4: Work Completed on the City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation Project as of July, 2008

WORK ELEMENT	COMPLETION DATE
Design for Distribution Expansion System	May 2007

LOCAL SUPPLY PROTECTION AND DEVELOPMENT PROGRAM

Work Item #7: San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration

Implementing Agency

City of San Diego

Project description

The San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration project will acquire lands from willing sellers around San Vicente Reservoir for the purpose of creating an expanded drinking source water protection buffer. Concomitantly, the project will restore wildfire damage on the acquired lands. San Vicente Reservoir is being enlarged to nearly 200,000 AF as part of the Water Authority’s Emergency Storage Project. San Vicente is the keystone in the Region’s reservoir system, ultimately supplying water to nearly two million people. The buffer will provide high quality habitat and protect associated sensitive species. Lands more distant from the reservoir, but still within its watershed, will also be identified and acquired for the purpose of source water protection.



San Vicente Reservoir

The SDWD owns and manages approximately 2,600 acres within the San Vicente Reservoir watershed for the purpose of source water protection. It is anticipated that the acreage protected will be reduced as a result of the San Vicente Dam Raise project. The San Vicente Dam currently stands at 220 feet high. Through implementation of the San Vicente Dam Raise project, the dam will be raised 117 feet to increase the reservoir’s emergency and carryover storage capacity. The dam raise will increase the reservoir’s storage capacity from the current 90,000 AF to over 247,000 AF. Approximately 580 acres of source water protection buffer area will be lost when the reservoir is enlarged.

The total watershed area draining to San Vicente Reservoir is 75 square miles. Essentially all of the watershed (98%) was burned in the 2003 Cedar Wildfire, and some watersheds lands burned again in the 2007 Witch Creek Wildfire. All of the land in the existing and proposed source water protection buffer were burned in 2003. A component of this project would be to restore damage caused by the wildfires on the newly acquired lands.

The properties targeted for acquisition and restoration in this project immediately surround San Vicente Reservoir. The primary focus would be acquisition and restoration of land currently under private ownership in order to increase the land holdings intended to serve as source water protection. Acquisitions would be in fee title or as conservation easements. In compliance with DPH guidelines, the SDWD has established a 1000 foot source water protection buffer from the high waterline of the enlarged reservoir. Properties targeted for acquisition and restoration intersect that buffer. An important project element would be prioritization of parcels for acquisition and restoration based on a suite of factors including proximity to reservoir, slope, soils, vegetation type, erosion potential, burn severity, existing watershed functioning (intact or degraded), potential for post-fire recovery or restoration, risk of future development, risk of unauthorized activities or public access, and adjacency to other intact or degraded watershed lands.

A component of this project would be to restore damage caused by the recent wildfires on the newly-acquired lands. Recently burned watershed lands are especially vulnerable to degradation. Simple activities such as unauthorized access, off-road vehicles, and volunteer footpaths can lead to significant degradation of normal watershed functioning, including loss of vegetative cover, accelerated erosion, and generation of pollutants (notably nutrients) from eroded soil. In acquiring burned lands in the source

water protection buffer, the San Diego Water Department would engage in restoration of the burned lands by providing fencing, patrol, and enforcement.

Other post-acquisition activities would include development of appropriate management directives, control of invasive species, installation of fencing as needed to preclude unauthorized access, the establishment of buffers to preclude impacts associated with surrounding agricultural and urban land uses, and identification of areas where public access and recreational opportunities could be incorporated. Acquisition and restoration of these areas would also provide for preservation in perpetuity of biological resources of high value. It should be noted that the existing holdings of the Water Department in the watershed are designated as Cornerstone Lands in accordance with the City of San Diego MSCP. Cornerstone Lands are areas of recognized high biological value from a regional perspective and constitute the building blocks upon which the City of San Diego preserve was assembled. Any activities conducted as part of this project would be consistent with the City of San Diego and San Diego County MSCPs.

Need for the Project

Through implementation of the San Vicente Dam Raise project, the dam would be raised 117 feet to increase the reservoir's storage capacity. The acquisition and restoration of lands immediately around San Vicente Reservoir and within the watershed will provide an expanded source water protection buffer around the reservoir for the purpose of source water protection. Acquisition of this land would allow for post-fire recovery and restoration of lands burned in recent wildfires, as well as providing for preservation in perpetuity of biological resources of high value. Failure to implement the project would result in inadequate source water protection caused by an insufficient buffer zone on completion of the San Vicente Dam Raise project.

Eligibility

The San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(c), the program is an eligible project type because it involves the acquisition, protection, and restoration of watershed lands.

Work Tasks

Task 7A. Direct Project Administration

Subtask 7A.1 - General Oversight - Project Management: Project Manager will oversee and coordinate activities shared by Water Department and Real Estate Assets staff.

Task 7B. Land Purchase/Easement

Subtask 7B.1 – Priority List Development: This subtask will involve conducting two to three staff meetings to prioritize parcels targeted for potential acquisition and restoration. The first meeting would focus on defining areas that are most critical for acquisition and restoration. The objective of the second meeting would be to create a list of parcels according to their priority for acquisition and restoration, using the parameters previously set.

Subtask 7B.2 - Coordination with Real Estate Assets Property Manager: This subtask includes coordination and communications between staff in the Watershed and Resource Protection Section of the SDWD and the Real Estate Assets Property Manager (Property Manager). The staff would advise the Property Manager as to the priorities set for acquisition and restoration targets, based on the criteria described above. As contact is made with property owners, staff would revise or adjust the priority list depending upon feedback from the private owners. Subsequent to notification that a land owner is interested in selling, staff would advise water department management regarding the negotiations for sale and review the sales contract.

Subtask 7B.3 – Initial Contact with Landowner: The Property Manager would contact individual land owners via letter regarding the Water Department's general interest in acquiring land.

Subtask 7B.4 – Appraisal: Real Estate Assets staff would arrange to have appraisals generated for any parcel whose owner is interested in selling.

Subtask 7B.5 – Negotiation: Real Estate Assets staff would negotiate a final sale price for each parcel.

Subtask 7B.6 – Purchase: Real Estate Assets staff would prepare the contract for sale of each parcel when a final price is agreed to by both the City and the land owner. The contract would be taken to the City's Land Use and Housing Council Committee and to a City Council hearing for final approval.

Task 7C. Planning/Design/Engineering/Environmental Documentation

Not applicable

Task 7D. Construction/Implementation

Not applicable

Task 7E. Environmental Compliance/Mitigation/Enhancement

Not applicable

Task 7F. Construction Administration

Not applicable

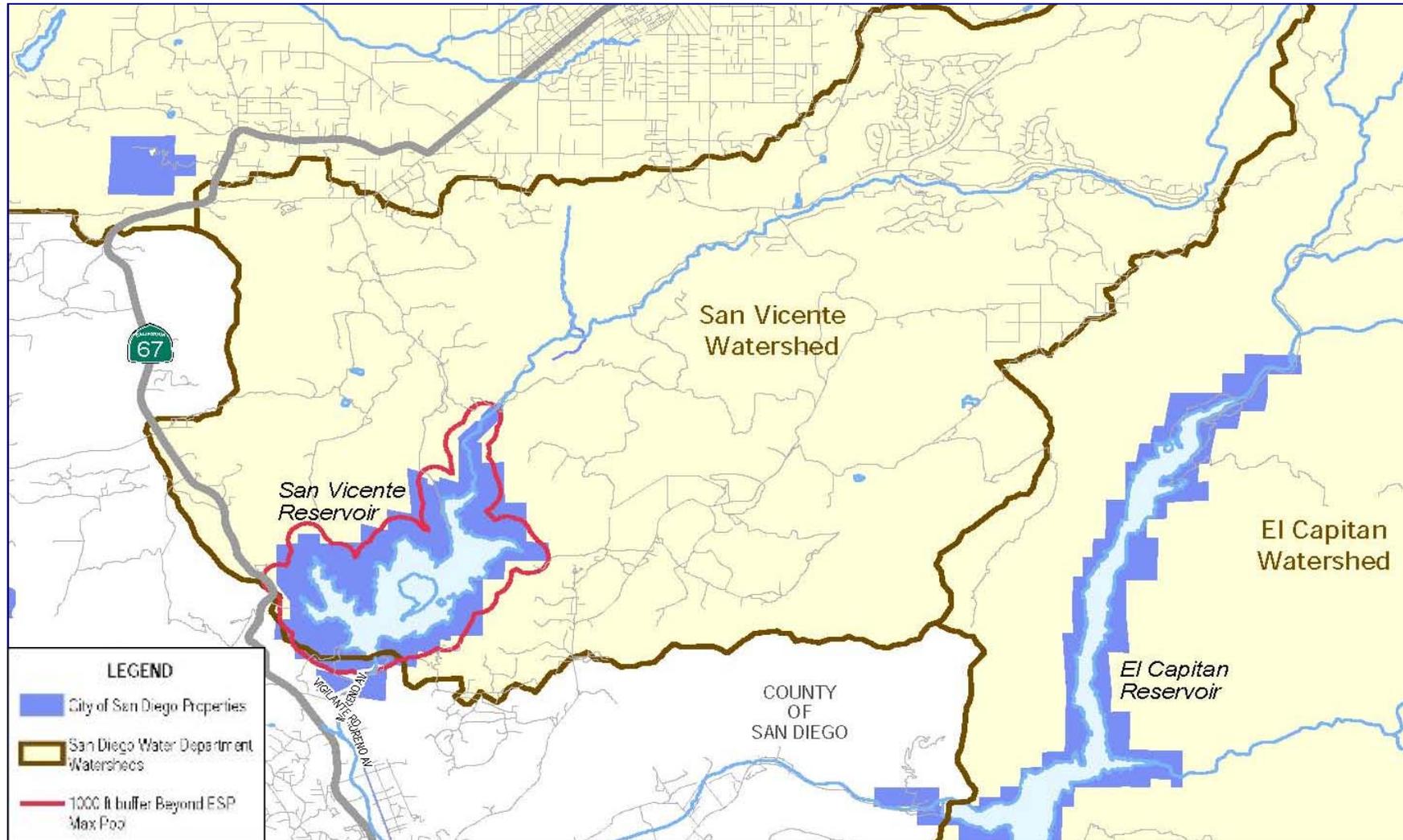
Task 7G. Other Costs

Subtask 7G.1 – Preparation of PAEP: This subtask includes preparation of a PAEP.

Project Maps

Figure 7.1 presents the location of the San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration Project.

Figure 7.1 Location of San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration



Project Standards

The SDWD is developing a Land Management Policy. This Policy will establish objectives and practices for the management of lands owned or controlled by the SDWD, including lands around San Vicente Reservoir. The Policy will be complete in 2008; i.e., prior to the acquisitions included in this project. Management of lands secured through this project would be conducted in accordance with the standards established in the SDWD Land Management Policy.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 7G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

Land Acquisition & Rights-of-Way

This project is a land acquisition and restoration project.

Project Building Materials or Computational Methods

Not applicable

Project Permits

Not applicable

Environmental Compliance

Not applicable as land acquisition is categorically exempt from CEQA pursuant to State CEQA Guidelines Section 15325 (Transfer of Ownership of Interest in Land to Preserve Open Space).

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 7.1 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 7.1: Project Submittals for the San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration

No.	SUBMITTAL	SCHEDULE
7-1	First Quarter Progress Report	September 2008
7-2	Second Quarter Progress Report	December 2008
7-3	Third Quarter Progress Report	March 2009
7-4	Final Report	July 2009

Other

Not applicable

Plans & Specifications References

Not applicable

Completed Work

Work completed to-date is summarized in Table 7.2 below.

Table 7.2: Work Completed on the San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration as of July 2008

WORK ELEMENT	COMPLETION DATE
In-house prioritization of parcels	June 2008

Work Item #8: El Capitan Reservoir Watershed Acquisition and Restoration Program

Implementing Agency

San Diego River Park Foundation

Project Description

The El Capitan Reservoir Watershed Acquisition and Restoration Program will acquire two to three properties from willing sellers representing approximately 120 acres of targeted vacant undeveloped lands upstream and in the immediate vicinity of the El Capitan Reservoir and will complete restoration activities necessary to return these lands to their natural landform. The owners of these properties have already indicated their willingness to sell. These purchases would help



to bring the last pieces of privately owned property at the reservoir high water mark into public ownership. The project will protect source water quality at the reservoir by reducing the potential for non-point source pollution from development, removing trash and other sources of pollution present on the lands. The project will also maintain a biologically significant wildlife corridor and preserve habitat.

Need for the Project

The acquisition and restoration of these critical lands will prevent potential development of three important properties for the protection of the San Diego River Watershed's El Capitan Reservoir. One property located at the high water mark for the reservoir is the only remaining property of its kind that is not publicly owned. The acquisition and restoration of this property will contribute significantly to the protection of El Capitan Reservoir, the largest in San Diego County. It also enables the creation of a buffer around the Reservoir for future emergency storage needs, water quality protection, recreational access, as well as fire protection, a significant threat to water quality. The remaining two properties are private inholdings located near the Reservoir and within the Cleveland National Forest. As private inholdings, development would require the National Forest Service to allow for the construction of access roads to serve the properties. This construction would further contribute to the development of lands near to the Reservoir. The San Diego River Watershed Management Plan concludes that, from the perspective of drinking source water, diffuse NPS from residential and commercial developments are the most significant sources of primary constituents of concern in the El Capitan Reservoir Management Area, necessitating the acquisition of properties adjacent or nearby the Reservoir for the purposes of water quality protection.

Additionally, the El Capitan Management Area and the Upper San Diego River are specifically identified as a critical wildlife corridor and an area of unique biological value. The acquisition of these three properties will serve to protect the critical coastal sage scrub, chaparral and riparian habitats which exist. The development of any of these properties would directly impact the viability of a recognized biologically significant area.

These lands are currently available for purchase. Anticipated purchase prices would be \$3000-\$4000 per acre. The long-term benefit of this expenditure of funds would be substantial for a relatively modest cost. As population levels continue to increase in San Diego, the provision of opportunities to enjoy and appreciate our open space areas and to minimize the visual experience of recreation users at El Capitan Reservoir and the Cleveland National Forest is also beneficial. This project is time-sensitive as these properties could be purchased for development.

Following acquisition, the lands will be permanently deeded to the San Diego River Park Foundation, a 501c3 nonprofit organization. The San Diego River Park Foundation's mission includes the protection and restoration of lands in the San Diego River watershed:

The San Diego River Park Foundation is dedicated to creating the San Diego River Park.

As the only non-governmental organization dedicated to the entire length of the River, SDRPF plays the role of an umbrella organization for many other groups.

We work to support and empower these groups who are endeavoring to restore and enhance the San Diego River and its ecosystem, create trails and new community facilities, protect historical resources and to enhance the communities along the river.

The Foundation works to support important projects which will help to establish a river-long park while restoring and enhancing the river and its watershed, addressing flooding issues, providing greatly needed community facilities and opportunities to learn about our region's rich history, encouraging stewardship of the riparian environment, and improving the lives of those that live, work and play in the area.

We are a foundation of people, who have come together to create the River Park. As a 501c3 public benefit non-profit organization, we depend upon the generosity of the community to continue this effort.

We welcome and encourage everyone who is interested to join us in this effort. We invite you to enroll for our free monthly e-newsletter and if you see what you like, to support us with a donation of time, money, and your talents.

Consistent with the mission of the San Diego River Park Foundation, post-acquisition activities will include restoration of the acquired lands to their natural landform. The San Diego River Park Foundation will remove trash and other litter from the lands, install fencing to minimize access to the property, plant approximately 800 trees, and manage the property in a manner consistent with the Foundation's mission in perpetuity.

Eligibility

The El Capitan Reservoir Watershed Acquisition and Restoration Program is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*

- (g) *Water banking, exchange, reclamation, and improvement of water quality.*
- (h) *Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) *Watershed management planning and implementation.*
- (j) *Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(c), the El Capitan Reservoir Watershed Acquisition and Restoration Program is an eligible project type because it includes the acquisition, protection, and restoration of open space and watershed lands.

Work Tasks

Task 8A. Direct Project Administration

Subtask 8A.1 – Grant Agreement and Grant Administration: This subtask includes all activities necessary for managing the grant.

Subtask 8A.2 – Quarterly Reports and Invoicing: This subtask includes preparation of quarterly reports and the preparation and submission of invoices.

Subtask 8A.3 – Final Report Preparation and Filing: This subtask includes preparation of the final report, to include submission of the closing documents.

Task 8B. Land Purchase/Easement

Subtask 8B.1 – Negotiation with Landowners: This subtask includes the effort required to negotiate and reach agreement with the landowner on purchase terms.

Subtask 8B.2 – Appraisals: This subtask involves hiring an appropriate appraiser to meet State requirements and to submit the costs to the State for approval.

Subtask 8B.3 – Acquisition: This subtask is the final acquisition of the land.

Subtask 8B.4 – Trash and Litter Removal: This subtask involves the removal of trash and litter from the acquired lands.

Subtask 8B.5 – Tree Planting: This subtask includes planting of 800 trees on the acquired property.

Subtask 8B.6 – Recognition Signage Installation: This subtask involves the design, fabrication and installation of a sign that will conform with State requirements.

Task 8C. Planning/Design/Engineering/Environmental Documentation

Not applicable

Task 8D. Construction/Implementation

Not applicable

Task 8E. Environmental Compliance/Mitigation/Enhancement

Not applicable

Task 8F. Construction Administration

Not applicable

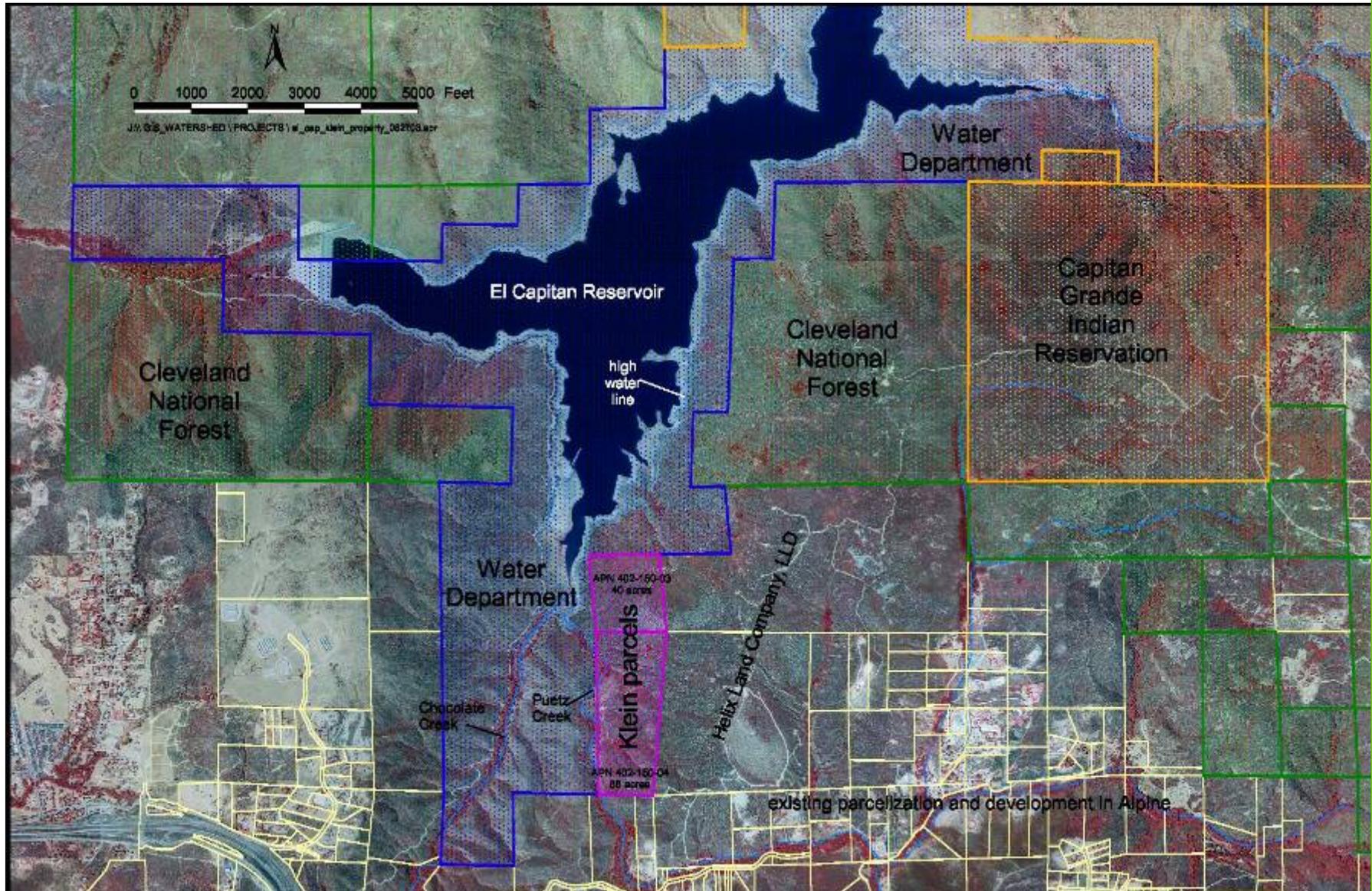
Task 8G. Other Costs

Subtask 8G.1 – Preparation of PAEP: This subtask includes preparation of a PAEP.

Project Maps

Figure 8.1 presents the location of the El Capitan Reservoir Watershed Acquisition and Restoration Program.

Figure 8.1 Location of El Capitan Reservoir Watershed Acquisition and Restoration Program



Project Standards

Standard San Diego River Park Foundation land management practices will be used for maintaining the property. A specific land management plan will be developed for any property acquired.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 8G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Not applicable

Project Permits

Not applicable

Environmental Compliance

Not applicable – Land acquisition projects are categorically exempt from CEQA.

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 8.1 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 8.1: Project Submittals for the El Capitan Reservoir Watershed Acquisition and Restoration Program

No.	SUBMITTAL	SCHEDULE
8-1	First Quarter Progress Report	September 2008
8-2	Second Quarter Progress Report	December 2008
8-3	Third Quarter Progress Report	March 2009
8-4	Fourth Quarter Progress Report	July 2009
8-5	Final Report	September 2009

Other

Not applicable

Plans & Specifications References

Not applicable

Completed Work

Work completed to date is summarized in Table 8.2 below.

Table 8.2: Work Completed on the El Capitan Reservoir Watershed Acquisition and Restoration Program as of July 2008

WORK ELEMENT	COMPLETION DATE
Negotiations with Land Owner	June 2008
Land Appraisal	June 2008

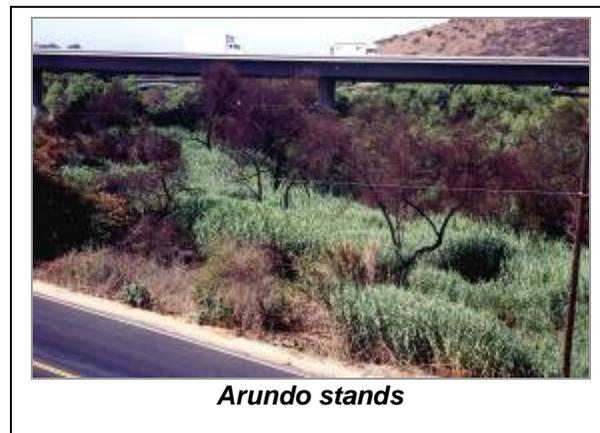
Work Item #9: Northern San Diego County Invasive Non-Native Species Control Program

Implementing Agency

Mission Resource Conservation District

Project Description

The Northern San Diego County Invasive Non-Native Species Control Program will eradicate 373.5 acres of targeted invasive non-native plant species throughout Northern San Diego County. It would protect and enhance habitat in the San Juan, Santa Margarita, San Luis Rey, Carlsbad and San Dieguito HUs, conserve water resources by increasing available groundwater, protect water delivery and storage systems by reducing flood risk and damage, improve water quality by reducing erosion through minimizing bank failures and normalizing sediment discharge processes, and reduce fire risk. Control of invasive species and native re-vegetation of riparian habitat would also benefit many federally endangered species in the area.



Arundo stands

The project will remove 185 acres of Arundo Donax (Arundo), also known as Giant Reed, 8.5 acres of pampas grass, (Cortaderia Selloana), 90 acres of pepper weed and 90 acres of tamarisk in the four identified HUs over a three year time period. In addition to removal of invasives, it will include replanting with native species and retreatment as necessary to ensure that chances for regrowth of invasives are minimized. Treatment will proceed within watersheds strategically and will be coordinated with other similar efforts in the Region. Extensive invasive non-native plant mapping has already been performed that will guide the removal areas targeted by this project, assuring that all areas are treated and allowing the implementation of a systematic regional approach towards invasives removal. This project will focus on those areas that have the highest potential benefit for water supply, water quality, fire risk and hydromodification reduction.

Several water storage reservoirs are located within the project area (Lake Hodges, Lake Turner, and Lake Wohlford). Dense stands of invasive non-native plants increase the risks of fire and erosion, which can lead to higher sedimentation into reservoirs, in turn degrading water quality and decreasing storage capacity. Removal of dense invasive non-native plants upstream of these reservoirs will lessen these risks.

This project is one component of a larger integrated invasive non-native plant control program that covers a 938,000-acre portion of northern San Diego County. The program has started at the top of the

watersheds and is progressing downstream. This assures long-term success by avoiding re-infestation from upstream sources. This program will contribute to the protection and enhancement of four major watersheds, conserve water resources by increasing available groundwater, protect water delivery and storage systems by reducing flood risk and damage, and improve water quality by reducing erosion and fire events.

Need for the Project

Invasive non-native plant species - particularly species that form dense monotypic stands such as Arundo and pampas grass - are causing catastrophic impacts to watersheds in the Region. Arundo and pampas grass stands degrade wetland ecosystems by displacing native vegetation and wildlife, impacting three federally endangered species – least Bell's vireo, southwestern willow flycatcher and the arroyo southwestern toad. Further degradation of riparian habitat threatens these species with severe population declines. Arundo and pampas grass not only crowd out native vegetation, but they change abiotic ecosystem processes such as erosion/sedimentation and fire regimes. Arundo and pampas grass have shallow root systems which do not hold banks and channel areas during high flow events. Dense stands of plants divert flows, undercutting banks and creating more erosion. Arundo and pampas grass stands block large portions of the stream profile, reducing the flow capacity of streams which results in over bank flows. These flood events can cause damage to infrastructure, such as water/sewage delivery & storage systems, roads, crossings, bridges, and maintenance access points. Flood events can also trigger wastewater discharge. Riparian systems where Arundo infestations have been removed performed significantly better during the winter 2004/05 storm events than areas where Arundo stands were still present.

From a water supply standpoint, the targeted invasive non-native plants Arundo, pampas grass, eucalyptus, tamarisk, and perennial pepperweed consume more water than native vegetation per acre, and they grow in large, dense monotypic stands, displacing native vegetation and filling open spaces in the habitat. Removal of these species will increase groundwater recharge, increase surface flows, and improve water quality by creating more favorable natural conditions for biofiltration. These changes will also help improve the beneficial use status of individual reaches that may have been impaired due to the infestations.

The critical need for this project is indicated by invasive plant control being cited as a top priority in all three watershed plans. Delay in treating the remaining invasive non-native plants within the four watershed units will not only allow continued expansion of infestations within the areas where they occur, but will also allow the plants to spread to new areas downstream of infected areas. This is of particular importance for areas that the project stakeholders are targeting for control: the Army Corps of Engineers (ACOE) which is controlling Arundo on the lower San Luis Rey, the Department of Defense (DoD) which is controlling Arundo on the lower Santa Margarita river, and CalTrans which will have numerous mitigation and enhancement sites. All of these areas will directly benefit from this project which includes targeting areas upstream of the other stakeholder areas, providing long-term benefit and reduced maintenance costs.

Eligibility

The Northern San Diego County Invasive Non-Native Species Control Program is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*

- (e) Groundwater recharge and management projects.
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.
- (g) Water banking, exchange, reclamation, and improvement of water quality.
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.
- (i) Watershed management planning and implementation.
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.

Consistent with Section 79561(c), the program is an eligible project type because it involves the removal of invasive non-native plants.

Work Tasks

Task 9A. Direct Project Administration

Subtask 9A.1 - Direct Project Administration: This subtask includes administrative activities needed to manage the project. It includes preparation and submission of quarterly progress reports and a final report.

Task 9B. Land Purchase/Easement

Not applicable

Task 9C. Planning/Design/Engineering/Environmental Documentation

Subtask 9C.1 – Planning and Environmental Documentation: This subtask involves completion of all permits required by the ACOE, RWQCB, California Department of Fish and Game (DFG), United States Fish and Wildlife Service (USFWS), and CEQA. The subtask will include coordination, reports, renewal of agreements, and regulatory processing fees. This includes maintenance of existing permits on Santa Margarita, San Luis Rey, San Dieguito Rivers and the Carlsbad HU, as well as obtaining new permits (preparation and regulatory fees) for expanded program areas and agreements that expire during the course of the project. Annual reporting and meetings- as specified under the permits, is also included under this subtask.

Task 9D. Construction/Implementation

Subtask 9D.1 – Landowner Outreach, Treatment Approval, Planning and Contractor Selection: This subtask involves conducting selection of the sites for removal using the preliminary inventory of invasive plant species and GIS to identify and prioritize parcels and work areas. The general strategy is to begin at the top of the watershed and work downstream to minimize potential re-infestations. Then priority is given to ecologically important areas such as riparian zones with large amounts of invasives. Outreach to landowners will be conducted, where appropriate. The timing of treatment will depend on the species being targeted, but usually occurs in fall, as the plants are preparing for winter dormancy. After planning is completed and parcels are designated for removal, a contractor selection process will be implemented.

Subtask 9D.2 – Herbicide Treatment: This subtask involves the treatment of invasives with herbicide. Stands of *Arundo* and pampas grass are sprayed with an aquatic formulation of glyphosate (Rodeo™ or Aquamaster™ herbicide). Both backpack sprayers and power sprayers are used depending upon the terrain. High efficiency occurs when over 80% of the plant's surface area is covered. Stands of *Arundo* are prepared for spraying by separating the invasive from the native vegetation, creating space between the stand of *Arundo* and non-target native vegetation.

Subtask 9D.3 – Biomass Reduction and Revegetation with Native Plantings: Biomass reduction will be conducted at least two and a half months after treatment. The biomass may be mowed, cut by hand or left to decay naturally – depending on the size of the patch and its location. Most large stands can be

reached by tractor with a flail mowing attachment. Care will be taken to avoid mowing any woody native vegetation. No mowing will occur in the low-flow channel or in areas with standing water. A layer of mulch will be laid down to aid in the re-vegetation by holding water and reducing the potential for competition with other non-native weedy species.

Replantation with native species will then proceed immediately in the mulch layer footprint. In general, *Arundo* stands larger than ¼ acre that have been mowed or cut by hand are replanted with native woody vegetation. Planting usually occurs between February and March to take advantage of expected rain patterns. All plants are grown by contract growers from materials collected within the program area. Sites located in the riparian corridor are planted with native riparian vegetation. Upland edges and drier portions of some sites are planted with more transitional/upland shrubs. Maintenance (watering and weeding) will be performed approximately every two months between March and September.

This program will involve a three year treatment regimen. Part of this subtask will involve returning to the areas that have been treated in prior years to conduct retreatment, where necessary. The Additional herbicide treatment will be conducted periodically to address *Arundo* re-sprouting. Results on Santa Margarita and San Luis Rey indicate that resprouts may cover between 1% and 5% of the site. These resprouts are foliar sprayed using the same methods as outlined in the initial treatment section. Retreatment of sites is critical and requires little time and effort compared with the initial treatment. Sites that took weeks to treat initially can be completed in a single day. Follow-up treatment usually occurs between September and December.

Task 9E. Environmental Compliance/Mitigation/Enhancement

Subtask 9E.1 – Biological Oversight as Required by Permits: This subtask will involve the oversight tasks required to fulfill the conditions of the project permits.

Task 9F. Construction Administration

Subtask 9F.1 – Contractor Management: This subtask includes the expenses necessary to manage the contractors who will be hired to carry out implementation. These contractors are experienced in removal and control of invasive plants.

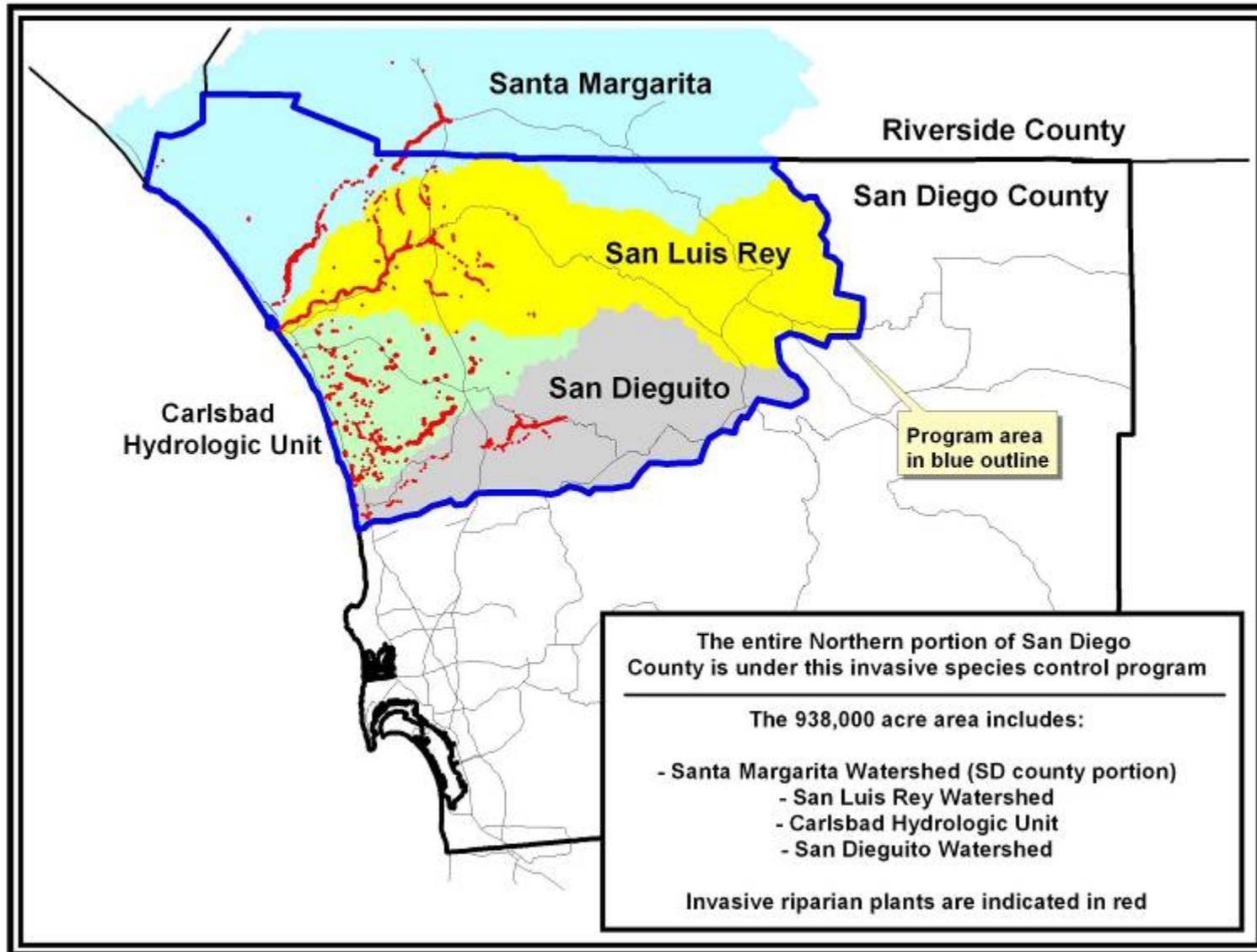
Task 9G. Other Costs

Subtask 9G.1 – Preparation of PAEP: This subtask includes preparation of a PAEP.

Project Maps

Figure 9.1 presents the location of the Northern San Diego County Invasive Non-Native Species Control Program.

Figure 9.1 Location of Northern San Diego County Invasive Non-Native Species Control Program



Project Standards

Licensed contractors will be used for herbicide application. All contractors use specified BMPs, adhere to label instructions for herbicide application, and follow all requirements stipulated in the permits.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 9G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Not applicable

Project Permits

Table 9.1 displays the necessary permits and status of securing these permits. Permits for the San Luis Rey and Carlsbad HUs are provided in Appendix 3 (Disc 2 [DVD]).

Table 9.1: Permitting Requirements for the Northern San Diego County Invasive Non-Native Species Control Program

PERMITS	DATE REQUIRED
<i>San Luis Rey HU</i>	
DFG 1600 (Lake and Streambed Alteration Agreement)	Completed November 2006
FWS section 7 (Biological Opinion)	Completed September 2004
ACOE RGP 41 (404 and 401 compliance)	Completed September 2006
<i>Carlsbad HU</i>	
DFG 1600 (Lake and Streambed Alteration Agreement)	Completed October 2004
ACOE and RWQCB (404 and 401): no permit required after review by agencies.	Completed July 2004
FWS Technical Assistance Letter (no Section 7/11 required)	Completed September 2004
<i>San Dieguito HU (currently operates under City permits, switching to lead by JPA)</i>	
DFG 1600 (Lake and Streambed Alteration Agreement)	September 2008 (In process)
FWS section 7 (Biological Opinion)	September 2008 (In process)
ACOE RGP 41 (404 and 401 compliance)	September 2008 (In process)

Environmental Compliance

This non-native invasive species control project has completed environmental review. This project is part of an overall program treating invasive species within the three watershed units. The invasive species control program and the native re-vegetation program improves and restores riparian and estuary habitat and water quality. The United States Fish and Wildlife Service (FWS), Department of Fish and Game (DFG), United States Geological Survey (USGS), the RWQCB, and ACOE are active participants in the programs, attending stakeholder meetings, workshops and field tours. Methods utilized in this overall program have been developed through years of interaction between Mission Resource Conservation

District (RCD) and Weed Management Area (WMA) staff and biologists working with the regulatory agencies. This program has strong support from the participating agencies. The program has multiple permits covering large regions of north San Diego County. Mission RCD holds permits for the Santa Margarita and San Luis Rey watersheds. The Carlsbad HU will be managed by the Carlsbad Watershed Network (CWN)/San Elijo Lagoon Conservancy (SELC) which holds permits for that area. The San Dieguito Joint Powers Authority (JPA) will coordinate work for the San Dieguito watershed, and work will be managed by the JPA and its partners.

Santa Margarita & San Luis Rey Watersheds:

Mission RCD's WMA program operates under ACOE Regional General Permit #41 (RGP41). Under this programmatic agreement, the WMA has completed the 404, 401, State Historic Site, and RWCQB and SWRCB review. The WMA program has also completed a FWS Biological Opinion (under a Section 7 consultation) for large portions of the San Luis Rey where endangered wildlife species occur. Three FWS Technical Assistance Letters cover tributaries and the upper watershed where endangered wildlife species have not been found. Three DFG Streambed Alteration Agreements cover the program area. The CEQA process is also complete with Notice of Exemption's (NOE's) on file at both the State and San Diego County. A Negative Declaration has also been completed for the main stem of the San Luis Rey River.

Carlsbad HU:

Permits for the CWN are held by SELC, which manages their projects. CWN has a Technical Assistance Letter from FWS covering the entire watershed unit. DFG has issued a 1600 permit for the program. A CEQA NOE has been posted. ACOE and RWQCB are updated on the project regularly – but no permits are required for the work being performed. The California Coastal Commission has issued an exemption for the program within the Coastal Zone and the coastal Cities of Oceanside, Carlsbad, and Encinitas have also issued exemptions within the areas covered under their Local Coastal Plan jurisdiction.

San Dieguito Watershed:

The San Dieguito watershed project area has been operating under a variety of permits for each project that has been initiated. A new effort has been initiated to implement watershed based permitting as is being utilized by Mission RCD and CWN. The program should have new FWS, DFG, ACOE, and CEQA documents by the end of 2007. The JPA will coordinate control activities through its program or through its watershed partners who hold the necessary permits within the project area. Table 9.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements.

Environmental documents are provided in Appendix 3 (Disc 2 [DVD]).

Table 9.2: Environmental Compliance Requirements for the Northern San Diego County Invasive Non-Native Species Control Program

PERMITS	DATE REQUIRED
<i>San Luis Rey HU</i>	
CEQA MND	Completed October 2006
<i>Carlsbad HU</i>	
CEQA NOE	Completed August 2004
<i>San Dieguito HU (currently operates under City permits, switching to lead by JPA)</i>	
CEQA MND	September 2008

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 9.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 9.3: Project Submittals for the Northern San Diego County Invasive Non-Native Species Control Program

No.	SUBMITTAL	SCHEDULE
9-1	Quarterly reports	Quarterly
9-2	Effectiveness monitoring report	Annually
9-3	PAEP Report	End of grant
9-4	Final Report	End of grant

Other

Not applicable

Plans & Specifications References

Not applicable as this is not a construction project

Completed Work

No work will be started until after July 1, 2008.

Work Item #10: Santa Margarita Conjunctive Use Project

Implementing Agency

Fallbrook Public Utility District

Project Description

The Santa Margarita Conjunctive Use Project provides for enhanced recharge and recovery from the groundwater basin underlying United States Marine Corps base Camp Pendleton in Northern San Diego County. This project will provide a water supply for both Camp Pendleton and Fallbrook as resolution of a long-standing water rights dispute between the U.S. and Fallbrook. The project will provide approximately 6,800 AFY of new local supply from the Santa Margarita River by conjunctively managing the groundwater basins on Camp Pendleton. Additionally, 1380 acres of sensitive habitat will be preserved along the river as a result of this project. The project also includes a seawater intrusion barrier using recycled water and a distribution system able to deliver water both to Fallbrook Public Utility District (PUD) and the Water Authority’s aqueduct system. Membrane treatment of extracted groundwater and brine disposal will reduce the total dissolved solids (TDS) of the lower basin over time.



Santa Margarita River

Water diverted from the Santa Margarita River would be released into the percolation ponds for recharge to the ground water aquifer, pumped directly to the advanced water treatment (AWT) plant, or bypassed to Lake O’Neill. Water stored at Lake O’Neill would be released to the Santa Margarita River for recharge during periods of low river flow on an annual basis consistent with current practice. The 1,384 acres of

land owned by Fallbrook at the site of the formerly proposed Fallbrook Dam and Reservoir would be included in the project as an Open Space Management Zone (OSMZ) to help protect water quality. A resource management plan would be developed for this land to allow for passive recreation use. Mitigation, if required for the project, could be incorporated into the OSMZ. It is anticipated that title to the land would be transferred to USBR or a mutually agreed upon land management authority, such as the Fallbrook Lands Conservancy, the County of San Diego, or the Mission RCD.

Water Rights Dispute Addressed by the Project

The project will help to resolve a long-standing water rights dispute between the Fallbrook PUD and Camp Pendleton. The legal history of the Santa Margarita River starts in the 1920s when the Temecula Valley was mostly owned by the Vail family, a long time cattle ranching family and what is now USMC Base Camp Pendleton was an even larger ranch, Rancho Santa Margarita e Las Flores. At that time, the Vail ranch applied for and received a permit to construct Vail Dam and lake and that prompted the Rancho Santa Margarita to sue the Vail Ranch to determine a judicial adjudication of the flows in the river. This case was resolved in State Superior Court by stipulated judgment in 1940 where one-third of the flows were awarded to the upstream (Vail) ranch and the remaining two-thirds were to flow to downstream users. The division point was the mouth of the Santa Margarita Gorge where the river starts at the confluence of Temecula and Murrieta Creeks and leaves the Temecula Valley.

Shortly after this resolution, the Japanese attacked Pearl Harbor and the Second World War ensued. In early 1942 the Navy acquired the Rancho Santa Margarita and undertook to convert it into Camp Pendleton, the west coast training facility for what was to become the Pacific theater. For the duration of the war, peace ensued on the legal front. This truce was broken in 1947 when the Fallbrook PUD applied for and received three permits for an appropriative right to 30,000 AFY and undertook efforts to have the Congress authorize construction of the Fallbrook Dam at a site which was identified in the 1920s.

Alarmed by what was perceived to be a grab for the water the Navy believed they had acquired with the purchase of the Rancho Santa Margarita, the Department of Justice sued the Fallbrook PUD and all 6,000 property owners in 1951 for two-thirds of the natural flows of the river awarded to the downstream users. This became case 1247, which was heard by Judge Thompson who still retains jurisdiction of the case. The State of California intervened on behalf of the Fallbrook PUD because the United States' theory of the case was that the federal interest trumped any determination of water rights by a state.

This legal wrangling didn't deter the political process, and the Congress authorized construction of the Fallbrook Dam in 1954. In 1966, the judgment of the court was that states controlled water rights. A stipulated judgment was issued that resolved the conflicts and directed the parties to enter into a memorandum of agreement (MOA) to divide the flows. The Court also directed the Secretary of the Interior to construct the Fallbrook Dam "if found to be feasible".

In 1968, the Navy and the FPUD signed an MOU and efforts commenced to authorize the De Luz Dam on Camp Pendleton. The two-dam plan became the first ever USBR project to be covered by the newly enacted NEPA.

In 1977 the parties assigned their state water rights permits to USBR as a condition of renewal. Throughout the 1970s and 1980s, efforts continued to construct the dams without success and in 1988 Camp Pendleton abandoned the two-dam plan and the parties initiated development of a conjunctive use project. In 1994-1995 the Fallbrook PUD, with assistance from Camp Pendleton and the Water Authority, completed the initial conjunctive use study. Beginning in 2000, the parties undertook negotiations aimed at construction of the present version of the Conjunctive Use Project which is the subject of this proposed project.

Project Components

The project includes four major components of enhanced recharge, enhanced recovery, advanced water treatment, and distribution. The facilities that are proposed to be constructed to support each component are described below:

Enhanced Recharge. Recharge is enhanced by the construction of a new collapsible diversion weir and 46 acres of new recharge ponds. This results in enhanced recharge potential in addition to the naturally occurring recharge. The collapsible weir will divert low flows and permit flood flows to pass to flush the lower river and estuary as well as provide beach replenishment. This will maximize the capture of storm flows for ground water recharge while ensuring passage of sand to the ocean.

Enhanced Recovery. Recovery is enhanced by the construction of nine new wells, monitoring, and a collection system.

Advanced Water Treatment. Treatment will be provided to exceed all requirements of the Safe Drinking Water Act by construction of membrane filtration, disinfection, and brine disposal facilities at the Rattlesnake Canyon site on Camp Pendleton, adequate to treat 20 MGD.

Distribution Facilities. The product water will be distributed to the existing Camp Pendleton and Fallbrook distribution systems through construction of two pump stations and approximately nine miles of transmission pipeline. This pipeline will also provide Camp Pendleton with a connection to the regional water delivery system in case of emergency. These facilities will allow for the transfer of treated water from the project to the Water Authority aqueduct system providing a new local supply to the entire Region.

Eligibility

The Santa Margarita Conjunctive Use Project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(e), the program is an eligible project type because it is a groundwater recharge and management project.

Work Tasks

Task 10A. Direct Project Administration

Subtask 10A.1 – Administration of Engineering Feasibility Study and EIR/EIS Contracts: This subtask involves administration of the Engineering Feasibility Study (Subtask 10C.1) and the preparation and completion of an EIS/EIR (Subtask 10E.1).

Task 10B. Land Purchase/Easement

Not applicable (all land and easements required for the project are owned or have already been obtained by Camp Pendleton and Fallbrook PUD)

Task 10C. Planning/Design/Engineering/Environmental Documentation

Subtask 10C.1 – Engineering Feasibility Study: This subtask will involve analysis and design of the project facilities. It will include developing a detailed cost estimate. The following activities will be completed as part of the feasibility study.

- Completion of Engineering Design Drawings
- Design of Haybarn Canyon Water Treatment Plant
- Design of Groundwater Wells
- Design of Distribution System
- Economics Analysis Completion
- HVAC, Fire, Compressed Air, Drainage, Interior Waste Design Completion
- Hydrologic Evaluation
- EIS/EIR Review

Subtask 10C.2 – Environmental Documentation: This subtask will involve preparation of an EIR/EIS.

Task 10D. Construction/Implementation

Subtask 10D.1 – Diversion Dam - Obermeyer Installation: This subtask would upgrade the existing Santa Margarita River diversion facilities owned and operated by Camp Pendleton. The existing sheet pile diversion dam would be replaced by an inflatable (Obermeyer style) spillway gate diversion structure. This structure would consist of a concrete sill and steel gates that can be raised and lowered pneumatically using heavy gage rubber bladders.

Subtask 10D.2 – Headworks Gates - Reconstructed with Obermeyer Dam: This subtask involves construction of a diversion structure that would be designed with the capability to release not less than the historic leakage and bypass (approximately 3 cubic feet per second [cfs]) through and over the existing sheet pile dam. The headworks near the dam would be modified to increase the flow capacity to 200 cfs from a current capacity of 60 cfs. The existing water measurement structure, culverts, and pond turnout would also be upgraded to ultimately enhance ground water recharge to the three downstream well field basins. Upgraded sizing for these improvements will be determined based on the hydrology report. The gates on the diversion structure would be configured in the raised position during most of the year. During extreme flood events, the gates would be lowered to enable debris and sediment to be transported past the structure.

Subtask 10D.3 – O'Neill Ditch Widening Improvements Along with Road Siphoning Crossings: This subtask will involve modifications to the O'Neill diversion ditch to increase flow capacity to 200 cfs.

Subtask 10D.4 – Rehabilitate Existing Recharge Ponds: This subtask would rehabilitate the five existing percolation ponds and upgrade the turnout gates for remote automation. These ponds have a surface area of 49 acres. A 10-cfs pump station is also proposed within the recharge pond area, with a pipeline to a proposed AWT plant in Haybarn Canyon.

Subtask 10D.5 – Construct New Recharge Ponds: This subtask would involve modification of two existing, but unused, percolation ponds, increasing the total surface area to 95 acres.

Subtask 10D.6 – Groundwater Extraction Wells: This subtask would involve installation of 9 new wells in the Upper Ysidora and Chappo sub-basins, along with appurtenant collection pipelines, power lines, and access roads. This would replace more than twelve existing ground water production wells operated and maintained by Camp Pendleton.

Subtask 10D.7 – Groundwater Collection Pipe System: This subtask includes construction of a groundwater collection pipe system.

Subtask 10D.8 – Water Treatment Plant: Up to 40 cfs total (final amount to be determined by hydrology study) would be pumped and delivered to the Haybarn Canyon AWT plant. The recently constructed Iron-Manganese Treatment Plant (IM-2) at Haybarn Canyon would be expanded and integrated into the proposed treatment train for pre-treatment of all the project source water. The existing IM-1 plant would become obsolete. At the AWT plant, a portion of the ground water would be treated by granular activated carbon (GAC) filtration. Another portion would be treated by low pressure reverse osmosis (RO) to reduce TDS. A filtration treatment train adequate to comply with the Surface Water Treatment Rule (SWTR) is also proposed, with associated backwash facilities. GAC-treated groundwater water, direct diversion surface flows, and RO-desalted groundwater would be combined and disinfected to produce potable water with a TDS concentration of 425 milligrams per liter (mg/L). After disinfection, the treated product water would be pumped from the AWT plant to distribution facilities.

Subtask 10D.9 – Brine Pipeline: The RO portion of the treatment process would generate a reject stream of brackish water. Reject water would have a TDS of about 7,000 to 10,000 mg/L. This reject water would be disposed to Camp Pendleton's existing Lemon Grove pump station via a new brine disposal pipeline following Vandergrift Boulevard and the existing levee and floodwall system protecting the airfield. From the Lemon Grove pump station, brine disposal would be by one of the following options:

1. To the Camp Pendleton Boat Basin or the ocean via a new pipeline discharging off the Del Mar Jetty;
2. To the Oceanside Outfall using the existing Camp Pendleton outfall pipeline (the portion in Oceanside is owned by City of Oceanside) with a new connection to the Fallbrook Outfall Pipeline on Tremont Street in Oceanside where the two pipelines are only a few feet apart. The Fallbrook Outfall is a 16-inch diameter ductile iron pipeline constructed in the 1980's. Fallbrook has an agreement with the City of Oceanside for the discharge of 2.4 million gallons per day (MGD) of effluent through the Oceanside Outfall.
3. To the Oceanside Ocean Outfall by perpetuating Camp Pendleton's existing 10 year lease of outfall capacity from the City of Oceanside.

Subtask 10D.10 – Product Transmission Pipeline: This subtask involves construction of the product transmission pipeline. After treatment, a pump station and pipeline at Haybarn Canyon would lift product water (up to 37 cfs, to be determined by hydrology study) to Camp Pendleton's 4 million gallon (MG) Reservoir Ridge tank. This 39-inch diameter pipe would be about 3,000 feet long and has a static head approximately 410 feet above the treatment plant. From the Reservoir Ridge tank, the product water would be available to Camp Pendleton's existing storage and distribution facilities or could be delivered to Fallbrook via 36- to 24-inch diameter bi-directional pipeline reaches (final size to be determined by feasibility hydrology), terminating at a connection to the San Diego Aqueduct, about 13 miles away. Any water not used by Fallbrook would be delivered into the San Diego Aqueduct. The Camp Pendleton-to-Fallbrook pipeline would be bi-directional so that water could be delivered back to Camp Pendleton during emergency outages or during severe drought periods when ground water is insufficient to meet demands.

Subtask 10D.11 – Elevated Regulating Tank - Knoll Park: This subtask involves construction of an elevated regulating tank and a 24-inch outlet tee upstream of the pump station would next allow some water to be directly used in Fallbrook's Gheen Zone. Pressure reducing valves on the pumping plant outlet would allow service to Fallbrook's Red Mountain pressure zone.

Subtask 10D.12 – Pumping Plants: This subtask involves construction of a pumping plant at the Haybarn AWT (Haybarn WTPP) and two booster pump stations (Booster PP1 and Booster PP2) that are required to convey water from the Camp Pendleton Reservoir Ridge tanks. Haybarn WTPP will be located on-site with Haybarn AWT. Booster PP1 would be constructed near the guard shack on Ammunition Road between Camp Pendleton and the Naval Weapons Station, Detachment Fallbrook. The Booster PP2 would be constructed at Knoll Park in Fallbrook. A dedicated pipeline would connect the Knoll Park pump station to the existing pipeline connecting the San Diego Aqueduct to Red Mountain Reservoir, with discharge pressure adequate to overcome the aqueduct head elevation of approximately 1433 feet.

Subtask 10D.13 – Electrical Power Hookup: This subtask will involve connections for electrical power to the three pumping plants being constructed in Subtask 10D.12. Booster PP1 would require electrical power drops as it is located on the Camp Pendleton side of the boundary fence.

Subtask 10D.14 – SCADA Hookup: A supervisory control and data acquisition (SCADA) system would be included to control the ground water well supply system and the pumping plants conveying water between the Camp Pendleton and Fallbrook systems. The spillway gates on the Obermeyer diversion structure, turnouts to the percolation ponds and Lake O'Neill, production and monitoring wells, flow measurement, and pumping plants would be designed for remote operation and/or data acquisition. The control room for the SCADA would be located at Camp Pendleton's existing operations center on Vandergriff Boulevard across from the Marine Corps Air Station.

Subtask 10D.15 – Lake O'Neill Rehabilitation: As part of this subtask, Lake O'Neill would be dredged to its original storage capacity.

Subtask 10D.16 – Mobilization: This subtask includes activities that can be accomplished prior to construction to ensure that construction proceeds smoothly and efficiently. It will include coordination with subcontractors, equipment rental, materials purchases etc.

Subtask 10D.17 – Unlisted Items: This subtask will include currently unlisted items that will be identified during later stages of design. This subtask accounts for ancillary features of the project that are not detailed or quantified at the current design level.

Task 10E. Environmental Compliance/Mitigation/Enhancement

Mitigation requirements will be determined in subtask 10.C.2. Mitigation activities are included as subtask 10G.1.

Task 10F. Construction Administration

Construction Administration is included in Subtask 10G.1.

Task 10G. Other Costs

Subtask 10G.1 – Non-Contract Items: This subtask includes permitting, engineering, construction management, owner's administration, legal, and other costs. It will also include the following specific activities:

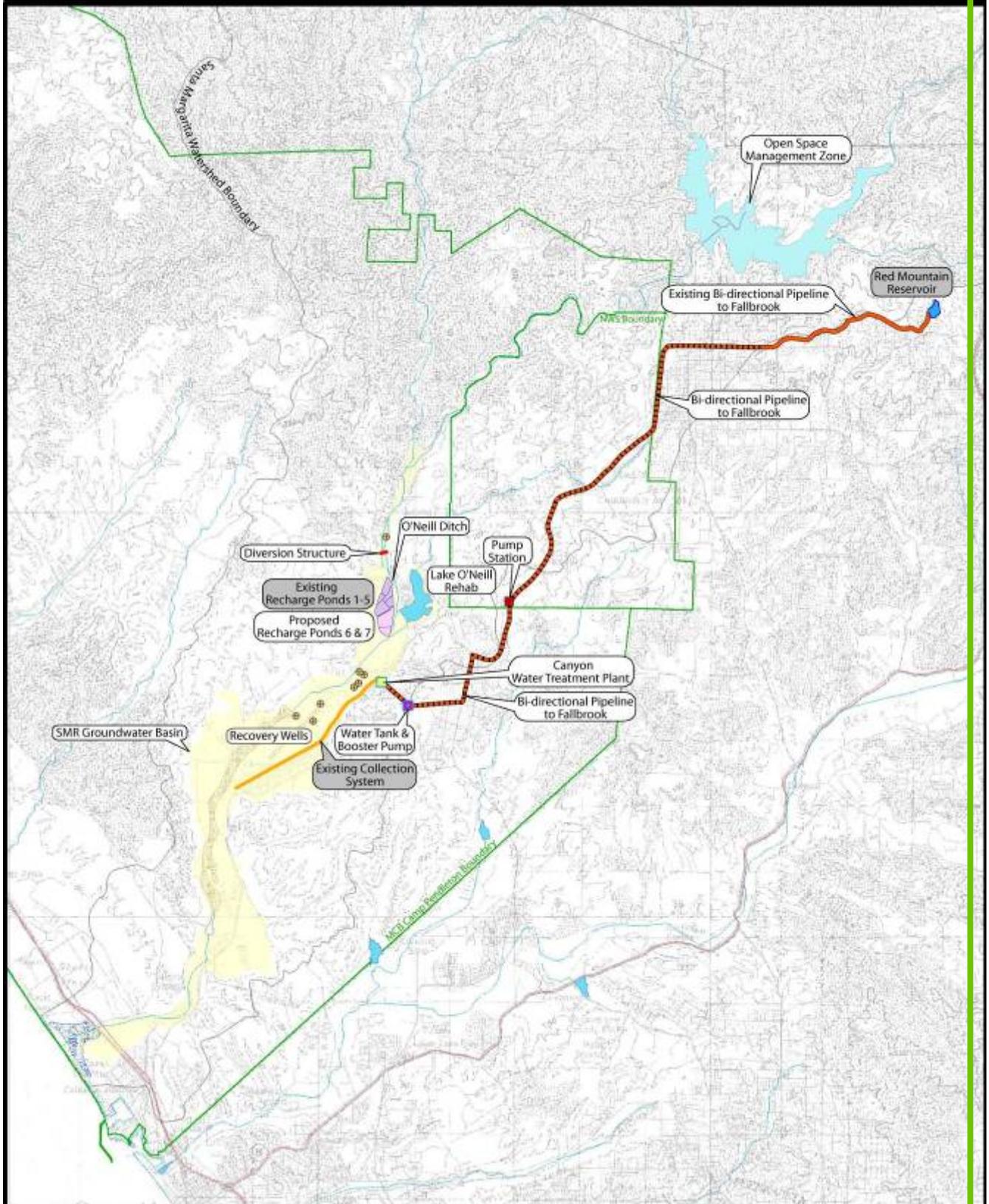
- Construction Administration
- Development of a Groundwater Management Plan
- Preparation of QAPP
- Preparation of PAEP

- Effectiveness Monitoring

Project Maps

Figure 10.1 presents the location of the Santa Margarita Conjunctive Use Project.

Figure 10.1 Location of Santa Margarita Conjunctive Use Project



Project Standards

Any work or construction on a contract awarded by USBR must adhere to USBR’s Safety and Health Standards in the specifications. These standards are USBR’s version of OSHA compliance, and can be found along with additional health and safety requirements at: <http://www.usbr.gov/ssle/safety/>

The Public Buildings Amendments Act of 1988 (P.L. 100-678) requires that construction of new or alterations to existing federal buildings comply with nationally recognized building and safety codes, and consider local zoning laws and ordinances.

Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction requires that the design and construction all new Federal buildings proceed in accordance with current seismic safety standards. USBR also has a “Building Seismic Safety Program” referenced at: <http://www.usbr.gov/ssle/seismicsafety/program.html>.

Federal OSHA construction guidelines apply.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 10G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

A QAPP (Subtask 10G.1) will be completed to ensure that data collected are of adequate quality, will meet the monitoring objectives of the project and will allow integration into statewide monitoring efforts.

Land Acquisition & Rights-of-Way

All lands and easements required for the project are owned or have already been obtained by Camp Pendleton and Fallbrook PUD.

Project Building Materials or Computational Methods

The Obermeyer Hydro Incorporated website (<http://www.obermeyerhydro.com/>) provides the direct reference to the capabilities and control of the Obermeyer spillway gate system (i.e. collapsible weir).

Extensive computer modeling was performed to develop the preferred project.

Project Permits

Table 10.1 displays the necessary permits and status of securing these permits.

Table 10.1: Permitting Requirements for the Santa Margarita Conjunctive Use Project

PERMIT	DATE REQUIRED
Renewal of Water Rights Permits - SWRB	December 2008
Domestic Water Supply Permit – DPH	December 2008
401 Certification – SD RWQCB	January 2009
NPDES Permit – SD RWQCB	January 2009
Consistency Certification (CZMA) - CCC	September 2008
ESA Section 7 BA – USFWS	January 2009

Environmental Compliance

USBR has contracted with The Environmental Company to complete the joint CEQA/NEPA document. USBR, Camp Pendleton and Fallbrook PUD are the three parties. The EIR/EIS will be completed by the end of 2008. Table 10.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements.

Table 10.2: Environmental Compliance Requirements for the Santa Margarita Conjunctive Use Project

PROCESS	SCHEDULE
Preparation and Completion of a Joint EIS–EIR	December 2008
Kick-off Meeting and Schedule -initial team meeting to review field conditions and set schedule goals	November 2007
Response to Public Scoping Comments -will address public comments from initial NOI/NOP	December 2007
Cultural Resources -generation of a technical study and EIR/EIS chapter through literature and field surveys	July 2008
Vegetative Community Surveys and Mapping -spring plant surveys and habitat mapping; generation of part of a technical study and EIR/EIS chapter	July 2008
Special Status Wildlife and Fishery Surveys and Mapping -listed species surveys and mapping; generation of part of a technical study and EIR/EIS chapter	June 2008
Other Special Status Species -general biological surveys and mapping; generation of part of a technical study and EIR/EIS chapter	February 2008
Open Space Management Zone -biological resources mapping of the proposed open space; generation of part of a technical study and EIR/EIS chapter	May 2008
Clean Water Act Permits -submittal of documents and applications to ACOE and RWQCB	January 2009
California Coastal Commission -submittal of documents and hearing attendance	September 2008
Air Quality-Record of Non-Applicability	August 2008
Fish and Wildlife Coordination Act -required consultation	August 2008
Environmental Justice -generation of EIR/EIS chapter re EJ issues	August 2008
Assessment of Traffic Impacts -generation of a traffic and/or construction traffic study and EIR/EIS chapter	July 2008
Wetland Delineation -generation of part of a technical study and EIR/EIS chapter	July 2008
Assessment of Hydrologic Impacts -generation of a technical study and EIR/EIS chapter	July 2008
Endangered Species Act Biological Assessment -submittal of documents, tech studies, and consultation for a biological opinion	December 2008
Preliminary Draft EIS/EIR -writing preliminary draft	August 2008

PROCESS	SCHEDULE
Prepare Draft EIS/EIR -edit/write draft	September 2008
Prepare Preliminary Final EIS/EIR -edit/prepare prelim final	October 2008
Prepare Final EIS/EIR -edit/write final eir/eis	November 2008
Hydrologic evaluation as needed/EIS Review	August 2008
EIS/EIR Review	September 2008
EIS/EIR Completion	December 2008

Groundwater Management Plan Work Items

The Santa Margarita Valley Groundwater Basin (Basin Number 9-04) is an adjudicated groundwater basin. The adaptive management plan to be developed as part of the project feasibility study will be implemented as part of this project.

Project Submittals

Table 10.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 10.3: Project Submittals for the Santa Margarita Conjunctive Use Project

No.	SUBMITTAL	SCHEDULE
10-1	Quarterly Reports (March, June, September, December)	FFY 2008 – 2011
10-2	Final EIS–EIR Documents	January 2009
10-3	Engineering Feasibility Study	January 2009
10-4	Annual Reports (October)	FFY 2008 – 2011
10-5	Draft Final Project Report	September 2011
10-6	Final Project Report	October 2011

Other

Not applicable

Plans & Specifications References

Plans and specifications are not yet available as the project. Preliminary design will take place in the Feasibility Study that will be completed in January 2009.

Completed Work

Work completed to date is summarized in Table 10.4 below.

Table 10.4: Work Completed on the Santa Margarita Conjunctive Use Project as of July, 2008

WORK ELEMENT	COMPLETION DATE
Preparation and Completion of a Joint EIS–EIR	December 2008
Kick-off Meeting and Schedule -initial team meeting to review field conditions and set schedule goals	November 2007

WORK ELEMENT	COMPLETION DATE
Response to Public Scoping Comments -will address public comments from initial NOI/NOP	December 2007
Cultural Resources -generation of a technical study and EIR/EIS chapter through literature and field surveys	July 2008
Vegetative Community Surveys and Mapping -spring plant surveys and habitat mapping; generation of part of a technical study and EIR/EIS chapter	July 2008
Special Status Wildlife and Fishery Surveys and Mapping -listed species surveys and mapping; generation of part of a technical study and EIR/EIS chapter	June 2008
Other Special Status Species -general biological surveys and mapping; generation of part of a technical study and EIR/EIS chapter	February 2008
Open Space Management Zone -biological resources mapping of the proposed open space; generation of part of a technical study and EIR/EIS chapter	May 2008
Clean Water Act Permits -submittal of documents and applications to ACOE and RWQCB	January 2009
California Coastal Commission -submittal of documents and hearing attendance	September 2008
Air Quality-Record of Non-Applicability	August 2008
Fish and Wildlife Coordination Act -required consultation	August 2008
Environmental Justice -generation of EIR/EIS chapter re EJ issues	August 2008
Assessment of Traffic Impacts -generation of a traffic and/or construction traffic study and EIR/EIS chapter	July 2008
Wetland Delineation -generation of part of a technical study and EIR/EIS chapter	July 2008
Assessment of Hydrologic Impacts -generation of a technical study and EIR/EIS chapter	July 2008
Endangered Species Act Biological Assessment -submittal of documents, tech studies, and consultation for a biological opinion	December 2008
Preliminary Draft EIS/EIR -writing preliminary draft	August 2008
Prepare Draft EIS/EIR -edit/write draft	September 2008
Prepare Preliminary Final EIS/EIR -edit/prepare prelim final	October 2008
Prepare Final EIS/EIR -edit/write final eir/eis	November 2008
Engineering Feasibility Study	
Reclamation Engineering Design Drawings -completion of engineering design drawings	July 2008
Haybarn Canyon/Gwell design completion -design of treatment plant and groundwater wells	August 2008
Distribution System design completion/EIS review -design of conveyance system	August 2008
Distribution System design completion	August 2008

WORK ELEMENT	COMPLETION DATE
-final conveyance system design	
WTP plant design completion	August 2008
-final water treatment plant design	
Economics Analysis Completion	August 2008
-prepare/write economic analysis	
HVAC, Fire, compressed air, drainage, interior waste design completion	August 2008
Distribution System design completion	August 2008
Electrical design completion	August 2008
Hydrologic evaluation as needed/EIS Review	August 2008
EIS/EIR Review	September 2008
EIS/EIR Completion	December 2008

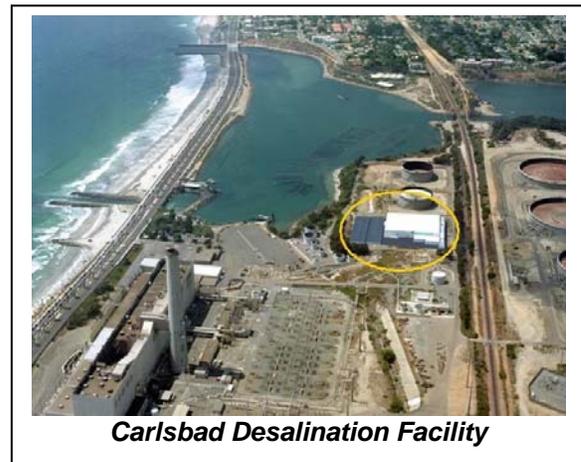
Work Item #11: Carlsbad Desalination Project Local Conveyance

Implementing Agency

Olivenhain Municipal Water District

Project Description

The Carlsbad Desalination Project Local Conveyance project will provide 56,000 AFY of new water supply for the Region through the design and construction of pipelines and facilities to serve local desalinated water from the Carlsbad Desalination Plant to Water Authority member agencies, including Carlsbad Municipal Water District, City of Oceanside, Olivenhain Municipal Water District, Vallecitos Water District, Vista Irrigation District and Santa Fe Irrigation District. The project will provide the participants with a secure and reliable water supply for 30 years with two possible 30-year extensions. Benefits include a local source of potable water, improved water supply reliability and improved water quality. This project includes conveyance infrastructure alone (excludes the desalination facility itself).



Carlsbad Desalination Facility

Water will be conveyed from the proposed Carlsbad Desalination Facility, which will be located at the Encina Power Station in the City of Carlsbad. This will ensure that the source of new local water created at the Desalination Facility can be distributed to the Region, which will help offset imported water demand and improve water supply reliability. The distribution system that will be designed and constructed in this project consists of approximately 14 miles of new pipelines and associated pump stations to deliver the desalinated water to the agencies contracting for it. Alternative water delivery pipeline alignments follow existing roadways. A number of alignment options were included in the EIR, but only one of the potential options will be considered.

Need for the Project

The Carlsbad Desalination Local Conveyance Project provides the distribution system necessary to deliver the 56,000 AFY of desalinated water that will be produced by the Carlsbad Desalination Plant. The amount of desalinated water available from the Carlsbad Desalination Plant is critical to meeting the long term planning targets established by agencies in the Region and in the State. DWR's 2006 Water Plan Update identifies the need for 500,000 AF of desalinated water by 2030. MWD's Integrated Water

Resources Plan identifies a need for 250,000 AFY of seawater desalination (including 56,000 AFY from the Carlsbad Desalination Plant) by the year 2020. The Water Authority is actively supporting the Carlsbad Desalination Plant and its Urban Water Management Plan identifies a need for 56,000 AFY of seawater desalination from the Carlsbad Plant by 2011. Carlsbad Municipal Water District, Valley Center Municipal Water District, Rincon del Diablo Municipal Water District, Sweetwater Authority, Rainbow Municipal Water District, Vallecitos Water District, Santa Fe Irrigation District, Olivenhain Municipal Water District, and the City of Oceanside have entered into long-term water purchase agreements with the Carlsbad desalination plant where they have collectively agreed to purchase 100% of the facility's capacity. Without implementation of this project, these agencies would have no way of receiving this water they have contracted to receive.

The Carlsbad Desalination Local Conveyance Project will deliver the needed secure and reliable water supply that is essential to maintain the economic growth of the Region and to reduce the demands on imported water.

Eligibility

The Carlsbad Desalination Project Local Conveyance project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(a), the program is an eligible project type because it is a program for water supply reliability.

Work Tasks

Task 11A. Direct Project Administration

This task includes the procurement of engineering and construction services, review of project plans and studies, as well as preparation of progress reports.

Subtask 11A.1 – Procurement of Engineering and Construction Services: This subtask will involve the development of bid documents and administration of the bidding and selection process for the procurement of contractors to support engineering services for the project permitting and implementation, as well as the selection of a turnkey contractor which will be responsible for the design, procurement, construction, and commissioning of the entire project.

Subtask 11A.2 – Review of Project Plans and Studies: The scope of work completed under this subtask includes the review and evaluation of all plans and studies associated with the implementation of this project, including those needed to comply with the conditions of the project EIR and those incorporated in

the permits of pertinent federal, state and local regulatory agencies with jurisdiction over project implementation, as well as preliminary pipeline routing studies to determine the most viable project route and facility location and configuration.

Subtask 11A.3 – Preparation of Progress Reports: This subtask involves producing quarterly progress reports which will be distributed to all water utilities participating in this project as well as to the pertinent funding agencies for review and comment.

Task 11B. Land Purchase/Easement

This task includes preparation of a legal description and easement acquisition.

Subtask 11B.1 – Preparation of Legal Description: This subtask includes preparing a legal description of the land that will be used to accommodate all project elements – pipelines, pump stations, service facilities and access roads.

Subtask 11B.2 – Easement Acquisition: Under this subtask, the easements needed to construct and permanently locate all project facilities (pipelines, pump stations, etc.) will be acquired, including legal rights to access all facilities for operation and maintenance during the lifetime of the project.

Subtask 11B.3 – Land Purchase: This subtask will involve purchasing the land needed to construct or acquire access to the facilities included in the scope of this project.

Task 11C. Planning/Design/Engineering/Environmental Documentation

This task includes an aerial survey and mapping of the pipeline route and pump station sites, a geotechnical survey, an underground utility survey, preliminary design and construction review, detailed design and engineering oversight during construction.

Subtask 11C.1 – Pipeline Route and Pump Station Sites – Aerial Survey and Mapping: This subtask will include completing an aerial survey and preparing topographic maps of the pipeline route and sites for the pump stations and other service facilities. The topographic mapping is needed for project design and construction.

Subtask 11C.2 – Geotechnical Survey: This subtask will involve completing subsurface investigations of the soil and groundwater conditions to determine type of soils, groundwater level and presence of ground and soil contamination along the pipeline route and the sites for pump stations and supporting facilities. The geotechnical survey will also determine the bearing capacity of the soils along the pipeline and on the pump station sites. This information will be used for pipeline and pump station design and construction.

Subtask 11C.3 – Underground Utility Survey: The purpose of this survey is to identify other existing underground utilities and structures which are located along the same route/easement where the proposed pipeline will be located or which are crossing the pipeline easement/route in order to select pipeline location and depth and to complete pipeline design.

Subtask 11C.4 – Preliminary Design and Construction Review: The purpose of the preliminary design is to identify alternative pipeline routes, select preferred route and determine the location, configuration and size of all key project facilities (pipelines, pump stations, pressure relief structures, etc.). The preliminary design would also include an initial planning level cost estimate.

Subtask 11C.5 – Detailed Design: This subtask will involve the development of detailed drawings and specifications for all components of the proposed project: pipelines, pump stations, and service facilities. The scope of this subtask also includes the preparation of a detailed project construction cost estimate.

Subtask 11C.6 – Engineering Oversight during Construction: This subtask includes the review of construction drawings and specifications as well as oversight of all construction activities by the engineer of record to confirm that the project is implemented in accordance with specifications and all applicable regulatory requirements.

Task 11D. Construction/Implementation

This task includes preparation of a construction execution plan, construction mobilization and demobilization, utility relocation, construction and commissioning of pump stations, construction and commissioning of pipelines, construction and commissioning of other service facilities and traffic control.

Subtask 11D.1 – Preparation of Construction Execution Plan: The scope of this subtask consists of the development of a detailed plan and schedule for project implementation, including: project organizational structure, coordination and communication plans, division of responsibilities amongst various subcontractors, plans for on and off-site fabrication of project facilities; project permit compliance plan; QA/QC plan, etc.

Subtask 11D.2 – Construction Mobilization and Demobilization: The scope of this subtask includes two key activities – mobilization and demobilization. Contractor mobilization is completed at the beginning of the project and involves the relocation and installation of contractor construction equipment, construction materials, labor and temporary service facilities (field offices and trailers) to the construction laydown areas and to the construction site. The activity also involves installation of construction power and other temporary support utilities and facilities needed for completion of project construction. Demobilization includes the removal of all contractor facilities, trailers, equipment and temporary utilities from the site as well as any remaining construction materials, debris, solid waste, etc. The purpose of demobilization is to bring the construction site and laydown areas to their initial condition prior to the beginning of construction.

Subtask 11D.3 – Utility Relocation: This subtask involves relocation of existing underground utilities (water or sewer lines, phone or power lines, etc.) where location (depth, height, length, size or type) may interfere with the completion of the construction work included in the scope of the proposed project because they are either too close to or intersect the project pipelines.

Subtask 11D.4 – Construction and Commissioning of Pump Stations: This subtask includes the physical construction of the pump stations included in the project scope as well as the installation, testing and initial operation of all equipment, instrumentation, utilities (electrical supply, water supply, sanitary sewerage connection, storm drain connection, etc.) and structures in order to confirm that the project pump stations function in accordance with the project specifications, and that the operation and maintenance manual and pump station design and operation are in compliance with project performance guarantees, manufacturer specifications and conditions, and with all applicable standards and regulations.

Subtask 11D.5 – Construction and Commissioning of Pipelines: This subtask entails the physical installation of all pipelines included in the project scope as well as the cleaning, disinfection, testing and initial operation of the pipelines in order to confirm that they function in accordance with the project specifications and the operation and maintenance manual as well as that their design and operation are in compliance with project performance guarantees, manufacturer specifications and conditions, and with all applicable standards and regulations.

Subtask 11D.6 – Construction and Commissioning of Other Service Facilities: This subtask includes constructing and testing all service facilities associated with the project such as pressure relief/surge control structures and facilities, pressure reduction stations, control valve vaults, etc.

Subtask 11D.7 – Traffic Control: This subtask includes providing and installing the necessary equipment and signs to divert and redirect traffic at locations where construction is completed on or near to existing

roads, parking areas, and other public or private locations along the pipeline route and near the locations of the construction sites of the project pump stations. This subtask will also involve staffing of one or more traffic controllers which will enforce use of the new traffic patterns and protect the public and the project assets from harm or damage during construction.

Task 11E. Environmental Compliance/Mitigation/Enhancement

The proposed project has a certified EIR, City of Carlsbad land use approvals and right-of-way easements, and an approved Coastal Development Permit. This task includes a pre-construction biological survey, ministerial permits, a post-construction survey, preparation of an environmental compliance plan and a stormwater management plan.

Subtask 11E.1 – Pre-Construction Biological Survey: Under this subtask, a qualified biologist will survey the pipeline route and the sites planned to be used for construction of pump stations and service facilities for existing endangered plants or animals and if such are identified, the biologist will provide recommendations for species protection or relocation as well for specific recommendations for modifications to the construction methods and schedule needed to minimize environmental impact due to project construction. The pre-construction biological survey will also document the location and size of habitat of various types of endangered species (if any).

Subtask 11E.2 – Project Permitting: This effort will include the completion of engineering activities, planning efforts, and scientific studies associated with the preparation, submission, processing and the ultimate approval of all pertinent federal, state and local environmental permits associated with project implementation and operation.

Subtask 11E.3 – Post-construction Survey: The purpose of the post-construction survey is to ascertain that all construction sites (pipeline, pump stations and service facilities) are returned back to their pre-construction conditions and any potential environmental impacts are mitigated in accordance with the applicable regulatory requirements.

Subtask 11E.4 – Preparation of Environmental Compliance Management Plan: The purpose of this subtask is to develop a comprehensive plan for the coordination of all permitting activities associated with project implementation.

Subtask 11E.5 – Stormwater Management Plan: The purpose of this plan is to manage storm water runoff from the site and identify BMPs for runoff containment, treatment and disposal.

Task 11F. Construction Administration

This task includes the review of construction documentation, review of monthly progress reports, processing of payment requests, review and processing of change orders and construction site inspections.

Subtask 11F.1 – Review of Construction Documentation: This subtask will involve the engineering review of all construction specifications, shop and as-built drawings and other documentation associated with project implementation.

Subtask 11F.2 – Review of Monthly Progress Reports: The subtask will include the review of the project progress reports generated by the turnkey contractor in order to ascertain project advancements and schedule compliance.

Subtask 11F.3 – Review and Processing of Payment Requests: This subtask will include the review, processing and execution of payment requests for work completed by the turnkey contractor.

Subtask 11F.4 – Review and Processing of Change Orders: The purpose of this subtask is to review and evaluate the validity of any change orders that may be submitted by the turnkey contractor during project design/construction.

Subtask 11F.5 – Site Inspections: Under this subtask, inspections of the construction sites will be performed (at least weekly) in order to monitor project progress.

Task 11G. Other Costs

This task includes coordination and reporting with member water agencies, preparation of a QAPP, preparation of a PAEP and effectiveness monitoring.

Subtask 11G.1 – Coordination and Reporting with Member Water Agencies: This subtask will include all coordination efforts (permitting, construction, traffic control, use of utilities during constructions, etc.) with all water agencies involved with project implementation.

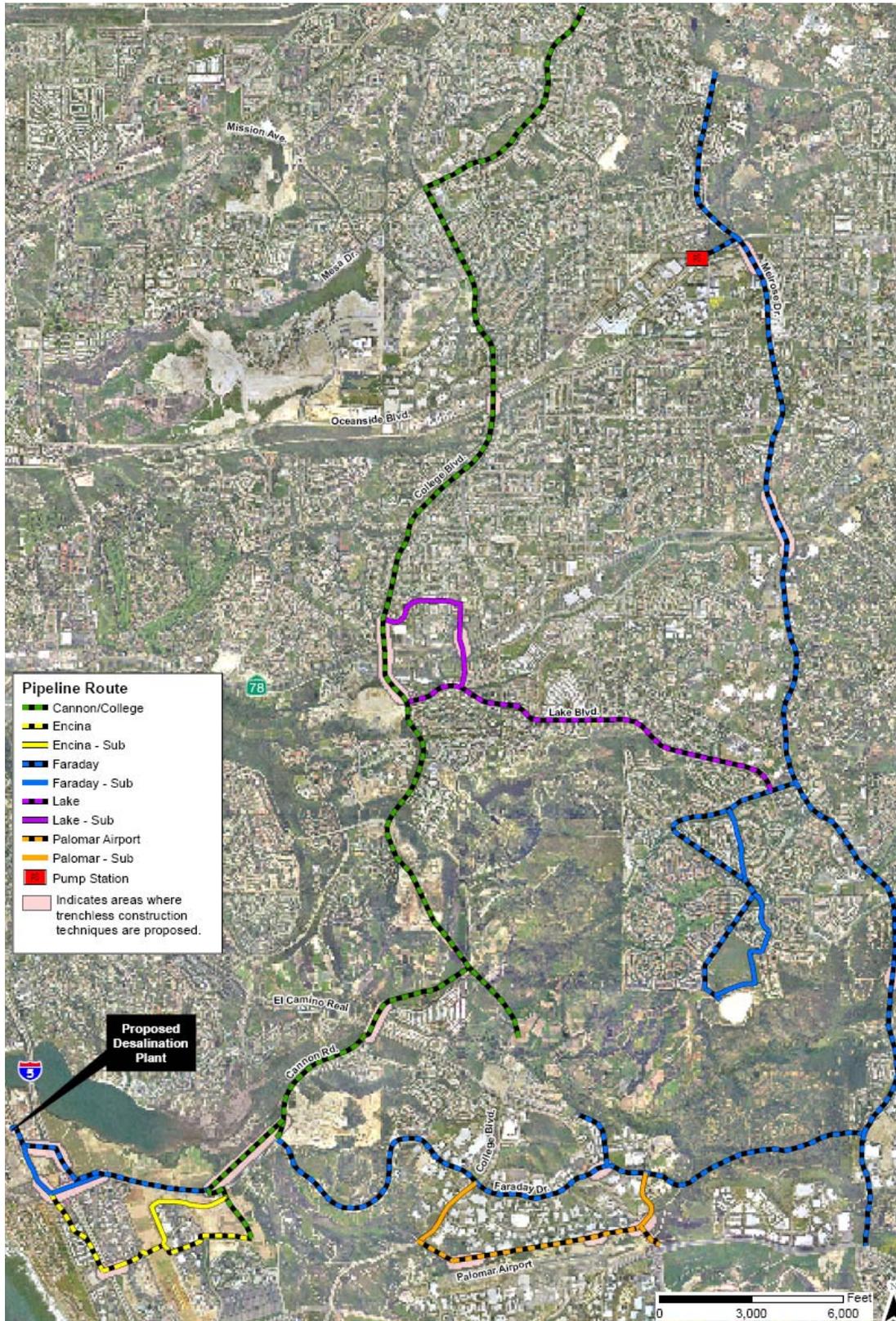
Subtask 11G.2 – Preparation of QAPP and PAEP: The purpose of this subtask is to prepare a QAPP and a PAEP that are compliant with the SWRCB requirements and guidelines.

Subtask 11G.3 – Effectiveness Monitoring: Under this subtask, the overall effectiveness of project implementation and fund use will be monitored and reported.

Project Maps

Figure 11.1 presents the location of the Carlsbad Desalination Project Local Conveyance.

Figure 11.1 Location of Carlsbad Desalination Project Local Conveyance



Project Standards

The project will be designed, constructed and operated in compliance with all applicable Federal, State and local standards and regulatory requirements. American Water Works Association (AWWA), EPA, and CDPH standards and applicable regulations will be applied for pipeline engineering, design, construction, disinfection, acceptance testing and operation. Applicable OSHA standards and regulations will be implemented for pipeline construction. EPA Clean Water Act Analytical Test Methods and the Standard Methods for the Examination of Water, Latest Edition, will be used for laboratory analysis.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 11G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting. A QAPP will be completed (Subtask 11G.1) to ensure that data collected are of adequate quality, will meet the monitoring objectives of the project and will allow integration into statewide monitoring efforts.

Land Acquisition & Rights-of-Way

Poseidon Resources and Cabrillo Power I Limited Liability Corporation (LLC) entered into a Ground Lease and Easement Agreement (Lease) July 11, 2003. The Lease grants Poseidon access to the desalination facility site and provides easements for the appurtenant facilities to be located within the power plant property, including the product water pipeline that is the subject of this application. The term of the Lease is 33 years from the date of commencement of commercial operation of the desalination facility with two possible extensions of ten years each.

Poseidon Resources and the City of Carlsbad entered into a Development Agreement on June 13, 2006. Section 5.3 of the Development Agreement states that the:

City shall provide without charge, and shall cause any governmental agency under its control to provide without charge, Poseidon access to any public rights of way required for the construction or installation of the Appurtenant Facilities to deliver Product Water.

Poseidon will need encroachment permits from the City of Oceanside and the City of Vista to construct pipelines in the rights-of-way within those cities.

Project Building Materials or Computational Methods

The main proposed material for the construction of the product water conveyance pipeline is mortar lined steel pipe. In addition, high density polyethylene (HDPE) would be considered as an alternative to steel pipe where suitable. Final selection of pipeline material will be completed during the detailed design phase of this project.

The key merits and benefits of the selected mortar-lined steel pipe material are as follows:

- It can handle wider range of operational pressures than any other material, including HDPE. Application of HDPE pipe is limited by maximum pressure constraints.
- Compatibility with the material of existing water mains and distribution pipelines. Most of the existing water mains are mortar-lined steel pipe.
- This pipe material has significantly higher impact strength, i.e., it is less prone to damage during handling, shipping, and installation.

Key benefits of the HPDE pipe material are:

- Lower pipeline friction loss and therefore, lower total power use – smoother inner pipe surface;
- It creates lower pressure surges due to the smoother inner pipe surface;
- Lower unit pipe cost and overall construction cost.

- HDPE pipe can be bent to a radius 25 times the nominal pipe diameter. This can eliminate many fittings required for directional changes in a piping system where fittings and thrust blocks or restraints are required with alternate materials.
- The flexibility of HDPE pressure pipe makes it well suited for dynamic soils including areas prone to earthquake.
- Polyethylene is about one-eighth the density of steel, it does not require the use of heavy lifting equipment for installation.
- Corrosion and Chemical Resistant: HDPE pipe will not corrode, tuberculate or support biological growth.

Project Permits

Table 11.1 displays the necessary permits and status of securing these permits.

Table 11.1: Permitting Requirements for the Carlsbad Desalination Project Local Conveyance

PERMIT	SCHEDULE
City of Carlsbad Local Land Use Permit	Approved June 2006
NDPES Permit	Approved August 2006
Conditional Drinking Water Permit	Approved October 2006
Coastal Development Permit	Approved November 2007
State Lands Commission lease application	Hearing Date March 2008

Environmental Compliance

Table 11.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements. The completed EIR is provided in Appendix 3 (Disc 2 [DVD]).

Table 11.2: Environmental Compliance Requirements for the Carlsbad Desalination Project Local Conveyance

PROCESS	SCHEDULE
Environmental Impact Report	Certified June 2006

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 11.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 11.3: Project Submittals for the Carlsbad Desalination Project

No.	SUBMITTAL	SCHEDULE
11-1	Biological Survey and EIR Mitigation Compliance Plan	September 2008
11-2	Traffic Control Plan	September and

		December 2008
11-3	Design Progress Reports	September and December 2008
11-4	Construction Progress Reports	Quarterly beginning January 2009
11-5	Final Project Report	August 2010

Other

Not applicable

Plans & Specifications References

Plans and specifications to be followed during project implementation include:

- The Project Precise Development Plan site drawings and Pipeline Plans and description of the pipeline alignments are provided in Appendix 3 (Disc 2 [DVD]).

Completed Work

Work completed to date is summarized in Table 11.4 below.

Table 11.4: Work Completed on the Carlsbad Desalination Project Local Conveyance as of July, 2008

WORK ELEMENT	COMPLETION DATE
Geotechnical Survey	July 2008
Aerial Survey and Mapping	July 2008

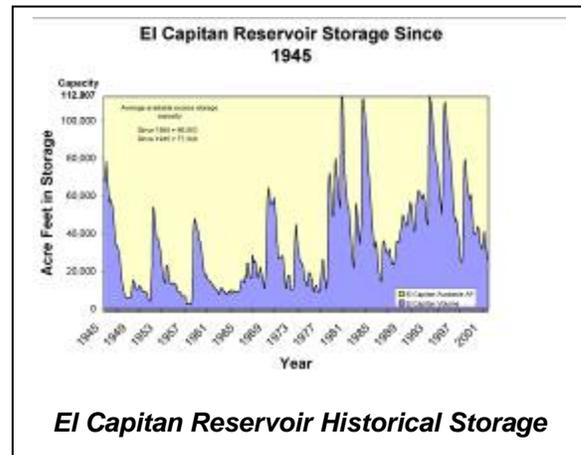
Work Item #12: San Diego Region Four Reservoir Intertie Project Conceptual Design

Implementing Agency

Sweetwater Authority

Project Description

The San Diego Region Four Reservoir Intertie Project Conceptual Design (Conceptual Design) will provide an initial design and work plan for a conveyance system that will increase the capability to manage and store imported water in four existing reservoir systems, making the San Diego Region more resistant to drought and water delivery service interruptions. Connecting the San Vicente, El Capitan, Loveland, and Murray Reservoir systems would create an enhanced and integrated reservoir system to more efficiently use the reservoirs; increase water supply reliability in the San Diego Region; more efficiently supply water at the lowest possible cost; more effectively use imported water aqueducts; increase accessibility to ~100,000 AF of surface storage without creating new reservoirs or new storage capacity; and take advantage of potential energy management opportunities. The environmental effects of the future conveyance system would be minimal because each reservoir has been in place since the 1940s or earlier, and reservoir footprints would not increase.



In 1993, following a severe and protracted 6-year drought, the ACOE conducted a Reconnaissance Study of the best methods to ensure water reliability in San Diego County. The study concluded that a Reservoir Intertie System (Intertie Project) was determined to be the most cost effective means of producing water in excess of 10,000 acre-feet annually and best met other evaluation criteria. The Intertie Project more than met ACOE criteria to proceed with the Conceptual Design described in this project.

The Conceptual Design will guide the development of a Four Reservoir Intertie System (Intertie Project) that would increase the capability to manage and store imported water in four San Diego County reservoirs, making the Region more resistant to drought and water delivery service interruptions. Components of the Conceptual Design will include definition of project elements, updated analysis of existing facilities, evaluation of new facilities, future supply and demand estimates, alternatives analysis and recommended alternatives. It will also include a determination of conveyance facilities needed to connect the reservoirs. Additionally, the potential for electrical pumped storage energy generation and the construction of new water treatment facilities will be evaluated. The outcome of the Conceptual Design will be the identification of a Preferred Alternative along with an environmental review and cost benefit analysis. A plan for implementation would discuss how to move forward with the identified Preferred Alternative.

The Intertie Project would not create a new water supply or storage, but through development of conveyance infrastructure would provide the opportunity to move and store water during times of relative excess or periods when no or minimal environmental damage would occur. The four reservoir systems that will be included in the Conceptual Design and subsequently will be connected by the Intertie Project are described below:

- San Vicente Reservoir is owned and operated by the City of San Diego and is currently capable of storing up to 90,230 acre-feet of water. Through an agreement between the Water Authority and the City of San Diego, San Vicente Dam will likely be raised by more than 100 feet to provide additional capacity to supplement emergency storage in the Region. San Vicente Reservoir can store water from local runoff and imported water from the first aqueduct. A new pipeline connecting the second aqueduct to the first aqueduct and San Vicente Reservoir will be completed by the Water Authority by mid-2009.
- Murray Reservoir is comparatively small at 4,800 acre-feet capacity, but is also the site of the Alvarado Water Treatment Plant. Water from Alvarado serves a large central portion of San Diego, the City of Coronado, and a number of Navy military bases.
- El Capitan Reservoir, built in 1934 and owned by the City of San Diego, is located about six miles north of Loveland and has a capacity of 112,000 acre-feet of water.
- Loveland Reservoir is located in the foothills of the Cuyamaca Mountains, 21 miles upstream of San Diego Bay. Built in 1945, Loveland Reservoir was constructed to impound water from the Sweetwater River and is capable of storing 26,000 acre-feet of water. An acre-foot of water will supply two average-sized families for an entire year. Loveland is owned and operated by Sweetwater Authority, a public water agency.

In the current situation, El Capitan and Loveland Reservoirs are underutilized water storage reservoirs because they have limited to no connections to the imported water system. With a capacity of about 26,000 acre feet, Loveland has only filled from local runoff a dozen times in the 58 years since its completion. El Capitan, with nearly 113,000 acre-feet of capacity, has only filled four times since its construction in 1934. Linking the reservoirs - particularly the underutilized El Capitan and Loveland Reservoirs - provides a related benefit by increasing the ability to capture and store "local" water. For example, when the City of San Diego's Lake Hodges spilled in winter 2005, San Diego lost 68,000 acre-feet of high quality water. A significant portion of that water could have been utilized locally if the Intertie Project was in place by allowing the transfer of water to other reservoirs in a linked system as the water level at Lake Hodges began to rise.

Implementation of the Intertie Project would allow efficient use of the reservoirs, increase the Region's water supply reliability, increase water storage capability by approximately 100,000 acre-feet, increase the ability to efficiently supply water at the lowest possible cost, and take advantage of potential energy

management opportunities. The project has the potential of benefiting approximately 1.5 million residents in San Diego County. The San Diego Region Four Reservoir Intertie Project Conceptual Design will determine the optimal configuration and operation of the Intertie Project. By moving the process forward, the Conceptual Design represents an important step toward implementation of the Intertie Project.

Need for the Project

Water agencies, including MWD, have long recognized that there is a limited supply of water for an increasing Southern California population, and they have encouraged water agencies to develop local sources of supply to ease the burden associated with continuing to import water from the San Francisco Bay-Delta and from the Colorado River. Linking the reservoirs through the Intertie Project, particularly the underutilized El Capitan and Loveland Reservoirs, provides a related benefit by increasing the ability to capture and store “local” water. The ability to capture and store local water resources when available also has beneficial effects on the environment by reducing the need for imported water by nearly a 1:1 ratio for every acre-foot of runoff captured and stored locally. The Conceptual Design is needed to determine the most feasible alternative for implementing the Intertie Project.

Eligibility

The San Diego Region Four Reservoir Intertie Project Conceptual Design is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(a), the program is an eligible project type because it is a program for water supply reliability. This project does not include surface storage; it is a conveyance project that aims to increase the efficient use of local and imported water supplies throughout the Region.

Work Tasks

Task 12A. Direct Project Administration

Not applicable

Task 12B. Land Purchase/Easement

Not applicable

Task 12C. Planning/Design/Engineering/Environmental Documentation

Subtask 12C.1 – Project Management: This subtask includes overall project management, along with the development of PAEP and Quality Assurance Project Plan

Subtask 12C.2 – Define Project Elements: This subtask will include defining project elements and incorporating existing facilities

Subtask 12C.3 – Analysis of Existing Facilities: This subtask includes performing an updated analysis of existing facilities.

Subtask 12C.4 – Evaluation of New Facilities: This subtask includes an evaluation to determine the potential for new facilities. New facilities could include a Loveland Reservoir water treatment plant or other water treatment facilities.

Subtask 12C.5 – Future Supply and Demand Estimates: This subtask includes developing year 2020 water demand and supply estimates, along with forecasting capacity of additional water storage needs.

Subtask 12C.6 – Alternatives Analysis: This subtask includes the developing alternative pipeline routes and alignments, and evaluating those alignments to best meet the goals of the project.

Subtask 12C.7 – Recommended Facilities: This subtask includes determining the required reservoir intertie facilities, sizing pipelines, and determining pump station capacities. Summary tables will be prepared that include tabulations of sizes for potential facilities.

Subtask 12C.8 – Electricity Generation: This subtask involves evaluating the potential for electricity generation through pumped storage operations.

Subtask 12C.9 – Environmental Compliance and Permitting: This subtask involves determining what environmental documentation and permits are needed to comply with applicable regulations.

Subtask 12C.10 – Cost Benefit Analysis: This subtask involves the preparation of cost/benefit analysis for the alternatives developed

Subtask 12C.11 – Identification of Preferred Alternative: This subtask includes the identification of a preferred alternative from the alternatives developed for the project. Institutional structures will be explored to define project partnerships and identify responsibilities.

Subtask 12C.12 – Implementation Plan: This subtask involves the preparation of plan for the preferred alternative.

Subtask 12C.13 – Final Report: This subtask includes the preparation of the final report.

Task 12D. Construction/Implementation

Not applicable

Task 12E. Environmental Compliance/Mitigation/Enhancement

Not applicable

Task 12F. Construction Administration

Not applicable

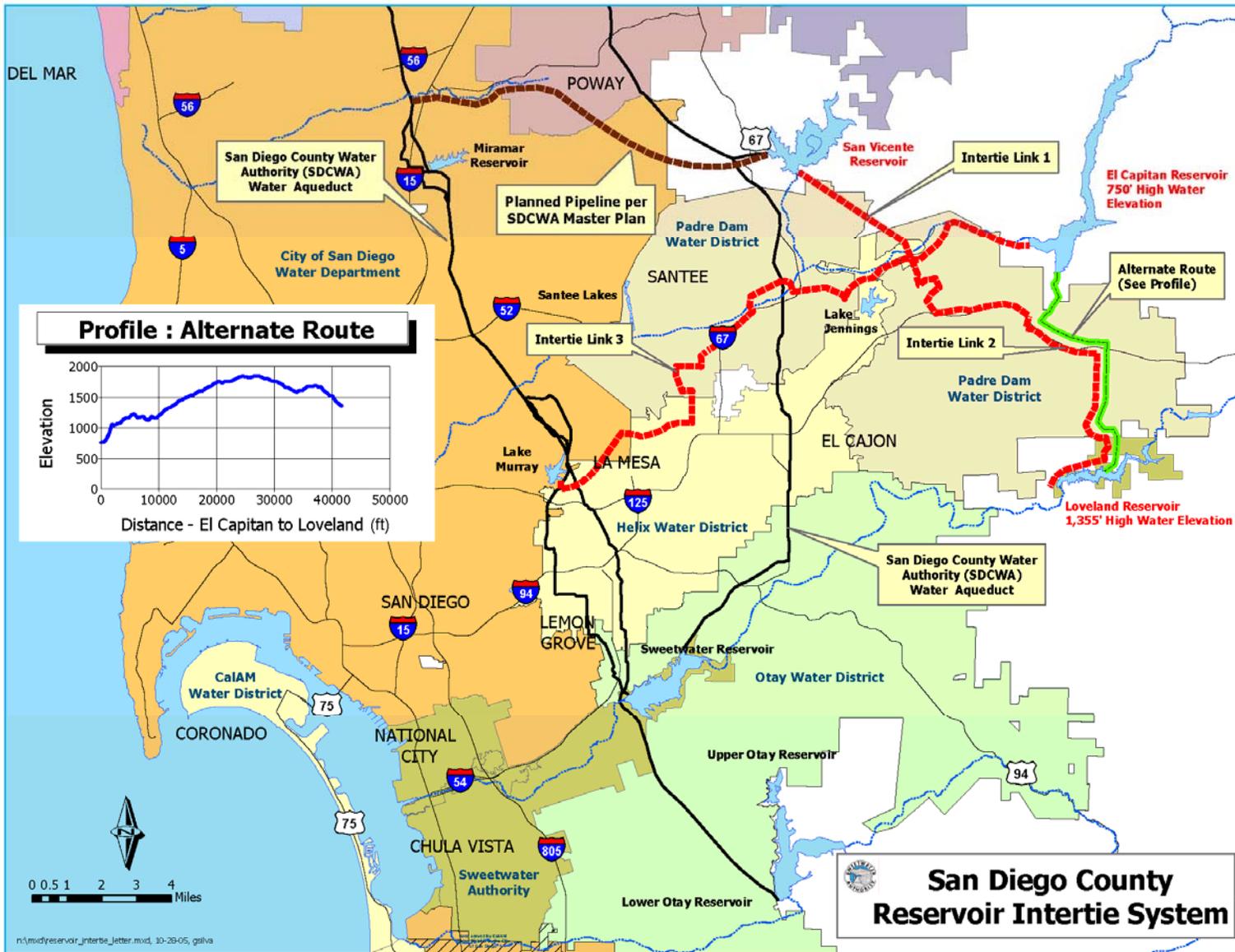
Task 12G. Other Costs

Subtask 12G.1 – Preparation of PAEP: This subtask includes preparation of a PAEP.

Project Maps

Figure 12.1 presents the location of the San Diego Region Four Reservoir Intertie Project Conceptual Design.

Figure 12.1 Location of San Diego Region Four Reservoir Intertie Project Conceptual Design



Project Standards

Applicable engineering hydraulic principles will be used during the development of the Conceptual Design.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 12G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress toward achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

This project is a Conceptual Design. Quality will be assured by approval of a scope of work for the Conceptual Design by the grantee and grantor and the timely and adequate completion of the scope by the consultant selected. If the Conceptual Design finds them desirable, MPs will be developed.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Not applicable

Project Permits

No permits will be required for the Conceptual Design.

Environmental Compliance

Since the project is a Conceptual Design, recommended CEQA guidance would involve the filing of a NOE (CEQA guidelines Section 15306, Class 6. Information Collection).

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 12.1 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 12.1: Project Submittals for the San Diego Region Four Reservoir Intertie Project Conceptual Design

No.	SUBMITTAL	SCHEDULE
12-1	Quarterly Reports	Quarterly
12-2	Final Report	June 2010
12-3	CEQA NOE	2009-2010

Other

Not applicable

Plans & Specifications References

No plans or specifications have been prepared for the San Diego Region Four Reservoir Intertie Conceptual Design.

Completed Work

No work will be completed before July 2008.

Work Item #13: South San Diego County Water Supply Strategy

Implementing Agency

Sweetwater Authority

Project Description

The South San Diego County Water Supply Strategy (Strategy) investigates the sustainable use of the San Diego Formation (SDF). Reliable assessments currently estimate that the SDF holds upward of 1,000,000 acre-feet of water. This extensive local water resource has the potential to significantly supplement water supplies and reduce dependence on imported water through its efficient development and use. The project will consist of an implementation study of the SDF to further understanding of sustainable water extraction and potential in-lieu conjunctive use and to guide the development of the Strategy.



Richard A. Reynolds
Groundwater Desalination Facility

The Strategy would provide an integrated, comprehensive and balanced approach by public water agencies for sustainable use and management of the apparently vast groundwater resources of the SDF, a natural underground aquifer that lies deep below the central and south San Diego Bay area. The depth of the porous aquifer, composed of sand and ancient seabed, ranges from 200 feet to more than 4,000 feet within a geographic area that stretches from Highway 8 southward into Mexico and westward beneath the Pacific Ocean, an area of approximately 125 square miles. Reliable assessments estimate that the SDF holds upward of 1,000,000 acre-feet of water. It currently produces about 4 MGD of desalinated brackish water and 2 MGD of potable well water within Sweetwater Authority's service area. The SDF is an extensive local water resource that has the potential to significantly supplement water supplies and reduce dependence on imported water through its efficient development and use.

A USGS Implementation Study (Study) was initiated in 2001. The Study will result in a work program that will lead to project design and implementation. The objectives of the Study are to (1) develop an integrated, comprehensive understanding of the geology and hydrology of the SDF; and (2) further understand how to expand use of the SDF for sustainable water extraction and potential in-lieu conjunctive use. Earlier components of the Study have provided important water quality data and information regarding depth-dependent flow rates.

This project will support Phase 3 of the Study and will conduct groundwater quality sampling to obtain measurements of water quality throughout the SDF. Two multi-depth monitoring wells will also be constructed. A groundwater model will be developed as an interpretative tool to facilitate a better understanding of how the surface water and groundwater systems interrelate and to provide a basis for quantitative analysis of regional water operations. The computer model will also assist in the evaluation of a sustainable yield quantity for the SDF. During Phase I of the Study, a regional aquifer test determined that a hydrogeologic connection existed between existing brackish groundwater wells that supply the existing Richard A. Reynolds Desalination Facility (Desalination Facility) and the National City production wells two miles to the north. An additional aquifer test will be conducted as part of this project to calibrate the groundwater model. This project will prepare a final report which will guide the further development of the Strategy.

The implementation of Phase III and completion of the Study that will be accomplished by this project is crucial to other elements of the Strategy. Carefully coordinated, high-quality, scientific analyses of the potential of the SDF as implemented in this project are important components of realizing larger long-term water supply goals for the Region and Southern California, and will serve as a necessary first step in preparing a Groundwater Management Plan.

Need for the Project

Development and implementation of the South San Diego County Water Supply Strategy will provide a comprehensive and integrated approach to sustainably using and managing the groundwater resources of the SDF. Additionally, it will maximize the efficient use of local brackish water from the SDF, which has the potential to significantly supplement water supplies and reduce dependence on imported water. The proposed Phase III USGS Study would continue the carefully coordinated, high-quality scientific analysis of the potential yield of the SDF. This is an important component of realizing larger, long-term water supply goals for the Region and Southern California.

Eligibility

The South San Diego County Water Supply Strategy is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(e), the program is an eligible project type because it is a program for groundwater recharge and management.

Work Tasks

Task 13A. Direct Project Administration

Not applicable

Task 13B. Land Purchase/Easement

Not applicable

Task 13C. Planning/Design/Engineering/Environmental Documentation

Subtask 13C.1 – Collect Samples of Groundwater Quality: Both areal and downhole samples will be collected. The areal sample sites will be selected to include a broad distribution of the SDF throughout the watershed. The downhole samples will be collected from production wells and will include measurement of flow within the well bore in order to optimally select the depth to collect the sample.

Subtask 13C.2 – Conduct Aquifer Test: In Phase I, a regional aquifer test was completed, and a hydrogeologic connection was found between the brackish groundwater wells that supply the existing Richard A. Reynolds Desalination Facility (Desalination Facility) and the National City production wells two miles to the north. A Phase III test will be used to calibrate the groundwater computer model.

Subtask 13C.3 – Install One Multiple-Depth Monitoring Well: This monitoring well will be constructed in the SDF, but the location has not been determined at this point.

Subtask 13C.4 – Install One Multiple-Depth Monitoring Well: This monitoring well will be constructed in the SDF, but the location has not been determined at this point.

Subtask 13C.5 – Develop a Regional Groundwater Flow Computer Model: This interpretative tool will facilitate a better understanding of how the surface water and groundwater systems interrelate, and provide a basis for quantitative analysis of regional water operations. The computer model will also help in the evaluation of a sustainable yield quantity for the SDF.

Subtask 13C.6 – Prepare Final Report: USGS Professional Paper will be prepared documenting and summarizing the geologic and hydrologic understanding of the SDF.

Task 13D. Construction/Implementation

Not applicable

Task 13E. Environmental Compliance/Mitigation/Enhancement

Not applicable

Task 13F. Construction Administration

Not applicable

Task 13G. Other Costs

Subtask 13G.1 – Preparation of QAPP: This subtask involves the preparation of a QAPP.

Subtask 13G.2 – Preparation of PAEP: This subtask includes preparation of a PAEP.

Project Maps

Figure 13.1 presents the location of the South San Diego County Water Supply Strategy.

Figure 13.1 Location of South San Diego County Water Supply Strategy



Project Standards

Well drilling and aquifer testing standards and methods will be performed according to DWR Bulletin 74-90, California Well Standards. Bulletin 74-90 is a supplement to DWR Bulletin 74-81, Water Well Standards, State of California, December 1981. Standards in Bulletin 74-81 and Bulletin 74-90 are minimum requirements for construction, alteration, maintenance, and destruction of water wells, monitoring wells, and cathodic protection wells in California (June 1991).

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 13G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting. A groundwater monitoring plan will be a component of the final report for the USGS SDF Implementation Study. Groundwater computer modeling will be calibrated as a Quality Assurance measure. A QAPP will be completed to ensure that data collected are of adequate quality, will meet the monitoring objectives of the project and allow integration into statewide monitoring efforts.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Not applicable

Project Permits

Table 13.1 displays the necessary permits and status of securing these permits.

Table 13.1: Permitting Requirements for the South San Diego County Water Supply Strategy

PERMIT	SCHEDULE
County of San Diego Dept. of Environmental Health Permit for Installation of Groundwater Monitoring Wells	July 2010

Environmental Compliance

Feasibility studies for the Otay River Basin Brackish Groundwater Desalination Study and the Regional Concentrate Conveyance Facility were awarded funding under Proposition 50, Chapter 6a. These projects are key elements of the South San Diego County Water Supply Strategy. It is anticipated that an Environmental Initial Study will be completed for each feasibility study. For Phase III of the USGS SDF Implementation Study, the USGS would provide all necessary environmental compliance documents.

Table 13.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements.

Table 13.2: Environmental Compliance Requirements for the South San Diego County Water Supply Strategy

PROCESS	SCHEDULE
CEQA Initial Study	June 2012

Groundwater Management Plan Work Items

Not applicable – this study is a necessary first step to precede preparation of a Groundwater Management Plan

Project Submittals

Table 13.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 13.3: Project Submittals for the South San Diego County Water Supply Strategy

No.	SUBMITTAL	SCHEDULE
13-1	Quarterly Reports	Quarterly
13-2	Submit Final Report	June 2012

Other

Not applicable

Plans & Specifications References

No plans or specifications have been prepared for the project.

Completed Work

No work will be completed before July 2008.

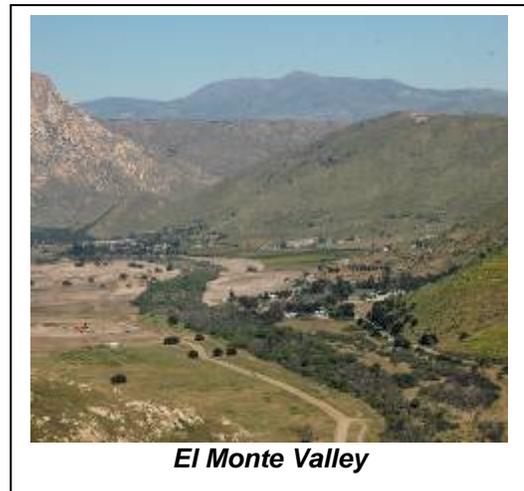
Work Item #14: El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2

Implementing Agency

Helix Water District

Project Description

The El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2, located in Lakeside, would recharge the El Monte Valley Basin using highly treated recycled water, raise the groundwater level to support habitat restoration and subsequently withdraw up to 2,240 AFY of groundwater to supply the R.M. Levy Water Treatment Plant. Phase 1 would develop the necessary Groundwater Management Plan and institutional support, and Phase 2 includes design and construction of spreading basins, conveyance pipelines and river restoration. Benefits include restoration of natural habitat, improvement of the water quality, and expansion of the local water portfolio by providing a new renewable water supply. This project is integrally linked to the Santee WRF Expansion Project.



In 2006, Helix Water District prepared a feasibility study to determine the viability of more effectively utilizing the Helix-owned land in the El Monte Valley for groundwater recharge and habitat restoration. The feasibility study considered the possibility of using highly treated, recycled water to recharge the

existing El Monte Valley Basin through conjunctive water use, raising the groundwater level to support habitat restoration, and extracting groundwater to help supply the R.M. Levy Water Treatment Plant. The feasibility study determined that Padre Dam MWD's WRF would be the most feasible source for recycled water. Required project facilities were also identified including upgrades to the WRF, conveyance pipelines, spreading basins, and extraction wells. The ultimate project, as defined in the feasibility study, would involve the recharge of the Basin using highly treated recycled water and subsequent withdrawal of the groundwater to deliver up to 5,000 acre feet (following completion of Santee WRF Expansion, Phase 3) of new raw water to the R.M. Levy Water Treatment Plant through a put-and-take operation. In 2006, Helix Water District and Padre Dam MWD entered into discussions to combine two projects – the WRF Facility Expansion Project and the El Monte Valley Groundwater Recharge Project – into one integrated project. Because the Santee WRF is the closest water source to the El Monte Valley the two projects are not only integrated, but interdependent as well.

The feasibility study included a phased implementation plan to develop the required facility upgrades through to full design capacity. This project represents Phase 2 of that implementation plan, which involves the initial layout of the pipeline and spreading basin infrastructure on-site in conjunction with a river restoration project. This includes design and construction of approximately 80 acres of spreading basins and the connecting pipelines from the raw water delivery system to the spreading basins. Initial groundwater recharge will be from the raw water connection. As a linked project, the existing WRF will be expanded from a capacity of 2 MGD to 4 MGD, for 2,240 AFY of new supply. A subsequent and final phase would involve completion of the project facilities and components and includes increasing the total treated effluent Title 22 capacity of the WRF up to 10 mgd and utilizing up to 5,000 AFY to recharge the groundwater basin and withdraw the groundwater to provide a new raw water supply.

Need for the Project

The El Monte Groundwater Recharge and River Restoration Project, Phases 1 and 2 is needed to provide a new renewable water supply of up to 2,240 AFY, allow extraction of much needed sand resources, provide restoration of natural habitat, and provide recreation/trails for the local community. The program's goals and objectives include:

- Utilize local highly treated recycled water to replenish the El Monte Basin for extraction and use as a new raw water supply
- Create up to 2,240 AFY of drought-proof new water supply
- Create a legacy 500-acre River Restoration Project including habitat, trails and recreation
- Utilize an underutilized groundwater basin in El Monte Valley
- Provide opportunities for habitat restoration identified in the local MSCP/Natural Communities Conservation Plan (NCCP)

There are several critical impacts that would occur if this project was not implemented including: (1) increased need for additional water supply in the future, (2) reversion of land use to a Golf Course, eliminating the River Restoration Project and associated potential for high quality habitat restoration and Coast-to-Crest trail on the San Diego River, (3) reduction in diversification of regional water supply, and (4) underutilization of existing sand resources.

Eligibility

The El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2 is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*

- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(e), the program is an eligible project type because it is a program for groundwater recharge and management.

Work Tasks

Task 14A. Direct Project Administration

Subtask 14A.1 – Project Administration:

This subtask includes overall project administration for the El Monte Valley Groundwater Recharge and River Restoration Project including staff and project developer time for project management and associated project management disciplines such as finance (billing), public affairs (public interaction), and administrative assistance (correspondence).

Task 14B. Land Purchase/Easement

Not applicable. All work will be completed on Helix Water District property.

Task 14C. Planning/Design/Engineering/Environmental Documentation

Subtask 14C.1 – Environmental Documents and Permitting:

This subtask includes the planning, design, engineering, and environmental documentation for the project including Helix Water District staff time, consultants' time, and project developer time to prepare planning-level studies, design and engineering documents for bidding, and all environmental documentation to complete permits such as the Major Use Permit from the County of San Diego and the Subsequent EIR.

Task 14D. Construction/Implementation

Subtask 14D.1 – River Restoration: This subtask includes removal of non-native habitat and construction and restoration of habitat revegetation within the project boundaries to include river bottom/riparian habitat in the San Diego River, upland and woodland habitat.

Subtask 14D.2 – Hubble Bridge: This subtask includes construction of a signature Hubble bridge located at the west end of the project that will allow pedestrian access and educational opportunities in wetland and riparian habitat.

Subtask 14D.3 – Equestrian Trails: This subtask includes construction of approximately 4 miles of equestrian trails throughout the project site with major trails running on the north and south side of the San Diego River.

Subtask 14D.4 – Grading: This subtask includes construction grading of the project site to recontour the valley for habitat restoration coordinated with the groundwater elevation. A grading plan has been prepared and is included in CD# 1.

Subtask 14D.5 – Utilities (buried): This subtask includes construction of all buried utilities within the project site such as storm drains, irrigation lines, and electrical lines.

Subtask 14D.6 – Site Improvements: This subtask includes construction of all site improvements within the project site such as improving Dairy Road, access roads, and roadway entrances.

Subtask 14D.7 – Monitoring Wells: This subtask includes construction of monitoring wells within the project site to manage the groundwater basin.

Subtask 14D.8 – Extraction Wells: This subtask includes construction of extraction wells within the project site for use of groundwater and recirculation to maintain groundwater levels during construction of habitat.

Subtask 14D.9 – Permit and Other Fees: This subtask includes all permits and other fees as part of construction such as excavation permits, encroachment permits, discharge permits, major use permit, and environmental permits.

Subtask 14D.10 – General Contract Items: This subtask includes all general contracting items during construction such as submittals, subcontracts, and sand extraction contracts.

Subtask 14D.11 – Pipeline and Connection: This subtask includes construction of a connection with flow metering and control valve in a vault and approximately 3 miles of 20-inch, 16-inch, 12-inch, 10-inch, and 6-inch piping from the connection point to the spreading basins.

Subtask 14D.12 – Spreading Basins: This subtask includes construction of approximately 80 acres of spreading basins located along Willow Road on the north side of the San Diego River to be used for percolating water into the groundwater basin.

Subtask 14D.13 – Initial Water Fill: This subtask includes purchase of approximately 2,500 acre-feet of raw imported water for initially filling the groundwater basin near the end of construction to “charge” the basin.

Task 14E. Environmental Compliance/Mitigation/Enhancement

Subtask 14E.1 – Biological Monitoring: This subtask includes biological monitoring of revegetated habitat during the construction period to evaluate habitat survival rates.

Subtask 14E.2 – Interim Biological Management: This subtask includes biological management of the revegetated habitat during the construction period including temporary irrigation, plant replacement, maintenance, and adjustments to increase plant survival.

Subtask 14E.3 – Environmental Education: This subtask includes construction of environmental education elements such as kiosks, signs, and habitat features as well as public notification and staff time for education activities.

Task 14F. Construction Administration

Subtask 14F.1 – Fire Management Plan: This subtask includes development and maintenance of a fire management plan for the project site during construction.

Subtask 14F.2 – Project Management: This subtask includes overall project management during the construction phase of the project including Helix Water District staff time for inspection, project developer staff time for inspection and management, and associated construction management disciplines such as contract progress payments, notifications, and documentation.

Subtask 14F.3 – Security: This subtask includes security at the project site during construction to minimize theft and damage to constructed project elements.

Task 14G. Other Costs

Subtask 14G.1 – Preparation of QAPP: This subtask includes the preparation of a Quality Assurance Project Plan.

Subtask 14G.2 – Preparation of PAEP: This subtask includes preparation of a PAEP.

Subtask 14G.3 –Effectiveness Monitoring: This subtask includes effectiveness monitoring.

Project Maps

Figure 14.1 presents the location of the El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2.

Project Standards

The standards for design of the work include the Water Agencies' Standards, a regional adopted set of standards for design and construction (available on www.sdwas.org). Design and construction will also follow regional, state, and national standards typical for pipeline, grading, and habitat design and construction such as American Society of Civil Engineers (ASCE) standards, and AWWA standards.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 14G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

During the Planning Stage, a Project Management Plan was developed for completion of the Feasibility Study, 2nd Phase for quality assurance. A pilot demonstration project and groundwater monitoring will be performed to confirm groundwater basin parameters. During the Design Phase, a Project Management Plan will be developed for quality assurance. During the Construction Phase, inspection will be performed for quality assurance. Once the project is operational, groundwater monitoring will continue.

A QAPP will be completed to ensure that data collected are of adequate quality, will meet the monitoring objectives of the project and will allow integration into statewide monitoring efforts.

Effectiveness monitoring will be conducted to ensure that groundwater recharge is occurring at desired rates and that groundwater levels are raised to levels that support river habitat.

Land Acquisition & Rights-of-Way

All the property for the El Monte Groundwater Recharge Project (for Phase 2 as submitted for Prop 50 Grant funding) is currently owned in fee by the Helix Water District.

Project Building Materials or Computational Methods

The initial feasibility phase of the project utilized a groundwater model prepared by San Diego State University. Currently, the second phase of feasibility analysis is developing a Groundwater Modeling System (GMS) MODFLOW groundwater model of the El Monte Basin. The GMS MODFLOW is a tested and established model that will take advantage of improved modeling tools that increase model accuracy.

Project Permits

Table 14.1 displays the necessary permits and status of securing these permits.

Table 14.1: Permitting Requirements for the El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2

PERMIT	SCHEDULE
County of San Diego Major Use Permit ¹	May 2008
Grading Plan ²	May 2008
Army Corps of Engineers 404 Permit ³	May 2008
Cal. Fish & Game Stream or Lake Alteration Agreement ⁴	May 2008

Notes:

1. A Major Use Permit # P98-01W was issued by the County of San Diego for the initial golf course project initiated on site. A new Major Use Permit has been submitted with the County of San Diego and is in process.
2. A Grading Plan # L-14105 was issued by the County of San Diego for the initial golf course project initiated on site. A new Grading Plan will be submitted upon approval of the Major Use Permit and Subsequent EIR.

3. An Army Corps of Engineers 404 Permit #972013600-RJL was issued for the initial golf course project initiated on site. The Army Corps of Engineers 404 Permit will be extended upon approval of the Subsequent EIR
4. A California Fish & Game Stream or Lake Alteration Agreement #5-298-99 was issued for the initial golf course project initiated on site. The Alteration Agreement will be extended or reissued upon approval of the Subsequent EIR.

Environmental Compliance

This project will comply with the environmental review requirements through the CEQA process. An approved EIR and associated permits are in place for the original El Monte Golf Course Project. A subsequent EIR is currently being prepared to revise the project to a River Restoration Project, which includes Phase 2 recycled water facilities in the El Monte Valley. The expected completion date is June 2008 for the environmental approvals and permits. This project is considered an environmental restoration project of statewide significance that could provide a blueprint for future projects integrating recycled water with habitat restoration.

Compliance with local, county, State, and federal permitting requirements will be accomplished through direct application for construction permits with local and county agencies, and CEQA documentation.

Table 14.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements.

Table 14.2: Environmental Compliance Requirements for the El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2

PROCESS	SCHEDULE
CEQA Subsequent EIR	June 2008

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 14.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 14.3: Project Submittals for the El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2

No.	SUBMITTAL	SCHEDULE
14-1	Progress Reports (Design)	Quarterly
14-2	Feasibility Study, 2 nd Phase (Demonstration Project Stage) Report	October 2008
14-3	Groundwater Management Plan (Draft)	June 2008
14-4	Environmental Documentation/Permitting (Subsequent EIR)	June 2008
14-5	Design Plans	June 2008
14-6	Award of Construction Contract	July 2008
14-7	Progress Reports (Construction)	Quarterly
14-8	Notice of Completion for Construction Contract	June 2016

Other

Not applicable

Plans & Specifications References

Plans and specifications to be followed during project implementation include:

- A Grading Plan AutoCAD file is included on CD #1.

Completed Work

Work completed to date is summarized in Table 14.4 below.

Table 14.4: Work Completed on the El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2 as of July, 2008

WORK ELEMENT	COMPLETION DATE
Feasibility Study (Planning Stage)	April 2006
Feasibility Study, 2 nd Phase (Demonstration Project Stage)	October 2008
Groundwater Management Plan (Draft)	June 2008
Environmental Documentation/Permitting (Subsequent EIR)	June 2008
Design	June 2008

EDUCATION AND OUTREACH PROGRAM

Work Item #15: San Diego Regional Pollution Prevention

Implementing Agency

San Diego Coastkeeper

Project Description

The San Diego Regional Pollution Prevention Project will engage the community on a monthly basis to remove inland and coastal trash and assess surface waters to identify watershed-specific solutions to address urban runoff. All information and data generated by this project will be shared regionally through education, outreach and community involvement. Stakeholder involvement and community participation are at the core of this project, and the implementation activities of this project are identified by 25 regional plans, including the 2007 San Diego IRWM Plan (Attachment 2). Over 5,000 members of the community will participate in trash clean-ups, and will receive information and instruction on pollution prevention. In addition, the project will teach a minimum of 300 members of the community how to monitor water quality, access publicly available water quality data and to analyze and interpret these data to identify water quality impacts on a watershed level for the purpose of addressing pollution and improving water quality.



The San Diego Regional Pollution Prevention Project will include the following components.

Monthly Trash Cleanups at inland sites and along the coast throughout San Diego County

In Partnership with I Love a Clean San Diego, trash cleanups will be organized and conducted at various sites throughout the county over the course of the project. In 2007, over 110,000 pounds of trash was removed from San Diego's beaches alone. Trash is weighed and quantified at clean-ups for regional reporting purposes and to further pollution prevention objectives. Education and informational materials distribution also takes place during these trash clean-up events.

Assessment of water quality in San Diego County Watersheds

In order to prevent pollution and improve water quality on a watershed basis, San Diego Coastkeeper (Coastkeeper) will continue to conduct citizen monitoring for the purpose of strengthening the Water Quality Standards program. The RWQCB Water Quality Standards were approved in 1994, but they do not provide a complete assessment for many San Diego watersheds. Volunteer monitoring has always provided a great benefit to assessing water quality, and Coastkeeper maintains a roster of dozens of dedicated volunteers who are available to participate in monthly monitoring events. Coastkeeper is recognized throughout the county for its citizen monitoring activities and all data collected is done at the EPA / SWRCB recognized Quality Assurance level.

Coastkeeper began its Citizen's Monitoring Program in 2001, and has now expanded to a well-attended citizen program that collects data from streams and rivers from all of San Diego County's watersheds. At present, monthly water quality training and monitoring events are conducted in partnership with the San Diego State University (SDSU) Department of Environmental Engineering and with the San Diego Stream Team (a volunteer-based non-profit organization performing bioassessment monitoring throughout San Diego County). These monthly events are scheduled to continue through 2008. Coastkeeper has an onsite water quality laboratory, where trained volunteers calibrate equipment and perform nutrient and

microbiology lab analyses. Coastkeeper seeks to expand this program to train more university students, members of the community and water quality professionals; and analyze and evaluate the monitoring undertaken thus far in an effort to improve site selection and the overall monitoring program. This will enable Coastkeeper to support continued water quality data collection by concerned citizens and the 303(d) and TMDL processes; continuation of this program will allow us to determine the health of the waterways of San Diego County on an ongoing basis.

Coastkeeper seeks to bring its training program to other community groups who are interested in playing an active role in water quality assessment, but do not have the capacity to undertake such a program. A number of groups throughout the county meet on a regular basis to discuss what to do about degrading local water quality but unfortunately lack the tools and the institutional relationships to implement a monitoring/data management program. Coastkeeper would like to work with these groups to ensure that this monitoring is done in context and with the level of quality assurances that secure the usefulness of data at the RWQCB / decision-maker level.

Data Sharing

Data collected through this project will be incorporated into two web-based, publicly accessible data portals: the currently available website for the Common Ground Project, and a new open source, industry-compliant technology platform. Using these tools, watershed management plans can be developed to address impacts and impairments throughout each of the watersheds of the county both in terms of trash and water quality.

The proposed project will integrate collected trash and water quality data in a way that allows for visualization of its spatial characteristics through two principle avenues.

- 1) Field data will be layered with existing Geographic Information System (GIS) layers in order to further develop a comprehensive perspective of processes affecting water resources and facilitate their management. A multidisciplinary team of experts will continue to provide oversight in this endeavor to ensure it supports future development of sophisticated modeling efforts.
- 2) The data will also be represented through another industry standard web-based graphic data management system, which covers a broader geographical area in comparison to the Common Ground Project, and incorporates advanced features and additional levels of qualitative data. The data display system functions not only as a repository for data, but also serves as a planning tool for citizen monitoring programs, and as a decision support tool to identify and abate water quality problems in the watershed.

Data Access, Analysis and Interpretation Workshops

Through the course of the San Diego Regional Water Quality Assessment and Outreach Project, Coastkeeper and its partners will teach a minimum of 300 members of the community – citizens, decision makers, tribal members, and stakeholders – how to access publicly available trash and water quality data and to analyze and interpret these data to identify water quality impacts on a watershed level. Water quality data access, analysis and interpretation workshops will run on a bi-monthly schedule, in parallel with existing monthly water quality training and monitoring events. Regional statisticians and data managers will be invited to attend and present at these workshops to introduce new perspectives in turning data into useful information.

Regional Data Management Summits will be conducted in June 2008 and June 2009 to bring key players in the field of data management together to discuss improvements for existing knowledge management, information transfer, transparency of data collected and strategies for data sharing.

Development of Outreach Materials to Inform the Public and Address Non-Point Source Pollution

Coastkeeper will work with community members through its trash cleanups, water quality monitoring, community-based social marketing, and data access / analysis / interpretation workshops to develop the San Diego County Watersheds Water Quality 'State of the Watersheds' Report (Watersheds Report) as a

tangible product at the end of this project. The Watersheds Report will be a tool to address trash and water quality impacts and impairments on a watershed level, created based on the bi-monthly workshops on data access / analysis / interpretation that identify impairments and propose solutions. Following its publication and distribution, members of the public will be able to refer to the Watersheds Report to address pollutants of concern and to propose solutions in line with fostering sustainable behavior for watershed protection, management and pollution prevention. The Watersheds Report will also be disseminated at Coastkeeper events, including World Water Monitoring Day and Coastal Snapshot Day, and through its educational hands-on programs in classrooms throughout the county.

Need for the Project

San Diego is known for its world-famous beaches and coastline. Yet, it seems every trip to the beach is marred by trash – cigarette butts, plastic wrappers, bags and containers are everywhere. What is considered unsightly on our local beaches poses a far more serious threat to our ocean environment. Plastics now outweigh plankton by more than a 6 to 1 ratio in certain parts of the ocean. Recent studies have found that the Pacific Ocean is home to an area of plastic that is twice the size of Texas, weighs nearly 1 million tons and runs almost 300 feet deep. It is known as the “Eastern Garbage Patch.” This patch is a huge feeding ground for many birds, fish and other marine life.

Each year, more than one million birds, nearly 100,000 whales, seals, and turtles, as well as countless fish worldwide are killed by plastic debris. Animals cannot distinguish plastics from their natural food source resulting in starvation and suffocation through ingestion. In addition, plastic impacts wildlife through entanglement. What is more alarming is that this problem will only get worse as we increasingly produce and discard plastics. In fact, more than 90% of all plastics ever made still exist today, whether they are floating in the ocean or in the form of toxic dust.

In addition, debris in waterways causes significant water quality problems. Litter commonly acts as a vector for bacterial growth and introduces toxins into waterways. Trash also negatively affects a waterbody’s beneficial uses. The prevention and removal of trash in San Diego’s Watersheds ultimately will lead to improved water quality and protection of aquatic life and habitat, expansion of opportunities for public recreational access, and the enhancement of public interest in the rivers and public participation in restoration activities.

On a national scale, fewer than 25% of waterways have undergone any type of assessment for water quality, and of those that have been assessed, 40% have been identified as impaired. San Diego is no exception.

Stakeholder involvement and community participation are at the core of this project, and these activities are recognized universally throughout almost all planning documents as objectives that are necessary to be achieved in order to properly manage a watershed. Community awareness and involvement is a challenging but critical component to successfully and sustainably managing our region’s water portfolio. Industrial and military operations along San Diego waterfronts, urban runoff and decades of neglect have combined to leave the Region with dozens of toxic waterways that pose a serious public health threat in addition to the environmental degradation that has been wrought. Poor management practices, industrial pollution, dumping, and non-point source pollution have all caused San Diego Bay to be ranked in 1996 as the second most toxic of 18 bays studied nationally by the National Oceanic and Atmospheric Administration. As of 2006, 100 waterbody segments in San Diego County have been listed as impaired under the Clean Water Act’s 303(d) list, and yet only three have adopted TMDLs. Presently, elevated levels of nutrients, metals, coliform bacteria, enterococcus, toxicity and pesticides in urban stormwater continue to harm the beneficial uses assigned to these waterbodies. Continued monitoring, assessment and public outreach following these activities is critical to develop ways to prevent the further degradation of San Diego’s waters. In addition, workshops focusing on how to access monitoring data are required for university students, citizen groups, decision makers and other stakeholders so that they can refer to available up-to-date data and draw conclusions on the benefits of implemented projects and BMPs, and through this knowledge improve the health of these waterways.

This project directly addresses pollution through its removal, classification, and transfer of these data back to the community to foster greater awareness to address the issue. This project not only seeks to establish a baseline of water quality and trash data, but also to make this data transferable to the local communities that live in this watershed through the data access / assessment / interpretations workshop and the Watersheds Report.

Eligibility

The San Diego Regional Pollution Prevention Project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(d), the program is an eligible project type because it includes non-point source pollution reduction, management, and monitoring.

Work Tasks

Task 15A. Direct Project Administration

Subtask 15A.1 – Project Administration: Project administration includes the preparation of all contracts, attendance at meetings and technical advisory committees (TACs) for data management, citizen monitoring, low impact development (LID) and TMDL programs in the Region. Deliverables will be subcontractor documentation and a list of meetings attended.

Subtask 15A.2 – Submit Quarterly Reports: Quarterly Reports will detail the progress on each of the tasks and deliverables met. The deliverable will be Quarterly Reports.

Subtask 15A.3 – Submit Final Report: The Final Report will detail progress on each of the tasks and deliverables met, and track activities, challenges, and process through the course of the project.

Task 15B. Land Purchase/Easement

Not applicable.

Task 15C. Planning/Design/Engineering/Environmental Documentation

Subtask 15C.1 – Establish Regional Water Monitoring Training and Resource Center: This subtask will include the following:

- Recruit citizens to participate in water quality monitoring activities to increase public awareness and recruit and train citizens to collect water quality data in accordance with

- EPA/SWRCB guidelines to help support the Citizen Monitoring. A deliverable will include outreach and education materials.
- Organize San Diego Citizen Watershed Monitoring Consortium meetings to assure regional citizen monitoring activities are coordinated, and recruit new member organizations to the consortium. The deliverables will be a list of meetings, participants at these meetings and meeting agendas.
 - Develop training modules.
 - Conduct monthly water quality training workshops with the following outcomes:
 - After 2 years, more than 300 individuals trained on watershed management, water quality monitoring, data access, analysis and implementation
 - LID, Smart Growth and BMP effectiveness discussed and analyzed in terms of effects on water quality
 - Conduct monthly citizen monitoring events covering watersheds throughout San Diego County. A desired outcome of this subtask is an increase in water quality data that is comparable with the Surface Water Ambient Monitoring Program (SWAMP) for the San Diego County Watersheds to support the 303(d) listing and TMDL processes.
 - Integrate data into the Common Ground on-line databases (ArcIMS interactive mapping application, access database and Google Maps Exceedance maps). An outcome of this subtask is posting of data on the existing Common Ground on-line data repository so that it is publicly accessible; inclusion of information on the WISE data management system to enhance management decisions. The deliverable will be Citizen Monitoring Results and Website product.
 - Identify and implement measures to evaluate the effectiveness of Center. A deliverable of this subtask is the “Measures to Evaluate Effectiveness of Center” document that will be included in the Project Monitoring and Reporting Plan.

Task 15D. Construction/Implementation

Subtask 15D.1 – Develop and Implement Public Outreach and Educational Campaign:

- Implement monthly coastal and inland cleanups throughout San Diego County. Catalog and manage data pertaining to type and quantity of trash removed for inclusion in publicly accessible databases for the purpose of pollution prevention.
- Conduct Data Management Summits for water quality professionals and practitioners over the course of the project. Collect feedback on how to make these tools even more effective, facilitate progress in regional data management Deliverables would include summit agenda/program & sign-in sheets, minutes from summit and other writeups.
- Work with the San Diego Citizen Watershed Monitoring Consortium to engage K-12 students in World Water Monitoring Day (monitoring takes place September 18 - October 18). An outcome of this subtask is increased student involvement and participation in hands-on science and water monitoring activities. Deliverables would include list of participating schools, programs and sign-in sheets from World Water Monitoring day activities and media events (in San Diego and Tijuana, Mexico)
- Develop and distribute outreach materials at various meetings and events, including at Clean-ups, World Water Monitoring Day and Coastal Snapshot Day. This work item would inform the public about water quality and trash quantity in San Diego County and involve interested parties by providing opportunities for involvement. Deliverables would include copies of outreach materials; list of meetings & events attended.

Subtask 15D.2 – Manage Data, Analyze Data and Develop San Diego Regional Watersheds Report:

- Conduct 10 workshops to identify pollution trends in the San Diego Watersheds, with deliverables as workshop agendas/minutes and sign-in sheets.
- Manage and analyze data, in a SWAMP data format database that includes Quality Control data.

- Develop Water Quality Watersheds Report using the data collected and identify ways that citizens and businesses can act to improve the health of their local waterways.
- Publish and distribute Watersheds Report through print newsletters, e-mail alert, on the website and at various meetings, fairs, and events and through Coastkeeper's hands-on education programs. The goal of this item is make information available about the state of water quality on a watershed basis. Deliverables of this subtask include a list of how and when 'Watersheds Report' has been distributed (through the media, by hard copy and electronically).

Task 15E. Environmental Compliance/Mitigation/Enhancement

Not applicable

Task 15F. Construction Administration

Not applicable

Task 15G. Other Costs

Subtask 15G.1 – Preparation of QAPP: A QAPP will be developed for this project. Data will be conformed to the SWAMP template and QAPP. For the water quality chemistry and bioassessment monitoring, all protocols are EPA / SWRCB approved methods, and conducted under an approved SWAMP QAPP.

Subtask 15G.2 – Preparation of PAEP: This subtask includes preparation of a PAEP, monitoring and assessment of project implementation, overall project administration, and preparation of quarterly status reports and a final status report.

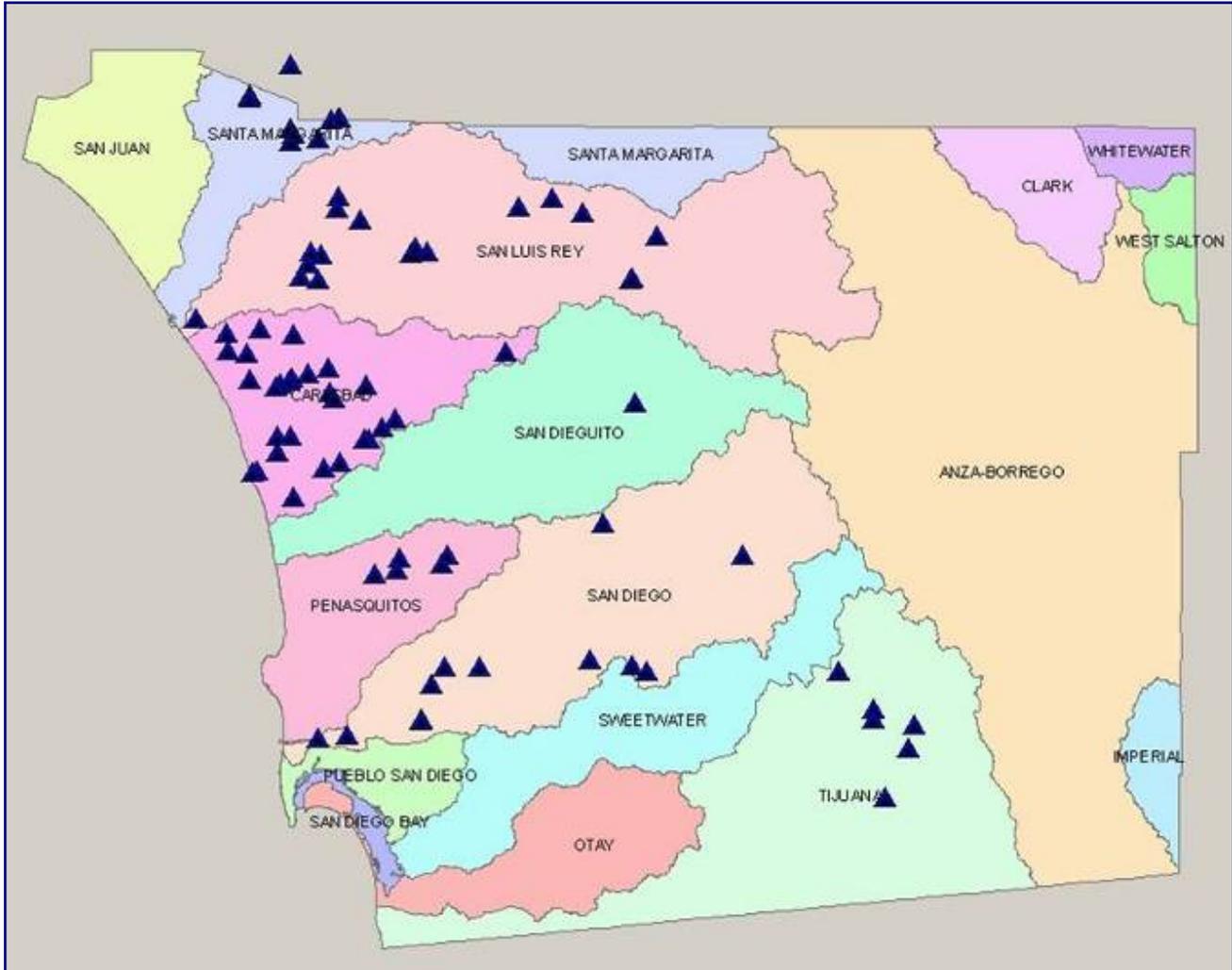
Subtask 15G.3 – Effectiveness Monitoring: The subtask includes short term monitoring of the project before the project is complete.

Subtask 15G.4 – Preparation of MP: This subtask includes the preparation of an MP.

Project Maps

Figure 15.1 presents the location of monitoring sites from the San Diego Regional Pollution Prevention project.

Figure 15.1 Location of San Diego Regional Pollution Prevention Project



Project Standards

Data will be conformed to the SWAMP template and QAPP. For the water quality chemistry and bioassessment monitoring, all protocols are EPA / SWRCB approved methods, and conducted under an approved SWAMP QAPP. This project will monitor for air & water temperature, dissolved oxygen (DO), pH, conductivity, phosphate, nitrate, hardness, microbiology, copper, lead, zinc and other constituents as identified by a TAC. Data will be processed and managed in-house by staff members. All monitoring sites chose based on the criteria that they are publicly-accessible, and volunteers sign a waiver of liability before conducting field work.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 15G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

A QAPP will be completed to ensure that data collected are of adequate quality, will meet the monitoring objectives of the project and will allow integration into statewide monitoring efforts.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

GIS ArcView Software will be used for mapping applications.

Project Permits

No permits are required to implement the San Diego Regional Pollution Prevention project.

Environmental Compliance

Not applicable

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 15.1 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 15.1: Project Submittals for the San Diego Regional Pollution Prevention Project

No.	SUBMITTAL	SCHEDULE
15-1	Quarterly Reports	Quarterly
15-2	Final Report	June 2010

Other

Not applicable

Plans & Specifications References

Plans and specifications will not be developed for this project.

Completed Work

No work will be completed before July 2008.

Work Item #16: Biofiltration Wetland Creation and Education Program

Project Description

The Biofiltration Wetland Creation and Education Program will develop a biofiltration wetland within the San Diego Wild Animal Park (Park) which will be used to improve water quality within the Park through natural biological filtration, enhance wetlands habitat, and reduce water consumption. The constructed wetlands will be biological filters that are very effective at removing high biological oxygen demand (BOD), total suspended solids (TSS), organic nitrogen, and nitrate. In addition to constructed wetlands, providing pond edge habitat is also important for this project. The wetlands will also educate visitors about water conservation and the importance of conserving wetlands.



North Africa Pond

Recycled water from the Park's wastewater treatment plant enters a reclamation pond. This project will develop a demonstration wetland in an area west of the reclamation pond that will extend past the Park's Amani Point to the South Africa pond. A 6-inch line will be constructed that will convey flow from the reclamation pond to the South Africa pond. Wetlands will be created along both the East and South African ponds to provide water treatment to the ponds. Pumps and recycled water mains will be designed so that water from either pond can cascade through the wetlands area to the other pond that provides for increased flexibility for the irrigation system. The connection would circulate water to ensure that pond levels and water flow are consistent, improving water quality, balancing each pond and virtually inhibiting any overflow offsite. The project will also increase the Park's water efficiency by ensuring constant flow and proper pond levels, helping to reduce the Park's usage of City water.

The constructed wetlands will be biological filters that are very effective at removing high BOD, TSS, organic nitrogen, and nitrate. In addition to constructed wetlands, providing pond edge habitat is also important for this project. Native Southern California plants would be used to provide habitat for the small fish and microinvertebrates that are algae filter feeders around the East and South Africa ponds. Construction of edges with rocks can provide protection from exhibit animals. Building rock structures in the pond bottom can also provide habitat for small fish.

The Park plans to showcase its newly developed demonstration wetland as a vehicle for community outreach and education. Upon the construction completion, the reclamation pond would be turned into a wetlands habitat and offer a strong opportunity for public education. The Park's new Journey into Africa safari tour encircles the reclamation pond and provides ample opportunities for a captive audience to learn more about wetlands and how they function. Visitors load and unload in close vicinity of the reclamation pond. The project's educational message would reach approximately 1.5 million individuals per year. In addition to providing an engaging educational experience, the demonstration wetland will improve water quality within the Park through natural biological filtration, enhance wetlands habitat, and reduce water consumption.

Need for the Project

Currently, the two large ponds (East Africa and South Africa, each approximately 12 million gallons) collect water flowing through two separate valleys. Water passing through these field exhibits drains into the ponds and, because of the terrain features, much of the fecal waste cannot be adequately collected and removed. Fecal waste accumulates in streambeds passing through the exhibits eventually reaching the ponds.

Because of its limited sewer connection, the Park's wastewater is treated on grounds to a secondary level (screened, settled and chlorine added). Some of this treated wastewater is used for irrigation and the rest flows into the East Africa pond. This constant flow to the East Africa pond creates an almost constant overflow off grounds and eventually into the San Dieguito River Valley Watershed. This overflow is a combination of partially treated wastewater, animal waste from the field exhibits, sediment, elephant exhibit drainage and the Park's Nairobi Village and flamingo lagoon drainage. Converseley, the South Africa Pond (southeast of the East Africa Pond and significantly lower in elevation), is being constantly filled with water to compensate for evaporation and seepage.

The Biofiltration Wetland Creation and Education Program will connect the two ponds (East and South Africa ponds) by means of a wetland. The proposed wetland will not only help clean the water but the connection alone will allow water to flow from the East Africa pond to the South Africa pond, virtually eliminating the overflow off grounds. The pond connection and wetland addition will help to minimize this impact and will bring a much needed education focus on how important healthy water systems are in our community.

Eligibility

The Biofiltration Wetland Creation and Education Program is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(d), the program is an eligible project type because it includes non-point source pollution reduction, management, and monitoring.

Work Tasks

Task 16A. Direct Project Administration

Subtask 16A.1 – Project Administration: Administration includes preparing documents, project facilitation, communication with consultants and scheduling. Support staff will be tasked with plant documentation and equipment inventory. Ordering staff will be responsible for ordering specific plants and equipment for the project.

Task 16B. Land Purchase/Easement

Not applicable

Task 16C. Planning/Design/Engineering/Environmental Documentation

Subtask 16C.1 – Permits and Construction Documents: The Zoological Society of San Diego (ZSSD) staff will work with consultants to acquire a building permit, create the schematics for the project's mini-master plan, develop the wetland schematics, and complete design and construction documents.

Task 16D. Construction/Implementation

Subtask 16D.1 – Set/Install Equipment: Based on consultants' experience with similar systems, two 80 gallon per minute (gpm) pumps and underground PVC pipe will be used to convey water from pond to pond, keeping levels adequate for minimal overflow and required treatment. Approximately 2,500 linear feet is needed. Pump stations will include weatherproof enclosures, drainage, valves and pump mounting requirements.

Subtask 16D.2 – Build Wetlands/Conveyance Systems: Based on previous wetlands construction and documented results, effective wetlands consist of EPDM liner, subsurface piping and reedbeds. An approximately 1.5 acre area will be excavated, lined and connected to ponds with constructed stream channel with water cascade to enhance aeration.

Subtask 16D.3 – Set/Install Electric Wiring and Controls: Electrical power will be run to operate pumps and controls. Based on Park water quality staff experience with similar systems, flow switches and flow meters will be installed to electrically protect the pumps and ensure adequate performance.

Subtask 16D.4 – Mobilization: Mobilization includes transporting all equipment, vehicles, construction trailers and moving equipment to and from the site. It also includes moving plants and aggregate from within the Park to the construction site.

Subtask 16D.5 – Maintenance: Based on staff's experience with current water systems, some maintenance will be required to keep system operating sufficiently. Water quality testing (on and off site) will be conducted to determine efficiency of pumps and wetlands. pH and temperature probes will be used and monitored on a daily basis. Pump maintenance (grease, bearings) will also be performed.

Task 16E. Environmental Compliance/Mitigation/Enhancement

Subtask 16E.1 – Water Conservation/Education Programs: Water conservation/education programs will be implemented based on current education programs at the Zoological Society of San Diego. Water Conservation/Education programs include partnership programs with Conservation Corps students, the Water Education Foundation, and Escondido Education Compact. Programs will include hands-on water testing opportunities, water conservation and watershed programming, riparian habitat restoration, plantings, public outreach programs to students, teachers, families, youth, and guests visiting the Park.

Task 16F. Construction Administration

Subtask 16F.1 – Construction Management: Tasks include facilitation of bi-weekly meetings to discuss project deliverables with consultants and staff, schedule review, project monitoring, water quality testing, and site and project evaluation.

Task 16G. Other Costs

Subtask 16G.1 – Preparation of QAPP: ZSSD staff will work with consultants to complete all QAPP requirements.

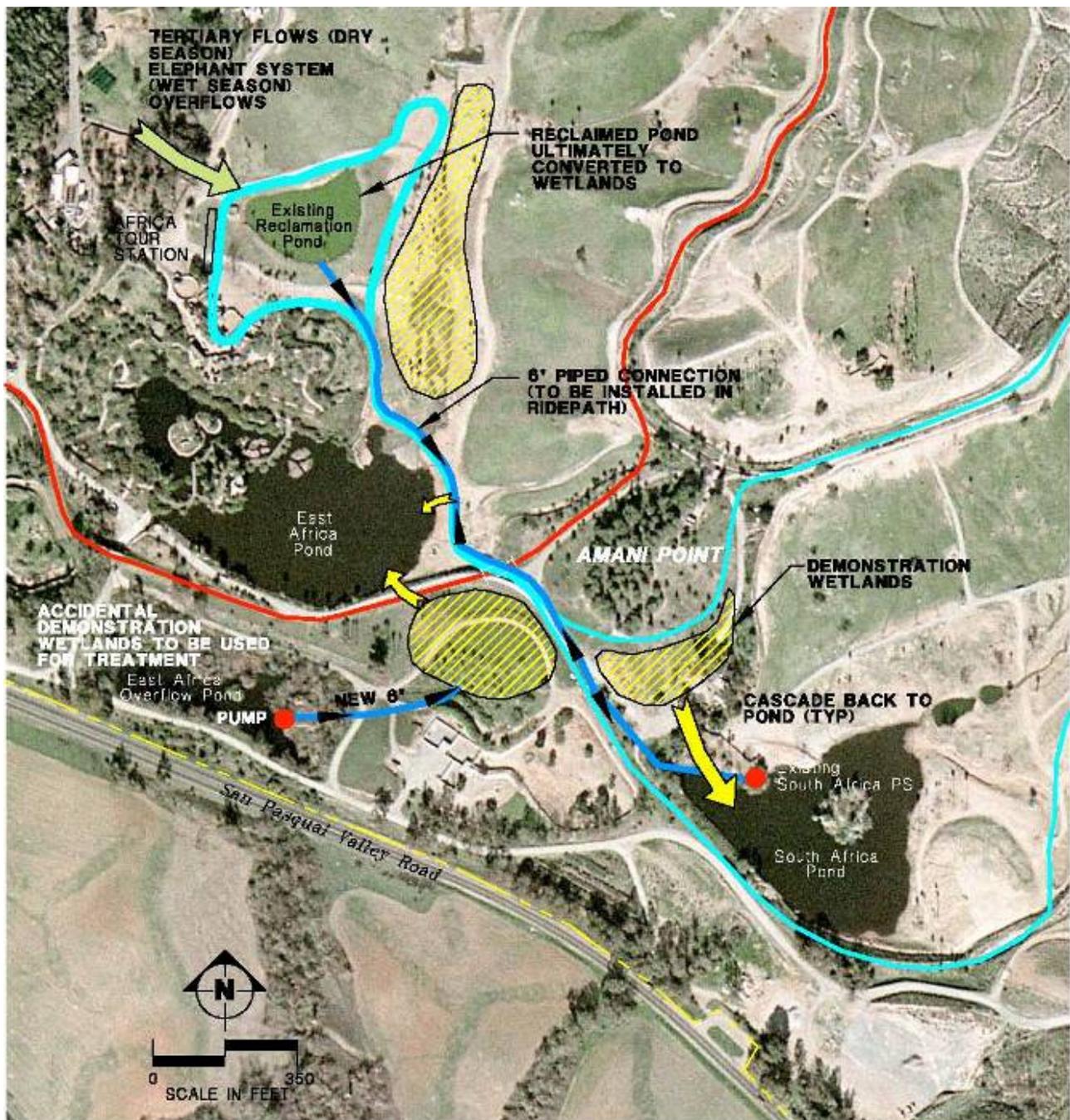
Subtask 16G.2 – Preparation of PAEP: This subtask includes preparation of a PAEP, monitoring and assessment of project implementation, overall project administration, and preparation of quarterly status reports and a final status report. ZSSD staff will work with consultants to complete all PAEP requirements.

Subtask 16G.3 – Effectiveness Monitoring: Monitoring will consist of evaluating flows and water quality parameters and conducting water quality tests. Specifically, monitoring would occur one day every two weeks to test, record, and monitor water quality from six water bodies. This information would be entered into a database for the system and we are anticipating that we will coordinate with the proposed statewide wetland monitoring program. This coordination and training may take more effort but we would like to be part of that system. Data collected will be compiled in a SWAMP-comparable format.

Project Maps

Figure 16.1 presents the location of the Biofiltration Wetland Creation and Education Program.

Figure 16.1 Location of the Biofiltration Wetland Creation and Education Program



Project Standards

All applicable and appropriate water quality, building, laboratory analysis, and construction standards have been and will be used in implementing the project. Applicable OSHA standards and regulations will be implemented for pipeline construction. EPA Clean Water Act Analytical Test Methods and the Standard Methods for the Examination of Water, Latest Edition, will be used for laboratory analysis.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 16G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

Water quality monitoring will be the cornerstone for measuring project effectiveness. Measuring flow and pH on a continuous basis will help operators make adjustments and “dial in” the specific water quality parameters. Measuring bacteria levels and BOD reduction will provide concrete feedback re: project efficiency. Nitrate and temperature measurements will also provide meaningful data. All water quality monitoring will be conducted as detailed in the effectiveness monitoring plan (Subtask 16G.3) and QAPP (Subtask 16G.1). The Park’s water management group will hold bi-weekly construction meetings onsite to measure construction progress. The group will also measure progress against previously established construction projects at the Park.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Water losses from the site will be minimized through the use of the lined channel using an EPDM liner that will prevent water loss through leeching into the soil. The lined channel will maintain a volume of water and thereby increase the water holding capacity of the current stream and pond system. The riparian zones will be designed in a manner that also minimizes evaporation and plant transpiration. While “media filter” is the accepted term for such a facility, contaminants will be primarily removed through biological action. While the riparian treatment zone is a constructed system, design and construction can be done in a manner that maintains a natural and visually pleasing appearance.

The two wetlands will be connected using Schedule 80 PVC pipe with associated fittings. A centrifugal pump will distribute water from one pond to another.

Project Permits

Table 16.1 displays the necessary permits and status of securing these permits.

Table 16.1: Permitting Requirements for the Biofiltration Wetland Creation and Education Program

PERMIT	SCHEDULE
Building Permit	July 2008

Environmental Compliance

In November 2001, the Park’s Future Construction Program Resource Protection Ordinance (RPO) Permit LDRNO: 99-0153 SCH # 99081105 was adopted. This project is incorporated in this RPO Permit, which is included in Appendix 3 (Disc 2 [DVD]).

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 16.2 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 16.2: Project Submittals for the Biofiltration Wetland Creation and Education Program

No.	SUBMITTAL	SCHEDULE
16-1	Quarterly Reports	Quarterly
16-2	Final Report	December 2009

Other

Not applicable

Plans & Specifications References

Plans and specifications will be developed for this project.

Completed Work

No work will be completed before July 2008.

Work Item #17: San Dieguito Watershed Management Plan Implementation Project

Implementing Agency

San Dieguito River Valley Conservancy

Project Description

This project will implement specific actions identified in the San Dieguito Watershed Management Plan and directed by the San Dieguito Watershed Council, including grant writing and reporting, coordination of the activities and work products of the Working Groups, oversight of specific projects, and management of public relations. This will also include coordinating implementation of the San Dieguito Watershed Management Plan, which includes projects throughout the watershed offering benefits of habitat restoration, water quality improvement and water conservation.

This project will be implemented in close coordination with the San Dieguito Watershed Council. The Council was established in January of 2007 with the express mission of facilitating the implementation of the San Dieguito Watershed Management Plan, finalized in September 2006. The Council currently has eleven members, including various stakeholders and jurisdictions within the watershed boundary (see Cooperating Partners for a list of members). Each member must affirm an interest in and commitment to the health of the San Dieguito Watershed and contribute to the achievement of the objectives in the Action Plan. For its first year, the Council is being co-chaired by the San Dieguito River Park Joint Powers Authority and the San Dieguito River Valley Conservancy.

The Council is tasked with prioritizing the actions in the Management Plan and overseeing the creation of Working Groups to proactively address them. The Council also recognizes the Management Plan is a living document and will ensure it is updated at least every five years. The overall goals of the Action Plan include the following:

- The Protection and Enhancement of Water Quality
- The Conservation, Reuse, Protection, and Maintenance of Local Water Supply
- The Protection, Enhancement, and Restoration of Native Habitats and Biological Resources
- The Support of Social and Community Resources Needs and Watershed Stewardship

Each Working Group will be made up of stakeholders who can contribute materially, organizationally or with expertise to the specific action being addressed. The Council expects to assist the Working Groups in seeking outside (grant) funding to carry out their activities. Two Working Groups have been created so far to address Weed Management and Water Quality Testing. In 2006, the San Dieguito River Valley Conservancy took the lead in establishing a ten-member stakeholder group to address invasive, non-native plants in the watershed, and this group now formally operates as the San Dieguito Watershed Council's Weed Management Working Group. A paid staff person from the Conservancy chairs this Working Group and is currently also providing staff support to the Watershed Council in its start-up year.

The members of the Council recognize that the Watershed Management Plan will best be implemented through the activities of task-oriented Working Groups. Because Council members do not contribute financially to the Council, outside funding is needed to support the Council in implementing the San Dieguito Watershed Management Plan. Specifically, funding will be used to hire a contractor to implement the following actions that are critical to implementation of the Watershed Management Plan: cover this position's salary for three years at \$30 per hour, for a total request of \$90,000. The part-time position (20 hours per week) will have a strong background in project management to be able to assist with write and report on grant writing and reporting opportunities, coordinating coordinate the activities and work products of the Working Groups, overseeing specific projects, and managing maintain public relations and providing administrative support. In this role, tThese actions will staff person will directly contribute to the achievement of the objectives set forth in the San Dieguito Watershed Management Plan through the activities of the Council and its Working Groups and the mission of the Council to move the Plan into action.

Need for the Project

The Council's members do not contribute financially to the viability of the Council or the activities of its Working Groups. Therefore, the Council must seek outside funding to support impementation of the San Dieguito Watershed Management Plan. This project will provide funding to assist the Council with grant writing/reporting, coordinating the activities and work products of the Working Groups, and maintaining public relations. Without funding to complete these activities, it will be necessary for the Council to rely on volunteer assistance to complete the actions identified in the Watershed Management Plan, which will likely lead to delays and a lack of coordination.

Eligibility

The San Dieguito Watershed Management Plan Implementation Project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife*

habitat.

- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(i), the San Dieguito Watershed Management Plan Implementation Project is an eligible project type because it includes watershed management planning and implementation.

Work Tasks

Task 17A. Direct Project Administration

Subtask 17A.1 – Project Administration: This task will involve attendance at Council meetings and meetings held by member organizations.

Subtask 17A.2 – Prepare and Submit Semi-Annual Reports/Invoices: This task will involve preparation and submittal of semi-annual reports and invoices associated with this grant award.

Task 17B. Land Purchase/Easement

Not applicable.

Task 17C. Planning/Design/Engineering/Environmental Documentation

Not applicable.

Task 17D. Construction/Implementation

Subtask 17D.1 – Watershed Management Project Implementation: As part of this task, projects chosen by Working Group members to achieve high-priority objectives set out in the San Dieguito Watershed Management Plan will be planned and implemented. Implementation steps are expected to include communication with Working Group members and outside parties, attending Working Group meetings, preparing documents, research, gathering and compiling information for dissemination and communication to the general public about Council activities and accomplishments.

Task 17E. Environmental Compliance/Mitigation/Enhancement

Subtask 17E.1 - Working Group Activities Related to Environmental Action Steps: This task will involve planning and implementing projects chosen by Working Group members to achieve high-priority objectives specifically associated with environmental enhancement goals set out in the San Dieguito Watershed Management Plan. Implementation steps will include regular communication with Working Group members and outside parties, attending Working Group meetings, preparing documents, research, performing field work necessary to achieve environmental enhancement objectives, gathering and compiling information for dissemination and communication to the general public about Council activities and accomplishments.

Task 17F. Construction Administration

Not applicable

Task 17G. Other Costs

Subtask 17G.1 – Preparation of PAEP: This subtask includes preparation of a PAEP.

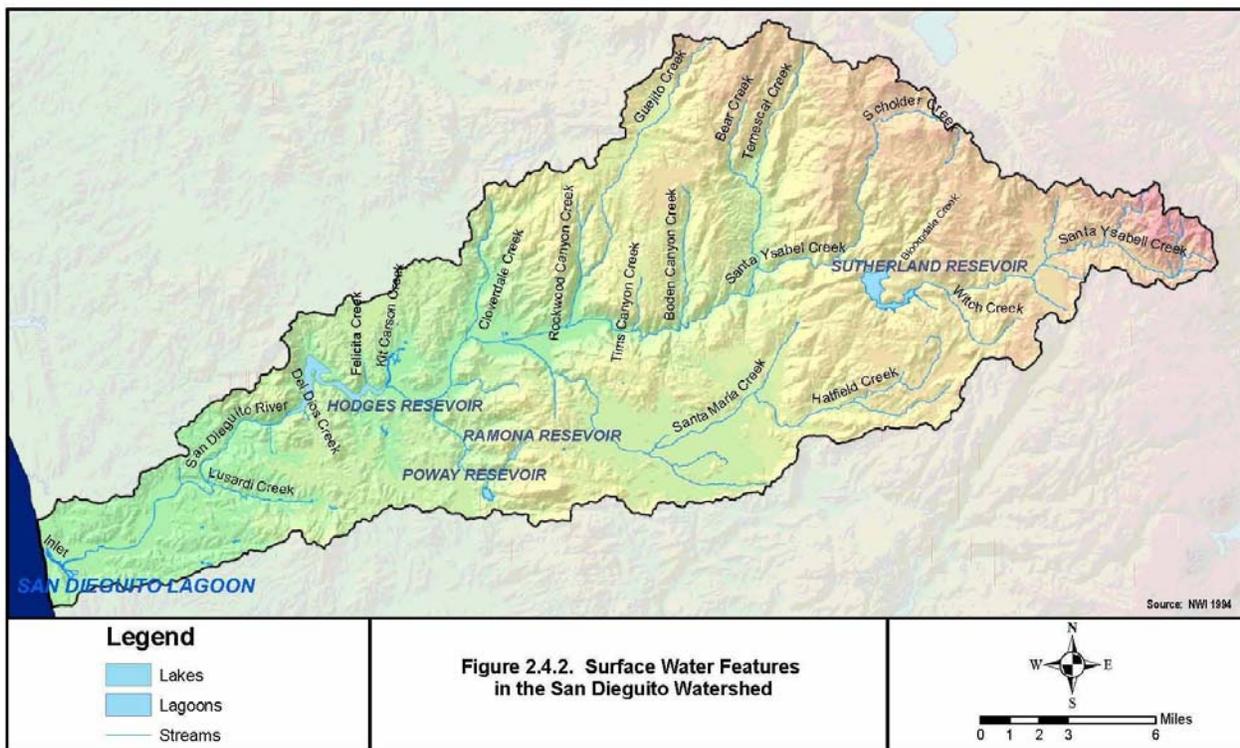
Subtask 17G.2 – Hiring of Contractor(s): The Council will develop a description of the work items to be completed and will select the best candidate(s) to complete these work items.

Subtask 17G.3 – Identify and Apply for Outside Funding to Carry out Council Programs: The staff person will research and identify opportunities for outside funding to support Council and Working Group activities. The staff person will write and submit grant applications and submit required reports and documentation.

Project Maps

Figure 17.1 presents the location of the San Dieguito Watershed Management Plan Implementation Project.

Figure 17.1 Location of the San Dieguito Watershed Management Plan Implementation Project



Project Standards

No specific standards, construction standards, health and safety standards, laboratory analysis, will be needed for the project.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Tasks 17G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Not applicable

Project Permits

No permits will be required to implement the actions identified as part of this project. Permits may be required to implement some of the Watershed Management Plan's Action Steps. Any permits required to implement specific action steps will be secured as part of that project, and will be separate from this project.

Environmental Compliance

No additional environmental compliance is required for the San Diego River Watershed Management Plan Implementation project.

Groundwater Management Plan Work Items

This project will not directly impact groundwater, and a Groundwater Management Plan is not required for implementation of the project. As a result, this project does not include specific work items aimed at developing a Groundwater Management Plan. However, the San Dieguito Watershed Council will assist with the development of the Pamo Valley, Santa Maria Valley, and San Dieguito Creek Groundwater Management Plans by:

- Convening stakeholders
- Form Working Groups to develop each groundwater management plan (Working Groups may consist of members outside Watershed Council)
 - Working Groups would meet on regular basis to develop plan within one year
 - Working Groups would seek funding to engage outside party to write draft plan, circulate for comment & produce final plan

Project Submittals

Table 17.1 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 17.1: Project Submittals for the San Dieguito Watershed Management Plan Implementation Project

No.	SUBMITTAL	SCHEDULE
17-1	First Semi-Annual Report & Invoice	December 2008
17-2	Second Semi-Annual Report & Invoice	June 2009
17-3	Third Semi-Annual Report & Invoice	December 2009
17-4	Fourth Semi-Annual Report & Invoice	June 2010
17-5	Fifth Semi-Annual Report & Invoice	December 2010
17-6	Final Report & Invoice	June 2011

Other

Not applicable

Plans & Specifications References

Plans and specifications will not be developed for this project.

Completed Work

Work completed to date is summarized in Table 17.2 below.

Table 17.2: Work Completed on the San Dieguito Watershed Management Plan Implementation Project as of July, 2008

WORK ELEMENT	COMPLETION DATE
Convene Watershed Council 4-6 times per year	January 2007, March 2007, June 2007, October, 2007,, December, 2007 (2008 dates not set)
Achieve representation from all six jurisdictions	January 2008
Identify priority action steps to form Working Groups	June 2008

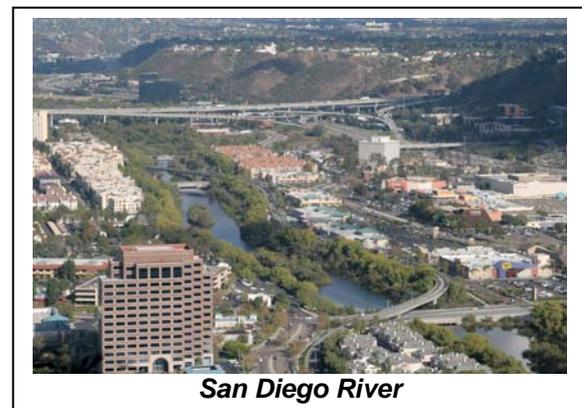
Work Item #18: San Diego River Watershed Management Plan Implementation Project

Implementing Agency

The San Diego River Park Foundation

Project Description

This project will implement high priority actions identified in the San Diego River Watershed Management Plan. Funding will also cover identification of long-term funding strategies and sources to continue the effort beyond the grant period. The project will support the efforts of the IRWMP by coordinating stakeholder groups and their projects, with particular attention to DACs. The project includes data management through a clearinghouse tracking project status and archiving data collected throughout the watershed. An annual “State of the Watershed” report will be used for public education and outreach.



The San Diego River Watershed Management Plan Implementation Project will include the following tasks:

- Engage stakeholders to advance the San Diego River Watershed Management Plan through the forum process identified in the Plan
- Coordinate activities between the River Park Foundation, San Diego River Coalition, the Watershed Urban Runoff Management Plan workgroup, the San Diego River Conservancy, Water Agencies and other interested parties on project development for the purpose of inclusion in the Integrated Regional Water Management Plan
- Conduct targeted stakeholder outreach with particular attention to DACs

Need for the Project

The San Diego River Watershed has an effective community-based advocacy group known as the River Coalition which includes 63 organizations. The Watershed also has a working group formed for the Watershed Urban Runoff Management Plan (WURMP). At this point, the two are not integrated and there is no formal position for water agencies and other interested stakeholders. The Watershed Management

Plan calls for the San Diego River Park Foundation, as the only existing watershed-based entity, to advance this effort. This project will enable this process to proceed and identify long-term funding strategies and sources to continue the effort beyond the grant period. The San Diego River Watershed is the most populous watershed in San Diego County. It is also one of the largest at 440 square miles. Three separate management areas are identified within the Watershed Management Plan based upon the sub-watershed of San Vicente and El Capitan Reservoir and the areas below them which include substantial groundwater resources. This project will increase public involvement in this 440-square mile area with a particular focus on the 7 identified DACs: Bostonia, El Cajon, College Area, Normal Heights, Ocean Beach, Midway, and Old San Diego. This project is greatly needed to include these communities in the planning and project identification process.

Eligibility

The San Diego River Watershed Management Plan Implementation Project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(i), the San Diego River Watershed Management Plan Implementation Project is an eligible project type because it includes watershed management planning and implementation.

Work Tasks

Task 18A. Direct Project Administration

Subtask 18A.1 – Quarterly Progress Reports and Invoices: The executive director will complete quarterly progress reports and invoices. These reports will sufficiently detail the completion of project activities as outlined in the completed grant application. These reports will include a description, for each work item invoiced, of the work completed and/or being invoiced during the current reporting period. All invoices submitted will include line items matching the description of work completed during the quarter and include receipts as verification.

Subtask 18A.2 – Annual and Final Project Report and Invoice: The annual project report will be developed by the executive director and highlight progress and noteworthy accomplishments made during the fiscal year, and work that remains to be completed and/or undertaken the following year, as it relates to the description of work to be completed annually as outlined in the grant application. Information will be obtained primarily from quarterly progress reports and invoices. The final project report will include information derived from each year's annual project report, as well quarterly progress reports.

Task 18B. Land Purchase/Easement

Not applicable

Task 18C. Planning/Design/Engineering/Environmental Documentation

Not applicable

Task 18D. Construction/Implementation

Subtask 18D.1 – Quarterly Watershed-wide Stakeholder Meetings: Stakeholders will be obtained from Project Clean Water and the IRWMP stakeholder lists, provided in Appendix 14, Attachment 2 of the IRWMP, located within the San Diego River Watershed. Through this subtask, a contact database will be established and maintained for the stakeholder group. This subtask will involve regularly informing interested stakeholders of upcoming meetings and developing and disseminating agendas, handouts and meeting minutes for each meeting. This subtask will include securing meeting venues and presenters for each meeting, and ensuring that all equipment, refreshments and other meeting needs have been met.

Subtask 18D.2 – Workshop and Outreach Activities to Identify Local Projects in Seven DACs: This subtask will include the development of a comprehensive list of community groups, elected officials, nonprofit organizations, government entities and businesses to partner in the development of workshops and outreach events and activities within each of the DACs. Working in collaboration, they will develop messages and themes based on feedback from community workshops that will address stereotypes and speak to the unique values and beliefs held in the DACs, as well as identify ways to inform and engage individuals and groups in environmental stewardship within the San Diego River Watershed. The project will also create and maintain a community calendar of events to participate in within each of the DACs. The project will also involve setting up and coordinating events and workshops.

Subtask 18D.3 – Annual State of the Watershed Report and Forum: As part of this subtask, a report will be developed that summarizes the current conditions of and creates a current comprehensive picture of the San Diego River Watershed. The report will address watershed issues detailed in the IRWMP, such as water, habitat protection, stakeholder/community involvement and water resource data collection, management and assessment. Information will be obtained from the project tracking website, data clearinghouse, community workshops, stakeholder forums, and quarterly and annual reports. A forum will be held to present the State of the Watershed Report and to encourage discussion of watershed issues and opportunities amongst stakeholders. This forum will be a public meeting. This subtask will include securing the forum venue, forum planning and noticing.

Subtask 18D.4 – Project Tracking Website: The San Diego River Park Foundation will have a web page dedicated to listing proposed projects for the watershed project list. A comprehensive list of watershed projects will be developed through the stakeholder forum process and the listing posted on the web page. Archival data for each project will be obtained and relevant information will be included in the database. In addition, this subtask will include coordination with grant applicants, citizen-monitoring programs and other watershed stakeholders to gather information about and to track the status projects within the watershed.

Subtask 18D.5 – Ongoing Funding Strategic Plan: Stakeholders, through the forum process, will identify funding resources for projects. A special emphasis will be provided for projects benefiting DACs. Potential funding sources, technical resources and strategies to make these projects funding priorities will be identified in a strategic plan.

Subtask 18D.6 – Advanced Data Clearinghouse: The data management activity will advance existing San Diego River data clearinghouse functions, which the San Diego River Park Foundation currently fulfills, by working with and collecting data citizen-monitoring program and agency stakeholders in regards to water quality, hydrology, habitat restoration and protection, and other monitoring. This information will be posted and updated regularly on the San Diego River Park Foundation's website.

Subtask 18D.7 – Develop and Distribute Water Quality Education Materials: Existing educational materials will be collected from watershed and other partners. Targeted watershed educational materials will be developed. 1000 copies will be printed for distribution at community meetings and an electronic copy will be made available on the website and by electronic distribution.

Task 18E. Environmental Compliance/Mitigation/Enhancement

Not applicable

Task 18F. Construction Administration

Not applicable

Task 18G. Other Costs

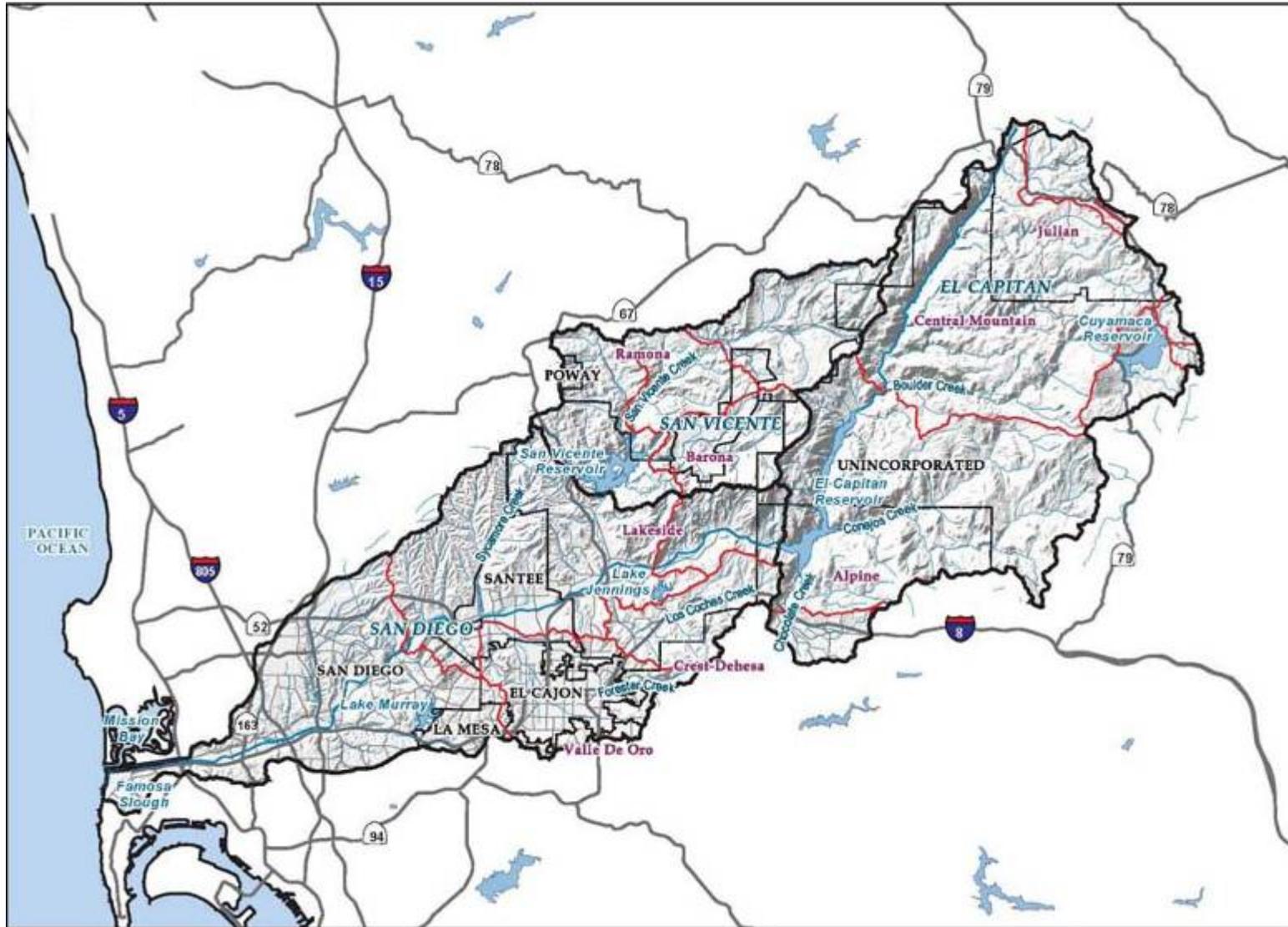
Subtask 18G.1 – Hiring of Contractor(s): The executive director will develop a description of the work items to be completed and will select the best candidate(s) to complete these work items.

Subtask 18G.2 – Preparation of PAEP: This subtask includes development of a PAEP.

Project Maps

Figure 18.1 presents the location of the San Diego River Watershed Management Plan Implementation Project.

Figure 18.1 Location of San Diego River Watershed Management Plan Implementation Project



Project Standards

No specific standards, construction standards, health and safety standards, laboratory analysis, will be needed for the project.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 18G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

No MPs or quality assurance plans will be developed for the project. However, the San Diego River Park Foundation’s RiverWatch volunteers conduct and record monthly water quality monitoring at more than 15 locations within the San Diego River Watershed.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Not applicable

Project Permits

No permits are required for project completion.

Environmental Compliance

No additional environmental compliance is required for project completion.

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 18.1 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 18.1: Project Submittals for the San Diego River Watershed Management Plan Implementation

No.	SUBMITTAL	SCHEDULE
18-1	First Quarter Progress Report and Invoice	October 2008
18-2	Second Quarter Progress Report and Invoice	February 2009
18-3	Third Quarter Progress Report and Invoice	May 2009
18-4	Fourth Quarter Progress Report and Invoice	August 2009
18-5	Fifth Quarter Progress Report and Invoice	October 2009
18-6	Sixth Quarter Progress Report and Invoice	February 2010
18-7	Seventh Quarter Progress Report and Invoice	May 2010
18-8	Eighth Quarter Progress Report and Invoice	August 2010
18-9	Final Project Report and Invoice	August 2010

No.	SUBMITTAL	SCHEDULE
18-10	Hold 1 st Quarterly Watershed-Wide Stakeholder meeting	August/September 2008
18-11	Attendance Sheet, Agenda and Meeting Summary	October 2008 (due with quarterly reports thereafter)
18-12	Workshops to Identify Local Project in DACs	1 st Series: November 2008 2 nd Series: February 2009
18-13	Attendance Sheets, Agendas and Workshop Summaries	Due upon Completion of Workshops
18-14	Community Outreach Conducted Prior to Workshops	Due upon Completion of Workshops
18-15	On-going Outreach with Community Leaders in the Seven DACs	Summary of Correspondence Due with Quarterly Reports
18-16	Annual State of the Watershed Report and Forum	July 2009
18-17	Attendance Sheets, Agenda and Summary from State of the Watershed Forum	August 2009
18-18	1 st Annual State of the Watershed Report	August 2009
18-19	2 nd Annual State of the Watershed Forum	August 2010
18-20	Attendance Sheets, Agenda and Forum Summary	August 2010
18-21	2 nd Annual State of the Watershed Report	August 2010
18-22	Unveiling of Project Tracking Website	December 2008
18-23	Copy of Database from Project Tracking Website	August 2010
18-24	1 st Iteration of Funding Strategic Plan	October 2009
18-25	2 nd Iteration of Funding Strategic Plan	August 2010
18-26	Advance Data Clearinghouse Function	May 2009
18-27	Develop and Distribute Water Quality Educational Materials	May 2009
18-28	Water Quality Data – San Diego River Park Foundation’s RiverWatch Data	Due with Quarterly Reports

Other

Not applicable

Plans & Specifications References

Plans and specifications will not be developed for this project.

Completed Work

No work will be completed before July 2008.

Work Item #19: City of San Diego Green Mall Porous Paving and Infiltration, Phase 1

Implementing Agency

City of San Diego

Project Description

The City of San Diego Green Mall Porous Paving and Infiltration, Phase 1 project will retrofit storm water systems on two commercial & industrial streets in the Chollas Creek sub-watershed of the Pueblo HU (in the City of San Diego), allowing urban runoff and pollutants carried with it to infiltrate into the ground instead of discharging directly to the storm drain system and adjacent waterbodies. Existing asphalt street paving will be replaced with pervious concrete. Existing curbs & gutters will be moved into the street, and bio-retention systems of crushed rock and trees will be installed in the created space. The project will include water quality monitoring and educational outreach.



This project will remove impervious asphalt paving in the Chollas Creek sub-watershed of the Pueblo HU along Dalbergia Street and Thor Street and replace it with pervious concrete paving. In addition, the existing curb and gutter along portions of Dalbergia Street will be moved 12 feet into the street, and bio-retention planter boxes will be filled with crushed rock and trees and placed between existing and new curb lines. Both the porous paving and bio-retention planter boxes will allow urban runoff and the associated pollutants to infiltrate into the ground. The City has named this model approach for LID in commercial and industrial areas a “Green Mall.” Educational outreach to the surrounding community will also be conducted regarding the benefits of the project in preserving and improving the quality of urban runoff and ultimately nearby receiving water bodies. The project will also involve monitoring the water quality of the area before and after implementation.

Implementation of this project will guide the implementation of approximately 72 other infiltration and runoff reduction projects similar in scope (such as porous paving and bio-retention planters in streets and parking lots, rain barrels, etc) that the City’s Storm Water Pollution Prevention Division anticipates in other HUs as part of Municipal Storm Water Permit and TMDL compliance in future fiscal years. These conceptual projects are identified in the City’s draft Strategic Plan for Watershed Activity Implementation.

Need for the Project

This project will help the City determine the effectiveness of porous paving, bio-retention and other infiltration approaches in meeting stringent Municipal Storm Water Permit, TMDL, and area of special biological significance (ASBS) requirements (both present and future). Properly engineered and designed infiltration may prove to be a cost-effective alternative to building costly and land intensive end-of-pipe treatment facilities. By implementing this project (and others of similar scope in other locations), the City can evaluate and fine-tune a cost-effective solution to urban runoff pollution that should be maximized before resorting to more expensive and invasive types of treatment controls.

Eligibility

The City of San Diego Green Mall Porous Paving and Infiltration, Phase 1 is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.*
- (b) Storm water capture, storage, treatment, and management.*
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.*
- (d) Non-point source pollution reduction, management, and monitoring.*
- (e) Groundwater recharge and management projects.*
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.*
- (g) Water banking, exchange, reclamation, and improvement of water quality.*
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.*
- (i) Watershed management planning and implementation.*
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.*

Consistent with Section 79561(b), the City of San Diego Green Mall Porous Paving and Infiltration, Phase 1 project is an eligible project type because it includes storm water capture, storage, treatment, and management.

Work Tasks

Task 19A. Direct Project Administration

Subtask 19A.1 – Project Administration: This subtask will consist of providing all technical and administrative services as needed; reviewing all work performed; and coordinating budgeting and scheduling to assure that the project is implemented within budget, on schedule, and in accordance with approved procedures, applicable laws, and regulations. This subtask will involve completion of quarterly status reports. The status reports will describe activities undertaken and accomplishments of each task during the quarter, milestones achieved, and any problems encountered in the performance of the work.

Task 19B. Land Purchase/Easement

Not applicable.

Task 19C. Planning/Design/Engineering/Environmental Documentation

Subtask 19C.1 – Draft Plan Development: This subtask consists of a completion of a fatal flaw/engineering analysis to determine feasibility of enhancements and whether additional sites should be evaluated. Although “10% Conceptual Design” has been completed, ultimate site feasibility is also dependent upon soils (infiltration capacity) and utilities (potential conflicts). Fatal flaws with factors like these could render the site infeasible. The next step in this subtask would involve development and submittal of 30% Concept Design draft plans for enhancements. This submittal would include all of the details noted in the SWRCB definition of the 30% Design Stage.

Subtask 19C.2 – Final Plan Development: This subtask involves development of final plans and specifications for enhancements and submission for review and acceptance. This submittal would correspond to the SWRCB definition of “90% (Pre-final) Design” and would include all of the details noted in the definition. Once notification to proceed has been obtained, the project will proceed to Final Design and implementation. A right of way permit would also be obtained as part of this subtask.

Task 19D. Construction/Implementation

Subtask 19D.1 – Demolition: This subtask includes demolition of the asphaltic concrete (AC) pavement and base and concrete and gutter. Disposal and hauling activities are also included.

Subtask 19D.2 – Porous Pavement and Enhancements Installation: This subtask includes installation of porous pavement, which includes laying the base and concrete. Portland Concrete Cement (PCC) curb and gutters will also be installed as well as a PCC planter box and planting of a tree in the planter box.

Subtask 19D.3 – Erosion and Traffic Control: This subtask includes activities for erosion and traffic control. The contractor will be required to implement erosion and traffic control measures in order to comply with City of San Diego standards and minimize water quality impacts and traffic hazards.

Subtask 19D.4 – Mobilization: This subtask includes mobilization. This subtask envisions a payment to the contractor to reimburse upfront and one time costs including, but not limited, to items such as insurance, time spent on employee and/or subcontractor coordination, equipment rental, and material purchases. The subtask could include all costs and activities that must be undertaken in order to make sure that construction progresses quickly and efficiently before construction actually begins.

Subtask 19D.5 – Pre- and Post- Implementation Photo Documentation: This subtask will include photographic documentation of the project.

Task 19E. Environmental Compliance/Mitigation/Enhancement

Subtask 19E.1 – MND Addendum Procurement: This subtask will involve securing an addendum to MND 134590.

Task 19F. Construction Administration

Subtask 19F.1 – Construction Administration: This subtask consists of advertising final plans and specifications for bid. Verification of pre-construction contractor requirements will also be performed to ensure that all pre-construction contractor requirements are met, such as review of insurance, bond, Equal Opportunity, and other documentation. After these are met, a notice to proceed will be given to the sub-contractor. Submitted invoices will be reviewed submitted invoices and payment issued. A notice of completion will be given upon satisfactory completion of work

Subtask 19F.2 – Inspection: This subtask includes as-needed inspections of contractor(s) work for compliance with the plans and specifications, Greenbook, and other construction-related standards (e.g. materials selection, materials installation, erosion control, traffic, control, etc.)

Task 19G. Other Costs

Subtask 19G.1 – Preparation of QAPP: This subtask involves preparation and maintenance of a QAPP to guide the monitoring work led by the City of San Diego – Storm Water Pollution Prevention Program. Existing, approved QAPPs will be updated and submitted for review and approval. The QAPPs will include an MP identifying where the sampling will be done, how many samples will be taken, sampling frequency, and target analyses. The QAPPs shall be approved by the RWQCB or SWRCB Quality Assurance officer prior to implementation of any sampling or monitoring activities.

Subtask 19G.2 – Preparation of PAEP: This subtask includes preparation of a PAEP, monitoring and assessment of project implementation, overall project administration, and preparation of quarterly status reports and a final status report. The PAEP will include the following: 1) Identifies one (1) or more nonpoint sources of pollution, 2) Describe the baseline water quality of the water body impacted, 3) Describe the manner in which the proposed practices or measures are implemented; and 4) Determine the effectiveness of the proposed practices or measures in preventing or reducing pollution.

Subtask 19G.3 – Effectiveness Monitoring: The monitoring conducted under this subtask will include baseline and post-project monitoring according to the approved QAPP.

Subtask 19G.4 – Regional Partnering: This will include preparation of Memorandum of Understanding (MOU) between City of San Diego – Storm Water Pollution Prevention Program and project partners, including San Diego Coastkeeper and Groundwork Chollas – San Diego. The MOUs will identify tasks, schedule, deliverables and budget specific to project elements led by staff. Draft MOUs will be submitted to project partners for their review and a final MOU will be produced for signature.

Subtask 19G.5 – Stakeholder Outreach and Education: This will involve five components:

- Outreach activities - Produce a site-targeted outreach work schedule of planned activities and events in collaboration with project partners. Develop a map to identify all land uses adjacent to the project site, and identify the commercial business groups or areas to be targeted for outreach.
- Project Outreach and Education Strategy Development - Draft the Dalbergia and Thorn Water Quality Protection and Habitat Enhancement Project Outreach and Education Strategy. This document will be based on Community Based Social Marketing Principles and will guide the outreach and identify key strategies, messages, and tools.
- Community Based Social Marketing (CBSM) Research and Development - Conduct CBSM research and begin development of protocols to identify potential target behaviors. Conduct survey to identify both potential barriers that prevent businesses from engaging in the desirable behaviors and potential motivations for action. Data from this survey will inform the development of effective outreach messages and approaches.
- Data Gathering - Gather educational research data from target audience, analyze and assess. Based on findings, begin development of effective tools of behavior change (i.e. commitment, prompts, social norms) to incorporate into outreach materials.
- Pilot Education Strategy Implementation - Implement Pilot Education Strategy with recommended tools. All printed materials will be in English, Spanish and a minimum of one (1) additional language that is dominant in the community and reflects the language demographic of the pilot business groups or areas. This includes assessment of the success of the strategy implementation.
- Business Recruitment - Recruit targeted businesses to participate in the Chollas Creek enhancement efforts by adopting pollution prevention practices and passing a storm water BMP audit of their business.

Project Maps

Figure 19.1 presents the location of the City of San Diego Porous Paving and Infiltration Project, Phase 1.

Figure 19.1 Location of City of San Diego Porous Paving and Infiltration Project, Phase 1



Project Standards

The following are a list of the standards that would be met in implementation of this project:

- OSHA – State and Federal
- CEQA Mitigation Requirements, if any (none anticipated)
- City Storm Water Discharge Control Ordinance
- City Construction Noise Ordinance
- City Traffic Control Ordinance
- City Construction and Demolition Debris Disposal Ordinance
- Air Pollution Control District Discharge Requirements
- Greenbook Standard Specifications for Public Works Construction, with Regional and Local Supplements (porous pavement is expected to be added to the Greenbook's 2009 edition)

All applicable and appropriate water quality, building, laboratory analysis, and construction standards have been and will be used in implementing the project. These standards are initially identified in the preliminary design phase, and further documented during final design in the construction plans and specifications. The construction contract documents contain a detailed description of all applicable standards. The specific standards, construction standards, health and safety standards, laboratory analysis, and accepted classifications methods to be used in implementation can be found in the attached contract drawings and specifications.

PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 19G.2) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance reporting.

An MP will be completed to support the effectiveness monitoring conducted in Subtask 19G.3.

A QAPP will be completed in Subtask 19G.1 to ensure that data collected are of adequate quality, will meet the monitoring objectives of the project and will allow integration into statewide monitoring efforts.

Land Acquisition & Rights-of-Way

This project would be located entirely within city right of way. No acquisition would be required.

Project Building Materials or Computational Methods

Porous pavement can refer to porous/pervious concrete or asphalt. In either case, the pavement is made porous by mixing into the asphalt or cement little or no fine aggregate material (i.e., little or no sand in a concrete mixture) and, for concrete, minimizing the amount of water added to the mix. This combination produces a hardened material with connected pores that allow water to pass through. Void space can range from 15% to 40%, with a water transmission rate of up to 18 gallons/minute/ft². The reduction of fine aggregate material reduces the shear strength of the pavement, but sufficient strength for applications such as city streets is readily achieved, particularly when aided by the proposed subgrade.

A number of agencies have installed porous pavements on a “pilot” or trial basis, usually with satisfactory results. When results have been unsuccessful, the problem has typically been traced to improper mixing practices, installation practices, or subgrade preparation. It is anticipated that the use of porous pavement will become common practice in southern California once its use is recognized in the “Greenbook” standard specifications for public works constructions. A proposal to include porous concrete pavement is currently pending before a Greenbook committee and it is anticipated by the author of the proposal that the 2009 edition of the Greenbook will include specifications for porous concrete.

Porous pavement has the potential to become a significant contributor to the City of San Diego’s water quality improvement efforts. Even given the concerns regarding proximity to existing underground utilities and foundations, the sheer acreage of pavement (including parking lots) provides a significant opportunity. This project has the potential to demonstrate the effectiveness of porous pavement to design engineers in the city.

Porous pavement is an infiltration BMP. From a storm water regulation perspective, infiltration has two major advantages over other types of BMPs: 1) it reduces the discharge of all pollutants from the storm drain system to zero (as long as rain events are within the facility’s design size) and 2) it reduces the volume of water discharged from the storm drain system, thereby reducing the amount of runoff that may need to be treated. Infiltration, like certain other BMPs, also reduces peak storm flows to reduce erosion and provides groundwater recharge.

The green mall project proposes infiltration via replacement of standard pavement with porous pavement and via installation of new planter boxes. In both cases, a subgrade with water storage capacity is important. Therefore, the concept plan calls for 18 inches of 3- to 6-inch rock under the planter boxes and 9 inches of crushed aggregate base under the porous pavement.

Project Permits

Table 19.1 displays the necessary permits and status of securing these permits.

Table 19.1: Permitting Requirements for the City of San Diego Porous Paving and Infiltration Project, Phase 1

PERMIT	DATE REQUIRED
Public Right of Way Permit	October 2008

Environmental Compliance

The City’s Development Services Department has prepared MND #134590 to address impacts from the City’s new Jurisdictional, Watershed, and Regional Urban Runoff Management Plans (these plans are in the process of being revised per the City’s new Storm Water NPDES permit, issued in January, 2007). In particular, the MND addresses potential environmental impacts associated with infiltration projects citywide. The MND has been finalized, meaning that the draft MND was distributed to the public to solicit comments and the final version has been distributed to the public with responses to comments provided; however, as of the date of this application, it has not been approved. Approval of the MND is expected to occur in January, 2008, in conjunction with approval of the City’s updated Urban Runoff Management Plans.

The MND describes how subsequent, site-specific infiltration projects such as this one will be processed for CEQA purposes. Specifically, as long as the subsequent projects such as this one comport with certain assumptions in the MND (e.g., surveys undertaken if cultural resource impacts anticipated, no biological resources or hazardous materials present, etc.) addenda to the MND can be used in order to disclose the specific project locations. Given the location of this project site, it is anticipated that an addendum can be prepared without any further studies being required.

Before construction of this project, CEQA review will be conducted by the City, and mitigation measures will be determined and incorporated into the project, if necessary. Proper permits will be attained before construction.

Table 19.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements. Environmental documents are included in Appendix 3 (Disc 2 [DVD]).

Table 19.2: Environmental Compliance Requirements for the City of San Diego Porous Paving and Infiltration Project, Phase 1

PROCESS	SCHEDULE
CEQA Initial Study/MND	January 2008

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 19.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 19.3: Project Submittals for the City of San Diego Porous Paving and Infiltration Project, Phase 1

No.	SUBMITTAL	SCHEDULE
19-1	Quarterly Reports	Quarterly
19-2	Final Site Selection	May 2008
19-3	Draft Plans	June 2008
19-4	Final Plans and Specifications	October 2008
19-5	Public Communications	As needed
19-6	QAPP/PAEP	January 2009
19-7	Monitoring Results	Pre- and Post-construction at frequency and times to be determined in QAPP/PAEP
	Red-Line As-built Drawings (not mylar)	November 2009

Other

Not applicable

Plans & Specifications References

Plans and specifications to be followed during project implementation include:

- Plans and specifications will be developed during Draft Plan and Final Plan development.

Completed Work

Work completed to-date is summarized in Table 19.4 below.

Table 19.4: Work Completed on the City of San Diego Porous Paving and Infiltration Project, Phase 1 as of July, 2008

WORK ELEMENT	COMPLETION DATE
Concept Planning	June 2007
Project Added to City's Capital Improvement Program	May 2007
Solicitation of Design Engineer	Initiated October 1, 2007

Work Item #20: County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge

Implementing Agency

Department of General Services, County of San Diego

Project Description

The County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge project will demonstrate practical implementation of a range of LID practices to reduce runoff from three County facilities in the Chollas Creek sub-watershed of the Pueblo San Diego hydrological unit. These facilities occupy sites that are highly impervious and could be retrofitted with LID components to promote infiltration and reduce runoff. The project will include demonstrations of porous pavements over stone reservoirs, capture/infiltration technologies and landscape elements such as rain gardens and swales. Each site will demonstrate a different combination of technologies and techniques, allowing a comparison of the relative effectiveness of the methods. The project helps to reduce transport of pollutants to Chollas Creek, which is listed as impaired by copper, lead, and zinc and is the subject of a TMDL currently proposed for approval by the RWQCB.



Dodson House/Work Furlough

The County Department of General Services (DGS) will be responsible for project implementation, which will involve design and construction of BMPs consisting of either porous pavement, concrete detention/infiltration vaults, or vegetative systems at each of the three sites. The County facilities that have been identified for the project are the Central Regional Public Health facility (0.5 acres), the Comprehensive Health Care Center (1.8 acres) and the Dodson House/Work Furlough Building (2.9 acres). Since each of the properties contains significantly sized impervious parking lots, there is an opportunity to use what has been learned to date about porous pavements in the previously completed Porous Pavement and Model Municipal Operations Demonstration Project. Removal and replacement of 14,000 square feet of existing impervious pavement with porous pavement and a stone reservoir will be performed at the Central Regional Public Health Facility to capture runoff from the parking lot. Design and construction at the Comprehensive Health Care Center and the Dodson House/Work Furlough Building will involve a manufactured stormwater capture detention/infiltration system and vegetated LID measures respectively. Once in place, these have the potential of capturing a total drainage area of 230,000 square feet. By capturing rainfall, runoff from impervious surfaces at the facilities is decreased. Likewise, the transport of pollutants such as copper, lead, and zinc (present on these surfaces due to atmospheric deposition) to the storm drains and ultimately to Chollas Creek will also be reduced. With an average annual rainfall of only about 10 inches per year, another potential benefit of the project is rainfall capture and reuse.

The utility of porous pavements in protecting surface water quality and promoting infiltration in the urban environment has been demonstrated to DGS project managers, architects and engineers under contract to the County, MS4 Copermittees and environmental organizations in the San Diego River Watershed. The County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project will demonstrate practical implementation of a range of LID practices in a watershed that has been identified as impaired by three metals that are transported to the Chollas Creek and Chollas Creek mouth by urban runoff. It will have a direct impact on water quality by reducing the runoff from three highly impervious sites within the watershed and serve as a series of demonstrations for the owners of other highly impervious properties of how to reduce runoff from these sites.

Need for the Project

Research by the Center for Watershed Protection has demonstrated the importance of imperviousness as an indicator by which to measure the impact of land development on water quality. Research on how to

control both the quantity and quality of stormwater discharges from impervious surfaces led DGS to consider the installation of porous pavement that would increase infiltration, thereby reducing excess runoff associated with surface parking and highly impervious corporation yards. Temporary storage of stormwater within the porous pavement and underlying stone reservoir will allow the water to infiltrate into the soil after a storm event. Implementation of this approach to parking lot design could reduce discharges from DGS facilities and, if implemented widely, help to bring runoff levels within developed watersheds closer to natural levels.

The San Diego RWQCB emphasized the importance of imperviousness in Order 2001-01 by including the following finding number 5:

Water Quality Degradation Increases with Percent Imperviousness: The increased volume and velocity of runoff from developed urban areas greatly accelerates the erosion of downstream channels. Numerous studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving water quality. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. (Developments of medium density single family homes range between 25 to 60% impervious.) Today “% impervious coverage” is believed to be a reliable indicator and predictor of the water quality degradation expected from planned new development.

The RWQCB reiterated the importance of imperviousness and controlling urban runoff in its recently adopted Order No. R9-2007-000, which is the new San Diego Municipal Separate Storm Sewer System (MS4) permit. The new permit contains new or modified requirements that have been deemed necessary to improve efforts to reduce the discharge of pollutants in urban runoff. The permit specifies that “Controlling urban runoff pollution by using a combination of onsite source control and Low Impact Development (LID) BMPs augmented with treatment control BMPs before the runoff enters the MS4 is important...” It goes on to state, “use of LID BMPs at new development projects can be an effective means for minimizing the impact of urban runoff discharges from the development projects on receiving waters.” The same principal applies to redevelopment of already built-up areas such as the Chollas Creek Watershed.

There is also a need to build upon the results of the Porous Pavement & Model Municipal Operations Center Project to create an expanded demonstration of the opportunity to use porous pavements and other LID techniques to reduce urban runoff, increase replenishment of groundwater resources, and improve water quality. This project will support expected long-term regional water management needs by helping to reduce the rate of increase in imperviousness of the Chollas Creek Watershed and eventually other County watersheds and may result in reductions in imperviousness through re-development using porous paving and other LID techniques. This will help to reduce urban runoff, reduce impacts of peak flow runoff to creeks, increase replenishment of groundwater resources, and improve water quality. This will, in turn, improve downstream receiving waters, including source waters for domestic water reservoirs.

If such a project is not implemented to promote the installation of porous pavements to reduce runoff and to promote treatment of runoff that does occur, it will be necessary to buy more and more land to protect source water areas to protect water quality in domestic water reservoirs. It will also be necessary to import more water if urban runoff losses continue to increase because of increases in impervious areas within the County’s coastal watersheds.

Eligibility

The County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge project is eligible to receive funding from Proposition 50, Chapter 8, under California Water Code Section 79561. Section 79561 reads:

79561. Money appropriated in Section 79560 shall be available for grants for water management projects that include one or more of the following elements:

- (a) Programs for water supply reliability, water conservation, and water use efficiency.
- (b) Storm water capture, storage, treatment, and management.
- (c) Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands.
- (d) Non-point source pollution reduction, management, and monitoring.
- (e) Groundwater recharge and management projects.
- (f) Contaminant and salt removal through reclamation, desalting, and other treatment technologies.
- (g) Water banking, exchange, reclamation, and improvement of water quality.
- (h) Planning and implementation of multipurpose flood control programs that protect property; and improve water quality, storm water capture and percolation; and protect or improve wildlife habitat.
- (i) Watershed management planning and implementation.
- (j) Demonstration projects to develop new drinking water treatment and distribution methods.

Consistent with Section 79561(b), the County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge project is an eligible project type because it includes storm water capture, storage, treatment, and management.

Work Tasks

Task 20A. Direct Project Administration

Subtask 20A.1 – Project Administration:

This subtask includes the preparation of quarterly status and progress reports that include descriptive narrative, illustrations and graphics of events and completed tasks year to date to the grant manager; the preparation and submittal of grant invoices; the monitoring of budget expenditures; the preparation of meeting notices, agendas, sign-up sheets and the meeting handouts for the grant stakeholder/advisory group.

Subtask 20A.2 – Preparation of Reports: This subtask includes the preparation of the draft and final reports, as well as review and approval of the PAEP, the QAPP/MP and the Effectiveness Monitoring Report.

Subtask 20A.3 – Outreach:

This subtask includes staff time for the preparation of an outreach program, schedule and associated presentation materials and documents. It also includes administrative coordination and oversight of the outreach program and preparation of various power point presentations to target audiences within the watershed and elsewhere.

Task 20B. Land Purchase/Easement

Not applicable

Task 20C. Planning/Design/Engineering/Environmental Documentation

Subtask 20C.1 – Technical Expert Assistance and Review:

This subtask includes employing the services of Richard Watson & Associates, Inc. (RWA) to provide technical advice, oversight, and coordination of the design and implementation of the porous pavement, capture and infiltration, and bioretention/biofiltration/infiltration components of the project. It also involves RWA providing outreach services to various stakeholder and public/private groups within the Region.

Subtask 20C.2 – Design: This subtask involves design of the porous pavement/stone reservoir project at the Central Regional Public Health facility, the parking lot stormwater capture and infiltration project at the

Comprehensive Health Care Center, and the Bioretention/biofiltration/infiltration measures at the Dodson House/Work Furlough.

Porous Pavement Design –Central Regional Public Health

Implementation at the Central Regional Public Health facility will include the design and plan for: the grinding, hauling and recycling of 14,000 square feet of existing asphalt surface; the removal, hauling and disposal of 525 cubic yards of existing soil; the removal and replacement of existing concrete driveway using standard concrete; installation of a reservoir bed of 8 - 12 inches in depth, backfilled with 2 inch crushed aggregate so as to provide 40% void space. The bed will be lined with a geo-fabric to prevent silt from backing into the bed. The new pavement surface design will consider using standard open grade or modified polymer asphalt mixes including:

- ½" Open Graded PG 60-10 (Cal Trans Standard)
- ½" Maximum Open Graded PG 70-10
- ½" Open Graded PG76-22TR (Rubberized polymer)

Design will include berms where necessary to prevent stormwater from entering or exiting the area of work for monitoring purposes.

Capture/Infiltration BMP Units - Comprehensive Health Care Center

Implementation at the Comprehensive Health Care Center includes design of the capture and infiltration project in two parking lots at the Comprehensive Health Care Center. It consists of sizing of the CONTECH CON/STORM concrete detention/infiltration vaults or equivalent units to be installed under two parking lots. It will also include locating and sizing catch basins and piping to carry stormwater to the detention/infiltration vaults, the design of any berms necessary to direct flows or keep sediment from flowing into the vaults, and the necessary pre-treatment devices to reduce the discharge of trash and debris into the detention/infiltration vaults.

Bio-Infiltration/filtration Units - Dodson House/Work Furlough

The design of vegetative LID bioretention/biofiltration/infiltration measures will be conducted for the Dodson House. It includes the design of three bioswales and two rain gardens, including landscape design for the rain gardens and hydroseed specifications for the bioswales. It also includes design of modifications to portions of the existing storm drain system and design of concrete swales and energy dissipaters to direct stormwater and irrigation return flows to the rain gardens and swales.

Subtask 20C.3 – Monitoring:

This subtask includes the design and implementation of a rainfall and flow monitoring program by Kinetic Laboratories to assess the initial operation of the project components and to provide initial estimates of pollutant reduction. DGS plans to propose an expansion and continuation of this monitoring program as part of a Proposition 84 grant application in order to gain more information about the performance of the project components, including better information on pollutant removal.

Subtask 20C.4 – Preparation and Awarding of Contracts:

This subtask includes the preparation and awarding of contract documents, task orders and scopes of work as well as the negotiation of fees for the necessary technical consultants, contractors and vendors necessary to successfully implement the grant.

Subtask 20C.5 – Staff Design Review:

This subtask includes the staff review, modification and approval of draft and final design and construction plans for the installation of porous pavement, capture and filtration structural units and the bio-retention/bio-infiltration/bio-filtration areas.

Task 20D. Construction/Implementation

Subtask 20D.1 – Mobilization, Site Security, BMPs and Surveying

This subtask includes field surveying of each site to provide current and accurate information upon which to base designs, post-construction surveys for the completion of as-built plans, mobilization of contractors

at each construction site, installation of site security fencing and other security measures, as required, and the installation and maintenance of construction site BMPs to protect downstream water quality.

Subtask 20D.2 – Demolition, Excavation, Hauling and Disposal:

This subtask is focused on preparing the three sites for installation of the project components planned for each site. It includes demolition of existing surface materials including traditional impervious pavements, excavations necessary to construct project components and the hauling and off-site disposal of these materials, and rough grading and finish grading where required.

Subtask 20D.3 – Installation of LIDs; Infiltration Vaults, Catch Basins and Piping:

This subtask includes modification of parts of the existing storm drain system and construction of concrete swales and energy dissipaters to direct discharge flows to the swales and rain gardens to be constructed at the Dodson House, as well as rain garden landscaping and bio-swale hydro-seeding at the Dodson House. In addition, it includes installation of catch basins, pre-treatment facilities, and storage/infiltration vaults in two parking lots at the Comprehensive Health Care Center and piping at all three facilities

Subtask 20D.4 – Backfilling and Patching

This subtask includes the installation of a geo-textile and backfill of 12 inches of crushed 1-1/2-inch aggregate and 1 inch of crushed 1-inch aggregate to form the reservoir beneath the porous pavement installation at the Central Regional Public Health facility as well as the installation to two feet of aggregate base to promote infiltration of water temporarily stored in the CON/STORM concrete detention vaults to be installed under two parking lots at the Comprehensive Health Care Center. It also includes asphalt patching and re-striping after installation of catch basins, pre-treatment facilities, CON/STORM vaults, and piping at the Comprehensive Health Care Center parking lots.

Subtask 20D.5 Install Pavements and Berms:

This subtask includes installation of porous asphalt, a concrete apron, and asphalt berms to protect the porous asphalt from siltation from run-on from an adjacent property and discharge from adjacent planters at the Central Public Health facility. It also includes the construction of asphalt berms at the Comprehensive Health Care Center to direct flows to catch basins and prevent run-on from adjacent properties and planters

Task 20E. Environmental Compliance/Mitigation/Enhancement

Subtask 20E.1 – Prepare and Certify CEQA Requirements:

This subtask includes staff time to make several threshold inquiries into CEQA to determine the impact of the proposed projects and the appropriate environmental document. A determination will be made that the proposed project 1) is either not subject to environmental review; 2) is statutorily and categorically exempt; or 3) must prepare an initial study and eventually a Negative Declaration(ND) or Environmental Impact Report. The required CEQA document and findings will be adopted by the appropriate County decision-making body.

Task 20F. Construction Administration

Subtask 20F.1 – Preparation and Awarding of Construction Contracts:

This subtask includes the preparation of bid packages by DGS staff with scopes of work and detailed drawings, responses to Requests For Information (RFI), bid review and recommendation for award.

Subtask 20F.2 – On-Site Construction Management:

This subtask includes management oversight of construction, resolution of construction issues, product verification, drawing clarifications and coordination of work.

Subtask 20F.3 – Inspections:

This subtask includes on-site construction inspection for code compliance, health and safety, BMPs, and verification that construction is consistent with plans.

Subtask 20F.4 – Meetings:

This subtask includes all meetings during pre-construction and construction activities. Meetings with contractors, manufacturers, facility employees and management staff

Task 20G. Other Costs**Subtask 20G.1 – Preparation of PAEP:**

This subtask involves the preparation of a PAEP at the initiation of the project to summarize how project performance will be assessed, evaluated, and reported. Preparation of the PAEP will be consistent with SWRCB Guidance for preparing such plans.

Subtask 20G.2 – Preparation of QAPP and MP:

This project will affect water quality and as such is required to include a monitoring component that allows the integration of data into statewide monitoring efforts such as the SWAMP and Groundwater Ambient Monitoring and Assessment (GAMA) programs. Therefore a combined MP and QAPP will be prepared to provide a monitoring component to help assess the effectiveness of the project in reducing urban runoff and the transport of constituents of concern to Chollas Creek and San Diego Bay.

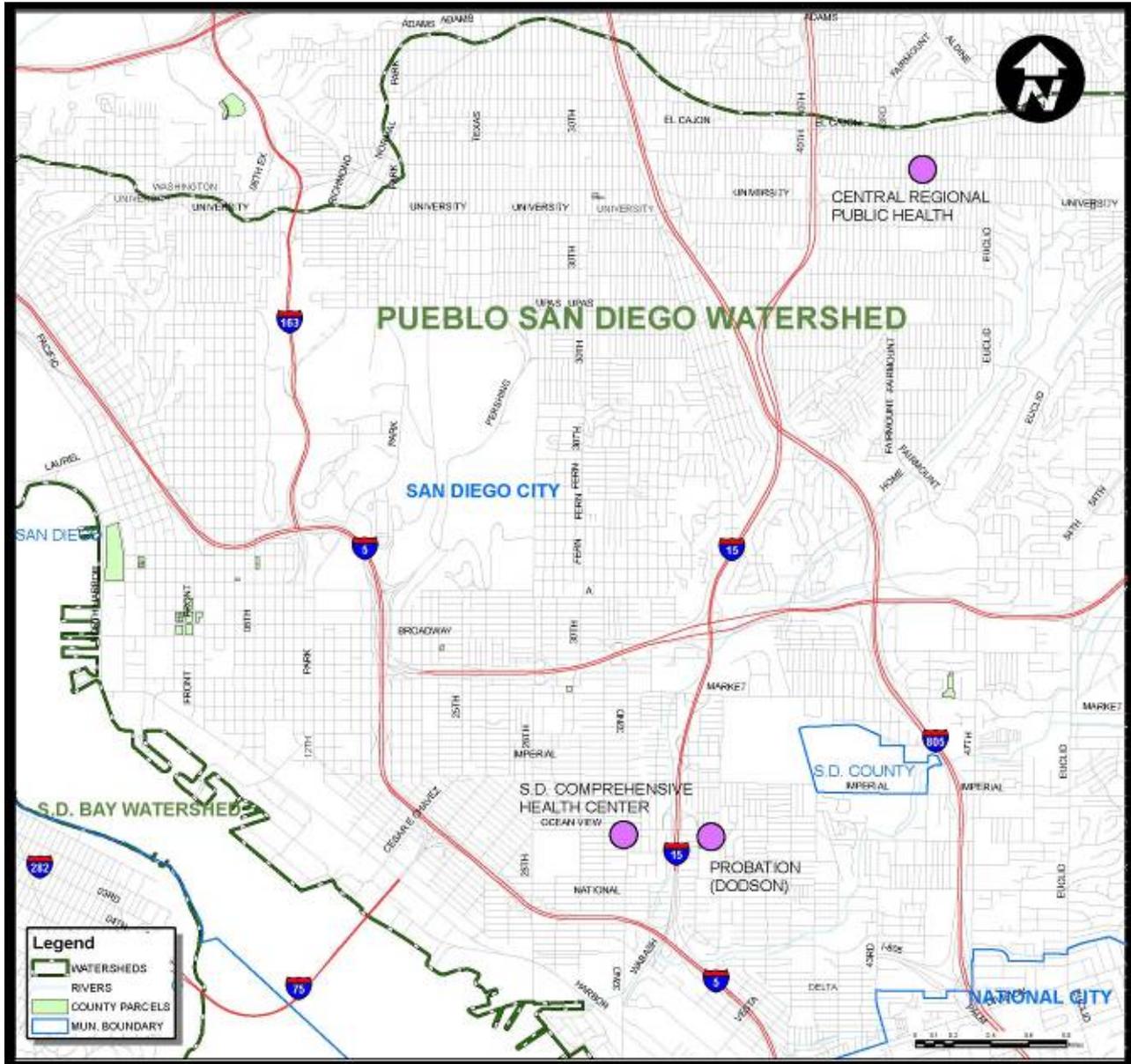
Subtask 20G.3 -- Effectiveness Monitoring

This subtask involves implementation of the Effectiveness Evaluation component of the PAEP to be prepared for the project. It will include measurements to be performed to evaluate the effectiveness of the project. It will include input indicators and output indicators, and use flow data provided by the monitoring program to calculate flow reduction and estimate load and concentration reductions for the constituents of concern.

Project Maps

Figure 20.1 presents the location of the County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project.

Figure 20.1 Location of the County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project



PAEPs, MPs, and QAPPs

A PAEP will be developed (Subtask 20G.1) which will provide a framework for assessment and evaluation of project performance, identify measures that can be used to monitor progress towards achieving project goals, and provide a tool to monitor and measure project progress and guide final project performance.

Project Standards

Contractors will be subject to the County's General Conditions for contracted construction, which includes a range of provisions, including:

- Standards for protection of person and property (11.1)
- Compliance with laws (11.2.2)
- Safety and protection (11.2.3)
- Hazardous materials or equipment (11.2.4)
- Accident prevention (11.2.6)
- Overloaded construction (11.2.7)
- Emergencies (11.3)
- Security requirements (11.4)

The General Conditions also include detailed provisions for Water Pollution Control (11.5), including the following:

- Water pollution control work shall conform to the provisions and requirements contained in the California Stormwater Quality Association (CASQA) manuals. (11.5.1.A)
- The Contractor shall know and fully comply with the applicable provisions of the Manuals and Federal, State, and local regulations. (11.5.1.B)
- The Contractor shall notify the Project Manager immediately upon request from the regulatory agencies to enter, inspect, sample, monitor or otherwise access the project site or the Contractor's records pertaining to water pollution control work. (11.5.1.D)
- The Water Pollution Control Training standard (11.5.2) specifies: The Contractor's management and supervisory personnel along with workers involved with the placement and maintenance of storm water pollution prevention "BMPs" shall be trained on general storm water pollution control requirements consistent with the "CASQA" Storm Water Manuals. The amount of training provided should be commensurate with the job performed by the employee.
- Materials shall conform to the specifications and details in the CASQA Stormwater BMP Handbooks.

Land Acquisition & Rights-of-Way

Not applicable

Project Building Materials or Computational Methods

Constructing a parking lot using open-graded porous asphalt facilitates infiltration of rainfall or irrigation overspray through the porous pavement. The effective capacity of a porous pavement installation is enhanced through the construction of a stone reservoir beneath the porous pavement. Inclusion of a stone reservoir permits the temporary storage of water and increases total infiltration even at sites with relatively poor infiltration rates. The porous pavement parking lot constructed as part of this project will include a stone reservoir. The parking surface will be prepared using an open-graded asphalt consistent with California Standard Specifications. Selection of the specific grade and potential additives will be determined during final design in order to take advantage of what has been and will be learned about porous pavements installed at the County Operations Center and Flynn Springs Park, as well as research conducted elsewhere between new and final design of the porous pavement installation. Tentatively, DGS is considering the following open-graded asphalt mixes: PG 58-34, PG 64-10, PG 70-10, and PG 76-22. Various additives will be considered, depending on cost and availability at the time of construction.

This project will also include a capture and infiltration alternative to porous pavement that might be desirable and cost-competitive for new and for retrofitting existing parking lots constructed of conventional asphalt or concrete. This alternative consists of a CON/STORM Concrete Detention System over a cast-in-place foundation and a porous stone reservoir to facilitate temporary storage and infiltration of discharges from the parking lot. This structure will be preceded by a pre-treatment device to remove gross pollutants in order to protect the capacity of the CON/STORM vault and to reduce the need for confined entry maintenance of the system. DGS proposes to install two of these systems to gain a better understanding of their operation as well as construction costs, and maintenance costs and issues to better demonstrate their use as a method of reducing urban runoff, especially in a retrofit situation.

Project Permits

Table 20.1 displays the necessary permits and status of securing these permits.

Table 20.1: Permitting Requirements for the County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project

PERMIT	DATE REQUIRED
NPDES General Construction Permit Coverage	April 2009

Environmental Compliance

A major task of the proposed project is to determine and assure compliance with CEQA. In order to make this determination, the project team in association with environmental experts will make several threshold inquiries into CEQA. The first set of inquiries will be whether the installation and construction of porous pavement at the two designated County facilities constitute a “project” under CEQA requiring “approval” by a public agency. If that is determined to be the case, the second set of inquiries will address whether the “project” is exempt from CEQA, either by statute or by the State’s list of categorical exemptions. A CEQA determination will then be made that the proposed project 1) is either not subject to environmental review; 2) is statutorily and categorically exempt; or 3) must prepare an initial study and eventually a negative declaration or environmental impact report, must be made prior to project construction or any associated construction activities that result in land disturbance. The required CEQA document and findings will be adopted by the County Board of Supervisors or applicable decision-making body.

Table 20.2 displays the status of preparation and completion of applicable CEQA, NEPA, and other environmental compliance requirements.

Table 20.2: Environmental Compliance Requirements for the County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project

PROCESS	SCHEDULE
CEQA Compliance/Environmental Assessment	October 2008

Groundwater Management Plan Work Items

Not applicable

Project Submittals

Table 20.3 displays the anticipated schedule of submittals to granting agencies for assessing progress and accomplishments (quarterly and final reports).

Table 20.3: Project Submittals for the County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project

No.	SUBMITTAL	SCHEDULE
20-1	Semi-Annual Technical Progress Reports	January 2009 & semi-annually thereafter
20-2	Project Assessment & Evaluation Plan (PAEP)	November 2008
20-3	MP	June 2009
20-4	QAPP	June 2009
20-5	Effectiveness Monitoring	October 2010 and December 2010
20-6	Draft & Final Report	October 2010 and December 2010

Other

Not applicable

Plans & Specifications References

Plans and specifications to be followed during project implementation include:

- Plans and specifications will be developed during the design phase of the project.

Completed Work

Work completed to date is summarized in the table below.

Table 20.4: Work Completed on the County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Project as of July, 2008

WORK ELEMENT	COMPLETION DATE
CEQA Compliance	October 2008

Appendix 3: Documents Supporting Work Plan

Documents Supporting the Work Plan:

Documents supporting the Work Plan have been provided on Disc 2 (DVD).

